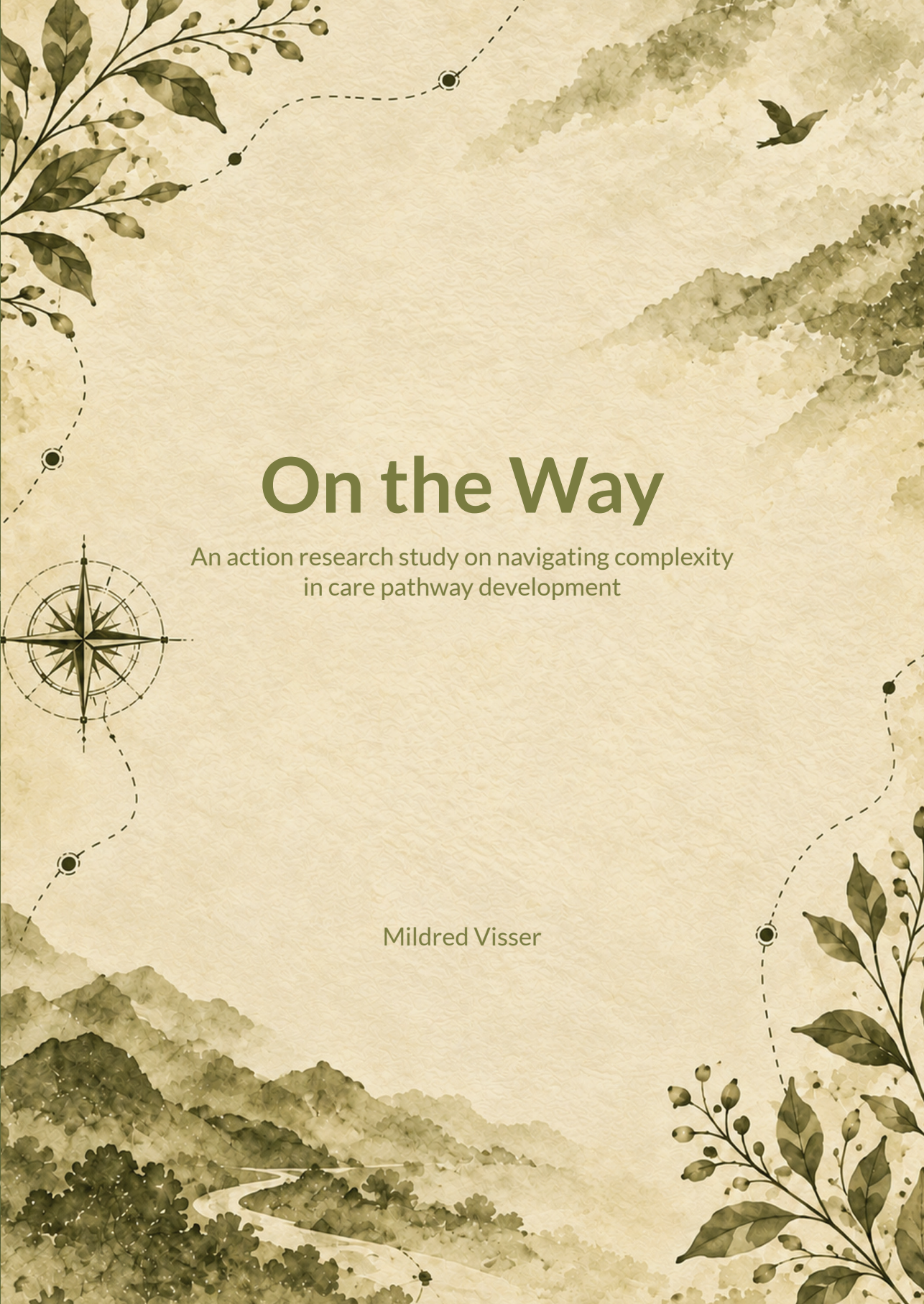


On the Way

An action research study on navigating complexity in care pathway development

Mildred Visser

STELLINGEN BIJ PROEFSCHRIFT

On the Way:
an action research study on navigating complexity in care pathway development

1. Complexiteit is geen belemmering voor de ontwikkeling van zorgpaden, maar onlosmakelijk verweven met het proces zelf. (*dit proefschrift*)
2. Gedragen kwaliteitsverbetering in zorgpadontwikkeling vraagt om het verdragen en benutten van de 'messy middle': periodes van interpretatie, onderhandeling en heroverweging. (*dit proefschrift*)
3. Professionele weerstand tegen zorgpaden zegt meer over onderliggende waarden en belangen dan over individueel gebrek aan veranderbereidheid. (*dit proefschrift*)
4. Reflectieve en adaptieve cycli in zorgpadontwikkeling zijn effectief wanneer ze gelijktijdig op programmaniveau en teamniveau plaatsvinden. (*dit proefschrift*)
5. Een actieonderzoeker balanceert voortdurend op de evenwichtsbalk van betrokkenheid en academische afstand. (*dit proefschrift*)
6. Zonder psychologische veiligheid degenereren reflectiemomenten tot een ritueel zonder inhoud. (*gebaseerd op Edmondson, 2019*)
7. Reflectief-adaptief werken onderscheidt zich van Agile doordat het stuurt op diepgang van leren in plaats van snelheid van oplevering. (*gebaseerd op Argyris, 1991; Auqui-Caceres et al., 2023*)
8. De meest waardevolle leiderschapskwaliteit in complexe organisaties is de moed om te vertragen en adaptief te werken. (*gebaseerd op Heifetz, Linsky & Grashow, 2009*)
9. Relevante wetenschappelijke kennis ontstaat in coproductie tussen onderzoekers en zorgpraktijk, mits onderzoekers lang genoeg blijven om te zien wat er werkelijk verandert. (*gebaseerd op Coghlan & Shani, 2018*)
10. De wetenschappelijke geloofwaardigheid van actieonderzoek wordt ondermijnd doordat de term wordt toegepast op initiatieven die niet aan de methodologische eisen voldoen. (*gebaseerd op Coghlan & Shani, 2018; Bradbury, 2015*)
11. Promoveren is vertrekken zonder te weten waarheen en leren vertrouwen dat de weg zich ontvouwt. (*geïnspireerd door Psalm 121:8*)

On the Way

An action research study on navigating complexity
in care pathway development

Mildred Visser

Tout est grâce

(*Theresia van Lisieux*)

Leren zien en vertrouwen: niet alles uit eigen kracht

Voor Oom Wim


N
W
E
S



Copyright 2026 © Mildred Visser

All rights reserved. No parts of this thesis may be reproduced,
stored in a retrieval system or transmitted in any form or
by any means without permission of the author.

ISBN/EAN: 978-94-6534-699-1

Cover design, thema designs:	Sem Abee
Layout, Graphic Design & Art Director:	Ramon Casparie
Printing:	Proefschriftmaken.nl

ON THE WAY

An action research study on navigating complexity in care pathway development

BLIJVEND ONDERWEG

Een actieonderzoek naar het navigeren van complexiteit in zorgpadontwikkeling

Thesis

to obtain the degree of Doctor from
Erasmus University Rotterdam
by command of the
rector magnificus

Prof.dr.ir. A.J. Schuit

and in accordance with the decision of the Doctorate Board.
The public defence shall be held on

Monday 16 November 2026 at 13:00 hrs
by

Mildred Visser
born in Tiel, the Netherlands.

Erasmus University Rotterdam

DOCTORAL COMMITTEE

Promoter:	Prof.dr.ir. C.T.B. Ahaus Prof.dr. J.W.M. Weggelaar - Jansen
Co-promoter:	Dr. M. de Mul
Assessment committee:	Prof.dr. I.N. Fabbricotti Prof.dr. D.P. Zandee Prof.dr. J. Hellings

Table of contents

Chapter 1	General introduction	11
Chapter 2	Action research as a methodology for adaptive care pathway development in a dynamic organisational context	35
Chapter 3	Boundary work in value-based quality improvement: a qualitative multiple case study of multidisciplinary teams	69
Chapter 4	The perspectives of healthcare professionals and managers on patient involvement in care pathway development: a discourse analysis	103
Chapter 5	Navigating value complexity in care pathway development: a qualitative case study	125
Chapter 6	General discussion	159
	Summary	189
	Samenvatting	195
	Dankwoord	201
	Declarations	205
	PhD portfolio	207
	About the author	211





Chapter 1

General introduction

1.1 On a personal note

When I first entered the medical rehabilitation hospital that would later become the setting of this research, what struck me most was the way care was organised. Professionals from different disciplines, i.e., rehabilitation physiatrists, physical therapists, speech therapists, worked closely together, routinely aligning perspectives and sharing responsibility for patients' progress. This atmosphere of openness and easy interaction is not self-evident in many healthcare settings, and it shaped my early expectation that developing care pathways in this environment might unfold relatively smoothly. Over time, I learned that what I had observed was in fact a distinguishing feature of rehabilitation medicine: intervention programmes are coordinated through a multidisciplinary, iterative problem-solving process [1], which helps explain why joint decision-making and day-to-day coordination felt so natural in this setting. The low-threshold culture of the organisation left a lasting impression, sparking my curiosity about how such an environment might support new forms of innovation, particularly in the development of hybrid and value-based care pathways.

The medical rehabilitation hospital initiated a value-based healthcare programme to develop care pathways for multiple patient groups. The ambition was to develop hybrid care pathways, combining face-to-face care with digital elements such as teleconsultations and self-management tools [2–5], while simultaneously moving towards value-based healthcare with a stronger focus on outcome monitoring [6–9]. My role was to develop and execute this programme and, at the same time, to study it as part of an action research [10–12]. This double position, both managing the programme and conducting research, placed me at the centre of the organisational dynamics that unfolded as multidisciplinary teams began to develop their care pathways and sparked the questions that this dissertation seeks to address.

1.2 Care pathway development and value-based healthcare: evolution and challenges

Health systems across the globe, including in the Netherlands, are facing the challenge of delivering high-quality care under conditions of increasing pressure: ageing populations, increasing multimorbidity, rapid digitalisation, growing financial constraints, and concerns about workforce shortages as well as accessibility and equity [13–17]. These developments have triggered continuous efforts to redesign care delivery and to strengthen mechanisms for quality improvement. Two developments are particularly relevant in this context: the long-standing tradition of care pathway development and the rise of value-based healthcare.

1.2.1 Care pathway development: evolution and methods

Care pathway development has its roots in the early 2000s, particularly at Leuven University, where the Belgian Network Clinical Pathways (Netwerk Klinische Paden) was launched to support the design, implementation, and evaluation of pathways within healthcare organisations [18]. In 2007, Vanhaecht [19 p.137] proposed a widely cited care pathway definition:

> *"a care pathway is a complex intervention for the mutual decision making and organisation of care processes for a well-defined group of patients during a well-defined period." [19 p.137]*

Over the years, care pathways have come to serve several objectives simultaneously, including embedding evidence-based practices, enhancing patient experience, improving efficiency through standardisation and process optimisation, and ultimately improving team functioning and achieving better patient outcomes [20–22]. Literature shows that care pathway effectiveness is associated with reduced complication rates, length of stay and healthcare costs and, in some settings, to improved documentation quality, teamwork and coordination [23–26].

Widely used care pathway development methods, such as Vanhaecht et al.'s seven-phase method [27,28] and Lodewijckx et al.'s eight-step method [29], have provided important and widely adopted guidance for care pathway development. Developed by the Leuven University in the early 2000s, these methods reflect a shared quality improvement tradition that emphasised structured, linear development processes. These methods emerged during a period characterised by a strong emphasis on rationalisation, standardisation of healthcare processes and managerial accountability, reflected in the growing influence of evidence-based medicine, implementation science and New Public Management in healthcare systems [30–35]. Within this context, care pathway development was predominantly conceptualised as a phased and largely rational process in which predefined objectives, planned interventions and measurable outcomes provided the primary organising logic.

However, their application in practice has revealed limitations, particularly in supporting teams to navigate the dynamic organisational contexts in which care pathways are developed, where clinical, managerial, and change-related considerations must be balanced [20,36–38]. Clinicians report that care pathways can be perceived as prescriptive, with adherence as limiting autonomy and the discretionary space needed to tailor care to individual patients [39–42]. From this perspective, standardisation through care pathways is sometimes framed as 'cookbook medicine', reflecting concerns that formalised pathways may insufficiently accommodate clinical judgement and contextual variation [39–41,43,44].

These limitations suggest that care pathways cannot be understood as the outcome of a linear design process but as evolving socio-technical arrangements. Gartner et al. [20] proposed a revised definition that more explicitly reflects patient-centredness, the full continuum of the patient journey and the systemic approach needed to account for navigating complexity:

> *"A patient-centred care pathway is a long-term and complex managerial intervention adopting a systemic approach, for a well-defined group of patients who journey across the entire continuum of care, from prevention and screening to recovery or palliative care." [20 p.18]*

While earlier care pathway development methods already recognised care pathways as complex interventions, Gartner et al. [20] make this systemic orientation more explicit by conceptualising care pathways as long-term managerial interventions and by foregrounding the organisational and social dynamics through which they develop in practice. In this context, a systemic approach conceptualises care pathways not as interventions implemented in a linear sequence but as evolving socio-technical arrangements embedded in complex adaptive healthcare systems [38,45,46]. Therefore, care pathway development is a continuous process shaped by interactions between clinical practices, organisational structures, professional roles, technologies and stakeholder values [38,46,47].

This perspective aligns with complexity-informed health services research, which emphasises that development unfolds under conditions of uncertainty, non-linearity and interdependence [31,45–50]. It also provides a foundation for studying how care pathway development is shaped in practice by contextual dynamics, social interactions and competing values [31,45–48,50].

1.2.2 Value-based healthcare: origins and Dutch context

As care pathway development matured into a systemic, long-term endeavour, its trajectory began to intersect more explicitly with a broader reform movement in healthcare. Although value-based healthcare was introduced by Porter and Teisberg in 2006, it has gained substantial traction over the past decade, becoming a leading paradigm in healthcare policy, research and practice as a response to rising costs and the need to focus on outcomes that matter most to patients [8,9,51,52]. Value-based healthcare defines value as outcomes achieved relative to costs and positions this ratio as the ultimate goal of healthcare delivery [8,53]. In their value agenda, Porter and Teisberg suggested a restructuring of care delivery through integrated practice units, in which multidisciplinary teams take responsibility for the full cycle of care for a given condition [9]. Organising care in this way enables teams to provide routine services efficiently while freeing up capacity for personalised care [54]. Value-based healthcare has stimulated initiatives to organise care around the patient's needs, thereby increasing value [6,55,56]. However, both research and practice have highlighted limitations of this value agenda [7,51,52,54,57–60], leading to refinements that emphasise value-based quality improvement and the embedding of outcome monitoring and continuous learning within everyday practice [6,51,52,55].

In the Dutch context, value-based healthcare has developed specific emphases. National programmes such as 'Uitkomstgerichte Zorg' encourage the use of outcome measures, shared decision-making, and collaboration across care chains [61]. Since 2020, shared decision-making has been mandated by law, and the 'Integraal Zorgakkoord' has further established value-based healthcare as a central policy framework [62,63]. More recently, the 'Aanvullend Zorg- en Welzijnsakkoord' (AZWA, 2025) has extended this framework by strengthening collaboration between the medical and social domain [64]. Together, these developments place particular emphasis on patient involvement, outcome transparency, multidisciplinary collaboration, and hybrid service delivery. Yet in practice, implementation often focuses on introducing additional outcome measurements rather than redesigning and continuously improving the care processes required to achieve value-based quality improvement [6,7,55,65,66]. At the same time, the cost dimension of value and the financial incentives needed to support value-based improvement often remain underdeveloped, limiting the extent to

which outcome information translates into sustained changes in care delivery [51,55,57,67–69]. Moreover, much of the empirical research on value-based healthcare implementation has focused on hospital-based care, while other settings such as specialised rehabilitation settings have received comparatively less attention. This is notable given that rehabilitation care is typically organised through coordinated multidisciplinary programmes aimed at improving functional outcomes and supporting patients in adapting to long-term disability [70,71], making them a particularly relevant context for studying value-based care and care pathway development.

1.2.3 Converging trajectories: care pathway development within value-based quality improvement

These two developments, care pathway development and value-based quality improvement, have increasingly converging trajectories. In the original value-based healthcare framework, care for specific medical conditions is to be organised into Integrated Practice Units: multidisciplinary teams that take joint responsibility for the full cycle of care for a defined patient group, including outcomes and costs [9,72]. However, the transition towards full Integrated Practice Units often requires substantial organisational restructuring and cultural change, which has proven challenging in practice [7,56,57,73].

In many hospitals, rather than fully reorganising into Integrated Practice Units, multidisciplinary teams are organised around specific patient groups within existing organisational structures [56,74]. In this context, care pathways can be understood as 'mini-Integrated Practice Units': structured, multidisciplinary arrangements that operationalise key value-based healthcare principles without requiring comprehensive structural reorganisation [6,7,55–57,59,75]. They organise multidisciplinary collaboration, offer a platform for monitoring outcomes and costs and for embedding continuous improvement into everyday practice [6,55,56,68,69]. Within value-based quality improvement programmes, care pathways also help make the patient journey visible, supporting teams in aligning improvement efforts with the experiences and needs of patients [67,69,73,76,77].

Yet, despite their potential, integrating care pathway development within value-based quality improvement programmes introduces additional challenges. Developing multiple care pathways in parallel requires substantial analytic and cross-departmental capacity (e.g., healthcare staff, ICT specialists, information managers, data analysts, and project support staff) [20,36–38,78,79]. Care pathway development is also shaped by contextual dynamics and competing values [48], such as tensions between quality, efficiency, financial viability, professional autonomy and growing considerations related to environmental sustainability and planetary health [20,38–40,42,80–83].

These challenges are further intensified by rapid technological developments in healthcare, which introduce additional complexity into care pathway development and value-based quality improvement. The introduction of digital care alongside face-to-face care, referred to as hybrid care, aims to enhance patient engagement, continuity, and efficiency [2–5], thereby aligning with value-based objectives of improving outcomes and resource use. However, its implementation also raises questions regarding adoption, integration into daily working routines and the redistribution of professional responsibilities [2,49,84]. As a result, integrating hybrid care into existing care pathways introduces additional complexity into the care pathway development process.

In addition, value-based quality improvement programmes place further demands on care pathway development, as teams are expected to use outcome and cost information to support pathway redesign and its continuous improvement [6,7,52,55,56]. In this context, cost measurement remains a persistent challenge, as generating reliable and comparable cost information requires data structures and cross-organisational collaboration that are not yet consistently in place [67,68,74].

Despite these developments and reported challenges, empirical insight into how care pathway development unfolds in practice remains limited [20]. Existing methods provide structured guidance but offer limited insight into how contextual dynamics, competing values and programme-level challenges are navigated in everyday development work. This dissertation addresses this gap by examining how care pathway development unfolds in a dynamic organisational context.

1.3 Conceptual framing, research questions and dissertation contributions

This section introduces the overarching research question and a set of complementary sub-questions that together unpack different manifestations of complexity in care pathway development. Action research is then positioned as the methodological backbone of the study, and four empirical lenses are introduced, each linked to a specific sub-question and capturing a distinct manifestation of complexity in care pathway development. These lenses are subsequently synthesised into four layers of complexity that together provide a conceptual structure for this dissertation. The section concludes by outlining the practical, theoretical and methodological contributions of the dissertation.

1.3.1 Research questions

The discussion in the previous section highlights that, although widely used care pathway development methods provide structured guidance, care pathway development unfolds within dynamic organisational contexts and cannot be adequately captured by linear development models alone. This raises questions about how development evolves in practice and how the complexity inherent in these contexts can be navigated.

This is particularly relevant given that healthcare organisations are commonly conceptualised as complex adaptive systems, in which teams navigate shifting priorities, contextual dynamics and value tensions [31,45–50]. Reviews by Thompson [85] and Rusoja et al. [86] highlight that the complexity science literature in healthcare has remained predominantly theoretically oriented, marked by conceptual fragmentation and limited practical application. This lack of a shared conceptual core has contributed to inconsistent use of complexity concepts and offers little guidance on how complexity can be engaged with in practice. Against this background, empirical insight into how care pathway development unfolds across its multiple forms of complexity in dynamic organisational contexts remains limited. This dissertation therefore addresses the following overarching research question:

> **How can the complexity of care pathway development in dynamic organisational contexts be understood and navigated?**

The overarching question is addressed through five complementary sub-questions. Together, these five questions capture the multifaceted nature of complexity in care pathway development. The methodological question (RQ-M) examines how complexity can be explored and navigated through an embedded, participatory research design. Building on this foundation, the four empirical questions (RQ-1, RQ-2, RQ-3, RQ-4) each illuminate a distinct manifestation of complexity in care pathway development. The research questions are:

RQ-M	**How can action research contribute to aligning care pathway development with a dynamic organisational context?**
RQ-1	**How are multiple care pathways developed in parallel within a dynamic organisational context?**
RQ-2	**How do different forms of boundary work influence multidisciplinary teams' value-based quality improvement efforts?**
RQ-3	**What are the beliefs and considerations of healthcare professionals and managers regarding patient and public involvement in care pathway development, and how can these insights help improve involvement in this process?**
RQ-4	**How does value complexity unfold in a care pathway development programme?**

1.3.2 Action research as methodological backbone

Addressing the overarching research question requires a methodological approach that supports organisational change, learning and the generation of scientific insight [11,12,87–90]. Action research provides such an approach. Action research has a long-standing tradition in healthcare improvement and participatory research and is characterised by cyclical, intervention-driven processes, in which researchers and practitioners work closely together to address real organisational problems while simultaneously producing scholarly knowledge [10–12,87–89].

Given its distinguishing features, namely iterative cycles of planning, intervention, observation and reflection, and its embedding of research in ongoing practice [11,12,88–92], action research is particularly suited to studying care pathway development in dynamic organisational contexts. Its collaborative and reflexive nature enables close engagement with the organisational dynamics that influence care pathway development. It also positions the researcher as both facilitator and researcher, thereby enabling trust-building, sustained collaboration and longitudinal insight into organisational processes that cannot easily be captured through detached observational methods [12,88,89]. Because care pathway development unfolds over extended periods of time with evolving organisational contexts, studying these processes requires a longitudinal research approach that goes beyond periodic measurement and enables continuous engagement with evolving practices and interactions.

Action research created the conditions to observe care pathway development as it unfolded, to understand how contextual dynamics were navigated, and to refine the care pathway development programme in response to emerging insights. This results in the methodological research question:

RQ-M: How can action research contribute to aligning care pathway development with a dynamic organisational context?

1.3.3 Four heuristic layers of complexity in care pathway development

Building on this methodological foundation, this dissertation is grounded in an overarching action research, comprising four empirical studies, each addressing one of the four research questions and examining a distinct phenomenon related to complexity in care pathway development.

Conceptually, the insights of these studies can be synthesised into four heuristically organised layers of complexity in care pathway development: structural, interactional, interpretive and normative layers (see Table 1.1). The notion of "layers" is used as a heuristic and metaphorical way of organising the empirical insights. Whereas the empirical studies each drew on specific empirical lenses, including boundary work, patient and public involvement, and value complexity, to examine distinct manifestations of complexity in care pathway development, the four layers were constructed retrospectively to organise and connect the insights across these studies into a coherent conceptual structure. These layers reflect different dimensions through which complexity in care pathway development becomes visible in practice, ranging from programme-level structures that guide care pathway development efforts, to relational and interactional multidisciplinary collaboration dynamics, and to the interpretive and normative orientations through which actors understand and prioritise improvement efforts. Together, these layers provide a heuristic structure for relating the empirical studies to different manifestations of complexity in care pathway development.

Table 1.1: The four heuristic layers of complexity in care pathway development

Layer	Concerns complexity arising from
Structural	programme-level coordination and organisational conditions
Interactional	boundary dynamics and multidisciplinary collaboration
Interpretive	language, narratives and interpretive frames shaping how actors construct meaning
Normative	coexisting and competing values that shape decisions and priorities

Although the four studies were embedded within the same action research, they differ in their analytical focus. Each study examines a specific manifestation of complexity in care pathway development and motivates a corresponding empirical research question (RQ-1 to RQ-4). Table 1.2 summarises the alignment between the layers, the empirical lenses and the associated research questions. Together, these layers provide a conceptual structure for relating the empirical studies to different manifestations of complexity in care pathway development and for understanding how such complexity can be navigated in dynamic organisational contexts.

Table 1.2: Overview of the four complexity layers, their corresponding empirical lenses, and associated research questions.

Complexity layer	Manifestation of complexity	Research question
Structural	Programme complexity	RQ-1: How are multiple care pathways developed in parallel in a dynamic organisational context?
Interactional	Boundary complexity	RQ-2: How do different forms of boundary work influence multidisciplinary teams' value-based quality improvement efforts?
Interpretive	Discursive complexity	RQ-3: What are the beliefs and considerations of healthcare professionals and managers regarding patient and public involvement in care pathway development, and how can these insights help improve involvement in this process?
Normative	Value complexity	RQ-4: How does value complexity unfold in a care pathway development programme?

1.3.3.1 Structural layer: programme complexity

Programme complexity represents the structural layer, capturing how contextual dynamics influence care pathway development at programme level. In this dissertation, programme-level care pathway development is understood as the coordinated organisation of multiple care pathway development trajectories within a shared programme structure, supported by guiding principles, support roles and governance arrangements (i.e., decision-making authority, accountability structures and escalation mechanisms). Programme complexity becomes particularly visible when multiple care pathway development trajectories are coordinated simultaneously within a shared programme structure. At this level, the focus is on how programme-wide arrangements enable, constrain and legitimate development work across teams over time.

In this dissertation, programme complexity is studied in the context of a care pathway development programme in which multiple multidisciplinary teams developed pathways in parallel. The programme was informed by insights from quality improvement [93–97], quality improvement collaborative methodology [98–101], care pathway development [20,22,27,29,36,38,102–104], value-based healthcare [6–9,52,54,73,75,105], design thinking [106], work-as-imagined and work-as-done [107], hybrid care [2–5,108], and performance-based care pathway improvement [8,9,22,38,54,75,78,109,110].

Within care pathway development, structural complexity becomes visible in how structured improvement principles interact with dynamic organisational conditions as multiple teams develop pathways in parallel. Although structured care pathway development methods offer valuable guidance for developing individual pathways [27–29,102], empirical insight remains limited into how such methods can be applied effectively at programme level across teams in dynamic contexts. This gap motivates the first research question:

RQ-1: How are multiple care pathways developed in parallel in a dynamic organisational context?

1.3.3.2 Interactional layer: boundary complexity

Boundary complexity represents the interactional layer, concerning how professionals collaborate within and across boundaries and how this shapes collective value-based quality improvement efforts. Boundary work refers to efforts to create, maintain, blur or shift boundaries between disciplines, domains and roles [111–116].

Boundaries influence multidisciplinary collaboration by shaping how information flows, responsibilities are negotiated, and improvement efforts gain traction. Boundary complexity arises when multiple professional boundaries intersect, overlap or conflict, requiring boundary work activities to sustain coordinated action.

Within care pathway development, boundary complexity becomes visible in how multidisciplinary teams negotiate roles, responsibilities and legitimacy while engaging in value-based quality improvement initiatives. Although boundary work has been widely studied [e.g., 116, 117], little empirical research examines how different forms of boundary work enable or constrain value-based quality improvement within care pathway development, leading to:

RQ-2: How do different forms of boundary work influence multidisciplinary teams' value-based quality improvement efforts?

1.3.3.3 Interpretive layer: discursive complexity

Discursive complexity concerns the interpretive layer and refers to the ways in which meaning is constructed through language, narratives and shared interpretive frames [118]. Drawing on discourse-oriented perspectives in organisational and health services research, this layer assumes that actors construct realities through discursive repertoires that shape what is seen as legitimate, feasible or desirable.

Within care pathway development, discursive complexity becomes visible in various aspects of development practice. In this dissertation, it is examined through how patient and public involvement is enacted in practice. The ways in which healthcare professionals and managers frame and justify the role of patients in care pathway development may differ, and these differences may influence how patient and public involvement is understood and enacted in practice.

Patient and public involvement recognises patients' views and experiences as valuable input to quality improvement, alongside professional expertise [119–122]. While widely advocated [119,123,124], limited empirical insight exists into how professionals' and managers' beliefs and discourses shape the extent, timing and form of patient and public involvement in care pathway development.

In this context, discursive complexity manifests when multiple, sometimes competing, interpretations of patient and public involvement coexist, influencing how involvement is legitimised, prioritised or postponed in practice. Examining these interpretive patterns provides insight into how patient and public involvement is understood and enacted in care pathway development. This leads to the third research question:

RQ-3: What are the beliefs and considerations of healthcare professionals and managers regarding patient and public involvement in care pathway development, and how might these insights help improve involvement in this process?

1.3.3.4 Normative layer: value complexity

Value complexity concerns the normative layer and arises from competing and shifting values that influence quality improvement work. In this dissertation, value tensions refer to tensions arising from competing and shifting values (such as care quality, efficiency, financial viability, professional autonomy and sustainability). Value complexity becomes particularly visible when competing value orientations must be prioritised in concrete development decisions, requiring teams to negotiate which values take precedence in specific situations. Following Greenhalgh et al. [48], this form of complexity, also referred to as normative complexity, 'arises from differences in people's worldviews, interests and values, leading to mistrust, misunderstanding and conflict' [48 p.648]. Cribb et al. [124] use the term normative complexity to emphasise that complexity in healthcare improvement concerns not only uncertainty about how interventions work but also disagreement about what counts as valuable or successful and which values should guide improvement efforts.

Within care pathway development, normative complexity becomes visible in everyday decisions and negotiations concerning quality, efficiency, financial viability, professional autonomy and sustainability. Although Greenhalgh et al. [48] encourage moral reflection on value-tensions in healthcare improvement, empirical insight remains limited into how teams and organisations recognise and manage these tensions during care pathway development. This empirical gap motivates the following research question:

RQ-4: How does value complexity unfold in a care pathway development programme?

Taken together, the four empirical studies illuminate different dimensions through which complexity manifests in care pathway development. By organising these insights into four heuristically defined layers of complexity, this dissertation provides a structured way of relating the empirical findings and forms the basis for the complexity-informed perspective on care pathway development developed in the discussion.

1.3.4 Research contribution of the dissertation

By answering the research questions, this dissertation provides practical, theoretical and methodological contributions. Practically, the dissertation offers guidance on how reflective and adaptive ways of working can be organised within care pathway development programmes. It informs clinicians, managers, policy makers, action researchers and health services researchers on how care pathway development can be organised to better engage with contextual dynamics, value tensions and boundary dynamics in multidisciplinary collaboration. In addition, it provides actionable insights into how teams can strengthen patient and public involvement.

Theoretically, the dissertation advances understanding of care pathway development as a complex, adaptive process shaped by diverse, and at times competing, value perspectives. It deepens the conceptualisation of value complexity, provides an empirically grounded exploration of boundary work within value-based quality improvement, and enriches discourse-based explanations for variation in patient and public involvement. In addition, the dissertation proposes a complexity-informed approach to care pathway development derived from the synthesis of structural, interactional, interpretive and normative layers of complexity identified across empirical studies. Furthermore, it shows how reflective and adaptive cycles support pathway development over time. In doing so, it offers refinements to existing care pathway development methods [27–29,102].

Methodologically, the dissertation demonstrates how action research can function as an enabling strategy for studying and supporting care pathway development in dynamic organisational contexts. It shows how a cyclical, participatory and reflexive approach can provide the conditions for organising reflective and adaptive care pathway development work.

The conceptual synthesis developed in Chapter 6, including the central insight that complexity is constitutive of care pathway development rather than merely contextual to it, builds directly on these empirical findings.

1.4 Research setting and design

This section introduces the research setting and design of the dissertation. It describes the organisational context in which the action research was conducted and outlines the overall research design, including the longitudinal, multi-method and embedded approach adopted to study care pathway development in practice.

1.4.1 Research setting

This dissertation is based on a two-year action research programme on care pathway development conducted in a Dutch specialised rehabilitation hospital. The organisation employs approximately 550 FTE and treated around 15,000 patients in 2024 [125], operating across 16 sites [126]. The action research pursued three interconnected aims [11,12,87–90]:

1) a change aim to enable healthcare professionals to reorganise and improve rehabilitation care through care pathway development;
2) a learning aim to strengthen the capabilities of healthcare professionals and managers to collaboratively design, implement and continuously refine care pathways;
3) a scientific aim to generate insight into how care pathway development unfolds in dynamic organisational contexts and how action research can contribute to aligning care pathway development with these dynamic contexts.

To achieve these aims, three action research cycles of planning, action and reflection were conducted, each guiding several multidisciplinary teams through a care pathway development programme (see Figure 1.1). Across these cycles, 11 multidisciplinary teams participated, each representing a specific rehabilitation pathway. This cyclical approach enabled ongoing refinement of the programme. Through prolonged engagement, the lead researcher became embedded in the daily reality of the organisation, which enabled a detailed understanding of how care pathway development unfolded in practice.

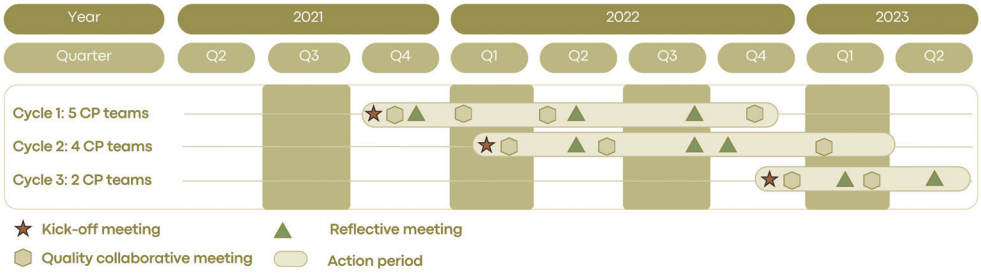


Figure 1.1: Action research cycles

The care pathway development programme was structured as a Quality Improvement Collaborative. In a quality improvement collaborative, multidisciplinary teams work concurrently on a shared topic, engage in cross-team learning, and maintain momentum through a rhythm of collaborative meetings complemented by self-directed action periods [98–101,128–130]. During these action periods, teams apply insights from the collaborative meetings in their local context and continue their improvement efforts [98–101,128–130].

In this study, the quality improvement collaborative structure was used to guide the 11 teams through the design, implementation and refinement of their care pathways. The action periods provided space for teams to advance their pathway development following each collaborative meeting. This structure enabled cross-team learning and iterative refinement of the care pathway development programme in pursuit of the three aims.

1.4.2 Research design, data collection and sampling strategy

The overall research design followed a multi-method, longitudinal and embedded action research approach, aligned with an interpretivist paradigm (see Figure 1.2) [131–133]. For this dissertation, a 'research-follows-action' strategy was adopted, in which action and learning occurred during the two-year action research programme, while systematic analysis took place retrospectively [12].

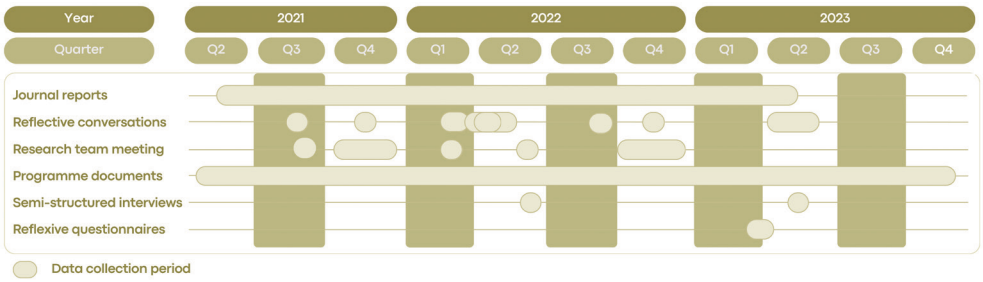


Figure 1.2: Action research data collection timeline

Data collection was integrated into the action research cycles and proceeded concurrently with programme activities in the specialised rehabilitation centre (see Table 1.3). A multi-method, reflexive data collection strategy was employed, consisting of semi-structured interviews, reflexive conversations with multidisciplinary team members, journal reports, research team meetings, questionnaires and care pathway development programme documents.

Method triangulation enhanced validity by combining data from diverse data sources [131]. Participants were selected through criterion sampling [134], which ensured the inclusion of diverse perspectives across organisational layers, backgrounds, disciplines and care pathways. Sampling therefore included members of the 11 multidisciplinary teams, senior management and project support stakeholders.

Each research question is grounded in the data sources most suited to exploring its corresponding manifestation of complexity in care pathway development. RQ-M, RQ-1 and RQ-4 draw on the longitudinal action research dataset, which includes reflexive conversations, journal reports, research team meetings, programme documents and structured written reflections. RQ-2 combines this dataset with data from a second organisation, enabling a multiple case study design. RQ-3 is based on the semi-structured interviews. RQ-4 additionally draws on reflective questionnaires. Table 1.3 summarises the dataset and its alignment with the research questions.

Table 1.3: Overview data collection

Action Research dataset	Data used for studying:
62 reflective conversations with team members and senior management	RQ-M; RQ-1; RQ-2; RQ-4
169 reflexive, observational journal reports documented by the lead researcher	RQ-M; RQ-1; RQ-2; RQ-4
25 research team meetings	RQ-M; RQ-1; RQ-2; RQ-4
Approx. 250 care pathway development programme documents, including action plans and presentations at quality improvement collaborative meetings, feedback forms, preparatory and communication materials, meeting minutes, progress reports, project memos, and stakeholder management presentations.	RQ-M; RQ-1
5 structured written reflections by programme participants	RQ-1
14 semi-structured interviews	RQ-3
2 reflective questionnaires (open-ended questions) • N=25, response rate 56%; • N=5, response rate 100%	RQ-4

1.5 Outline of the dissertation

This dissertation addresses the central research question "How can the complexity of care pathway development in dynamic organisational contexts be navigated?" through five interrelated chapters, each illuminating a specific manifestation of complexity.

Chapter 2 presents the methodological foundation of the dissertation and introduces programme complexity as the structural layer of complexity in care pathway development. Drawing on the longitudinal action research dataset from Organisation A, this chapter studies how multidisciplinary teams developed multiple care pathways in parallel while navigating organisational dynamics. It explores how structured improvement principles interact with real-world contextual change and how teams worked to maintain progress over time. Furthermore, it examines how action research [10–12,87] supported adaptive care pathway development. The chapter demonstrates how collaboration between researchers and practitioners enabled change, learning and responsiveness to contextual dynamics. This chapter answers both **RQ-M**: *How can action research contribute to aligning care pathway development with a dynamic organisational context?* and **RQ-1**: *How are multiple care pathways developed in parallel within a dynamic organisational context?*

Chapter 3 explores boundary complexity, the interactional layer of complexity. It draws on a qualitative multiple case study combining data from Organisation A and additional datasets from Organisation B, examining how different forms of boundary work [116] influenced value-based quality improvement efforts in multidisciplinary teams. It answers **RQ-2**: *How do different forms of boundary work influence multidisciplinary teams' value-based quality improvement efforts?*

Chapter 4 focuses on discursive complexity, the interpretive layer of complexity. Using semi-structured interviews, this chapter examines the discursive repertoires through which healthcare professionals and managers understood patient and public involvement [119,120,124] in care pathway development. It analyses how these discourses shaped expectations, practices and the timing and form of patient and public involvement. This chapter addresses **RQ-3:** *What are the beliefs and considerations of healthcare professionals and managers regarding patient and public involvement in care pathway development, and how can these insights help improve involvement in this process?*

Chapter 5 turns to value complexity [48], the normative layer of complexity. Based on a qualitative case study, this chapter investigates how competing and shifting values were negotiated during care pathway development. It shows how value tensions shaped goal alignment and decision-making in care pathway development. This chapter addresses **RQ-4:** *How does value complexity unfold in a care pathway development programme?*

Finally, **Chapter 6** synthesises the findings across all studies to develop a complexity-informed approach to care pathway development. Building on insights from the four complexity layers, the chapter shows how structural, interactional, interpretive and normative dimensions jointly shape care pathway development in dynamic organisational contexts. It also reflects on the methodological insights gained from applying action research as a strategy for studying and supporting care pathway development. The chapter then reflects on the theoretical and methodological contributions of the dissertation and outlines implications for practice, policy and future research. It concludes by identifying opportunities for developing more adaptive, value-responsive and collaborative approaches to care pathway development in complex healthcare settings.

1.6 References

[1] Stucki G, Melvin J. The international classification of functioning, disability and health: a unifying model for the conceptual description of physical and rehabilitation medicine. J Rehabil Med. 2007;1;39(4):286–292. doi:10.2340/16501977-0044

[2] Toonders SAJ, Poolman EY, Nieboer ME, Pisters MF, Veenhof C. Healthcare professionals' perspectives on a blended care program in primary care: a qualitative study. Internet Interv. 2021;26:100440. doi:10.1016/j.invent.2021.100440

[3] Kip H, Wentzel J, Kelders SM. Shaping blended care: adapting an instrument to support therapists in using e-mental health. JMIR Ment Health 2020;7(11):e24245. doi:10.2196/24245

[4] Wentzel J, Van der Vaart R, Bohlmeijer ET, van Gemert-Pijnen JEWC. Mixing online and face-to-face therapy: how to benefit from blended care in mental health care. JMIR Ment Health. 2016;3(1):e9. doi:10.2196/mental.4534

[5] Hohberg V, Fuchs R, Gerber M, Künzler D, Paganini S, Faude O. Blended care interventions to promote physical activity: a systematic review of randomized controlled trials. Sports Med Open. 2022;8(1):100. doi:10.1186/s40798-022-00489-w

[6] Daniels K, Rouppe van der Voort MBV, Biesma DH, Van der Nat PB. Five years' experience with value-based quality improvement teams: the key factors to a successful implementation in hospital care. BMC Health Serv Res. 2022;22(1):1271. doi:10.1186/s12913-022-08563-5

[7] Heijsters FACJ, Van Breda FGF, Van Nassau F, Van der Steen MKJ, Ter Wee PM, Mullender MG, et al. A pragmatic approach for implementation of value-based healthcare in Amsterdam UMC, the Netherlands. BMC Health Serv Res. 2022;22(1):550. doi:10.1186/s12913-022-07919-1

[8] Porter M, Teisberg E. Redefining Health Care: Creating value‐based competition on results. Boston: Harvard Business School Press; 2006.

[9] Porter ME, Lee TH. The strategy that will fix health care. Harv Bus Rev. 2013;91(10):50–70

[10] Coghlan D, Shani AB. Introducing action research. In: Coghlan D, Shani AB, editors. Conducting action research for business and management students. London: SAGE; 2018. Chapter 1. doi:10.4135/9781529716566

[11] Coghlan D, Brannick T. Doing action research in your own organization. 5th ed. London: Sage; 2019.

[12] Zandee DP, Coghlan D. Action research for impact in addressing the grand challenges. Strateg Organ. 2025;23(1):147–161. doi:10.1177/14761270241270913

[13] RIVM. Monitor Digitale Zorg 2025: stand van zaken digitale zorg in Nederland. Bilthoven: RIVM; 2026. doi:10.21945/RIVM-2025-0176.

[14] Nederlandse Zorgautoriteit. Stand van de zorg 2024. Utrecht: Nederlandse Zorgautoriteit; 2024. Available from: https://puc.overheid.nl/nza/doc/PUC_775407_22/

[15] World Health Organization, United Nations Children's Fund (UNICEF). Global report on assistive technology: summary. Geneva: World Health Organization; 2022. Available from: https://www.who.int/publications/i/item/9789240049451

[16] Den Broeder L, Hilderink H, Polder J, Staatsen B, Dekker L. Volksgezondheid Toekomst Verkenning 2024. Kiezen voor een gezonde toekomst. RIVM; 2024. doi:10.21945/rivm-2024-0110.

[17] OECD/European Commission. Health at a glance: Europe 2024 - state of health in the EU cycle. Paris: OECD Publishing; 2024. Available from: https://www.oecd.org/health/health-at-a-glance-europe/

[18] Netwerk Klinische Paden. Available at: https://nkp.be/. Accessed 2025 Sep 4.

[19] Vanhaecht K. The impact of clinical pathways on the organisation of care processes [dissertation]. Leuven: KU Leuven; 2007.

[20] Gartner J, Abasse KS, Bergeron F, Landa P, Lemaire C, Côté A. Definition and conceptualization of the patient-centered care pathway, a proposed integrative framework for consensus: a concept analysis and systematic review. BMC Health Serv Res. 2022;22(1):558. doi:10.1186/s12913-022-07960-0

[21] De Bleser L, Depreitere R, De Waele K, Vanhaecht K, Vlayen J, Sermeus W. Defining pathways. J Nurs Manag. 2006;14(7):553–563. doi:10.1111/j.1365-2934.2006.00702.x

[22] Seys D, Bruyneel L, Deneckere S, Kul S, Van der Veken L, van Zelm R, et al. Better organized care via care pathways: a multicenter study. PloS One. 2017;12(7):e0180398. doi:10.1371/journal.pone.0180398

[23] De Koeijer RJ, De Geest ME, Hajer GR, Martens FMAC. Regional integrated cardiovascular risk management care pathway in the Netherlands: benefits and working mechanisms. Int J Integr Care. 2025;25(3):1. doi:10.5334/ijic.8654

[24] Büscher A, Kugler J. The effectiveness of clinical pathways in inpatient settings - an umbrella review. J Public Health (Berl). 2025;33(12):2717–2730. doi:10.1007/s10389-024-02227-w

[25] Rotter T, De Jong RB, Lacko SE, Ronellenfitsch U, Kinsman L. Clinical pathways as a quality strategy. In: Busse R, Klazinga N, Panteli D, Quentin W, editors. Improving healthcare quality in Europe. United Kingdom: WHO; 2019. p. 309–330.

[26] Rotter T, Kinsman LD, Alsius A, Scott SD, Lawal A, Ronellenfitsch U, et al. Clinical pathways for secondary care and the effects on professional practice, patient outcomes, length of stay and hospital costs. Cochrane Database Syst Rev. 2025;5:CD006632. doi:10.1002/14651858.CD006632.pub3

[27] Vanhaecht K, Van Gerven E, Deneckere S, Lodewijckx C, Janssen I, Van Zelm R, et al. The 7-phase method to design, implement and evaluate care pathways. Int J Pers Cent Med. 2012;2(3):341. doi:10.5750/ijpcm.v2i3.247
[28] Aeyels D, Van der Veken L, Vanhaecht K. 7-fasenmodel voor de ontwikkeling, implementatie, evaluatie en continue opvolging van zorgpaden. Uitdieping voor transmurale zorg. Brussels: Netwerk Klinische Paden;2016.
[29] Lodewijckx C, Decramer M, Sermeus W, Panella M, Deneckere S, Vanhaecht K. Eight-step method to build the clinical content of an evidence-based care pathway: the case for COPD exacerbation. Trials. 2012;13(1):229. doi:10.1186/1745-6215-13-229
[30] Braithwaite J, Churruca K, Long JC, Ellis LA, Herkes J. When complexity science meets implementation science: a theoretical and empirical analysis of systems change. BMC Med. 2018;16(1):63. doi:10.1186/s12916-018-1057-z
[31] Greenhalgh T, Papoutsi C. Spreading and scaling up innovation and improvement. BMJ. 2019;365:l2068. doi:10.1136/bmj.l2068
[32] Ghuman BS. New Public Management: theory and practice. Indian J Public Adm. 2001;47(4):769–779. doi:10.1177/0019556120010410
[33] Simonet D. The New Public Management theory and European health-care reforms. Can Public Adm 2008;51(4):617–635. doi:10.1111/j.1754-7121.2008.00044.x.
[34] Simonet D. The New Public Management theory in the British health care system: a critical review. Adm Soc. 2015;47(7):802–826. doi:10.1177/0095399713485001
[35] Walshe K, Rundall TG. Evidence-based management: from theory to practice in health care. Milbank Q. 2001;79(3):429–457. doi:10.1111/1468-0009.00214
[36] Gartner J, Lemaire C, Côté A. Learning care pathways framework: a new method to implement, learn, replicate, and scale up care pathways for and with the patient. Int J Health Policy Manag. 2025;14:8517. doi:10.34172/ijhpm.8517
[37] Gartner J, Côté A. Optimization of care pathways through technological, clinical, organizational and social innovations: a qualitative study. Health Serv Insights 2023;16:1-8. doi:10.1177/11786329231211096
[38] Seys D, Panella M, Van Zelm R, Sermeus W, Aeyels D, Bruyneel L, et al. Care pathways are complex interventions in complex systems: new European Pathway Association framework. Int J Care Coord. 2019;22(1):5–9. doi:10.1177/2053434519839195
[39] Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PC, et al. Why don't physicians follow clinical practice guidelines? A framework for improvement. JAMA. 1999;282(15):1458–1465. doi:10.1001/jama.282.15.1458
[40] Evans-Lacko S, Jarrett M, McCrone P, Thornicroft G. Facilitators and barriers to implementing clinical care pathways. BMC Health Serv Res. 2010;10(1):182. doi:10.1186/1472-6963-10-182
[41] Jones A. Perceptions on the standardization of psychiatric work: development of a care pathway. J Psychiatr Ment Health Nurs. 2004;11(6):705–713. doi:10.1111/j.1365-2850.2004.00791.x
[42] O'Hara K, Tanverdi M, Reich J, Scudamore DD, Tyler A, Bakel LA. Qualitative study to understand pediatric hospitalists and emergency medicine physicians' perspectives of clinical pathways. Pediatr Qual Saf. 2020;5(2):e270. doi:10.1097/pq9.0000000000000270
[43] Kvæl LAH, Hellesø R, Bergland A, Debesay J. Balancing standardisation and individualisation in transitional care pathways: a meta-ethnography of the perspectives of older patients, informal caregivers and healthcare professionals. BMC Health Serv Res. 2022;22(1):430–17. doi:10.1186/s12913-022-07823-8
[44] Abrahams E, Balch A, Goldsmith P, Kean M, Miller AM, Omenn G, et al. Clinical pathways: recommendations for putting patients at the center of value-based care. Clin Cancer Res. 2017;23(16):4545–4549. doi:10.1158/1078-0432.CCR-17-1609
[45] Greenhalgh T, Papoutsi C. Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Med. 2018;16(1):95. doi:10.1186/s12916-018-1089-4
[46] Plsek PE, Greenhalgh T. Complexity Science: the challenge of complexity in health care. BMJ. 2001;323(7313):625–628. doi:10.1136/bmj.323.7313.625
[47] Braithwaite J, Ellis LA, Churruca K, Long JC, Hibbert P, Clay-Williams R. Complexity science as a frame for understanding the management and delivery of high quality and safer care. In: Donaldson L, Ricciardi W, Sheridan S, Tartaglia R, editors. Textbook of patient safety and clinical risk management Cham: Springer; 2021. p. 375–392.
[48] Greenhalgh T, Engebretsen E, Bal R, Kjellström S. Toward a values‐informed approach to complexity in health care: hermeneutic review. Milbank Q 2023;101(3):646–674. doi:10.1111/1468-0009.12656
[49] Greenhalgh T, Wherton J, Papoutsi C, Lynch J, Hughes G, A'Court C, et al. Analysing the role of complexity in explaining the fortunes of technology programmes: empirical application of the NASSS framework. BMC Med 2018;16(1):66.
[50] Cohn S, Clinch M, Bunn C, Stronge P. Entangled complexity: why complex interventions are just not complicated enough. J Health Serv Res Policy 2013;18(1):40–43. doi:10.1258/jhsrp.2012.012036.

[51] Vijverberg JRG, Daniels K, Steinmann G, Garvelink MM, Rouppe van der Voort, Marc B V, Biesma D, et al. Mapping the extent, range and nature of research activity on value-based healthcare in the 15 years following its introduction (2006–2021): a scoping review. BMJ Open 2022;12(8):e064983. doi:10.1136/bmjopen-2022-064983
[52] Van der Nat PB. The new strategic agenda for value transformation. Health Serv Manage Res 2022;35(3):189–193. doi:10.1177/09514848211011739
[53] Porter ME. What Is Value in Health Care? N Engl J Med 2010;363(26):2477–2481. doi:10.1056/NEJMp1011024
[54] Teisberg E, Wallace S, O'Hara S. Defining and implementing value-based health care: a strategic framework. Acad Med 2020;95(5):682–685. doi:10.1097/acm.0000000000003122.
[55] Van Engen V, Buljac-Samardzic M, Baatenburg de Jong R, Braithwaite J, Ahaus K, Den Hollander-Ardon M, et al. A decade of change towards value-based health care at a Dutch university hospital: a complexity-informed process study. Health Res Policy Syst 2024;22(1):94. doi:10.1186/s12961-024-01181-z
[56] Steinmann G, Daniels K, Mieris F, Delnoij D, Van De Bovenkamp H, Der Nat V, et al. Redesigning value-based hospital structures: a qualitative study on value-based health care in the Netherlands. BMC Health Serv Res 2022;22(1). doi:10.1186/s12913-022-08564-4
[57] Van Staalduinen DJ, Van den Bekerom P, Groeneveld S, Kidanemariam M, Stiggelbout AM, Van den Akker-van Marle ME. The implementation of value-based healthcare: a scoping review. BMC Health Serv Res 2022;22(1):270–8. doi:10.1186/s12913-022-07489-2
[58] Steinmann G, Bovenkamp H, Bont A, Delnoij D. Value‐based health care in translation: From global popularity to primary care for Dutch elderly patients. Sociol Health Illn 2024;46(4):683–701. doi:10.1111/1467-9566.13728
[59] Ramos P, Savage C, Thor J, Atun R, Carlsson KS, Makdisse M, et al. It takes two to dance the VBHC tango: a multiple case study of the adoption of value-based strategies in Sweden and Brazil. Soc Sci Med 2021;282:114145. doi:10.1016/j.socscimed.2021.114145
[60] Steinmann G, Van de Bovenkamp H, De Bont A, Delnoij D. Redefining value: a discourse analysis on value-based health care. BMC Health Serv Res 2020;20(1):862–13. doi:10.1186/s12913-020-05614-7
[61] Bults N, Nijbroek M, Goedkoop S, Savenije R, Bunt-van Veldhuizen G, Schlotzhauer B. Implementatieplan Uitkomstgerichte Zorg Fase II 2023-2026: van ontwikkeling naar praktijk. Den Haag: Ministerie van Volksgezondheid, Welzijn en Sport; 2023. Available from: https://www.rijksoverheid.nl/documenten/rapporten/2023/12/31/implementatieplan-uitkomstgerichte-zorg-fase-ii-2023-2026
[62] Ubbink DT, Geerts PAF, Gosens T, Brand PLP. Meer 'samen beslissen' nodig door aangescherpte Wgbo. Ned Tijdschr Geneeskd. 2021;165:D5775
[63] ActiZ, De Nederlandse ggz, Federatie Medisch Specialisten, InEen, Nederlandse Federatie van Universitair Medische Centra, Nederlandse Vereniging van Ziekenhuizen, et al. Integraal Zorgakkoord: samen werken aan gezonde zorg. Den Haag: Ministerie van Volksgezondheid, Welzijn en Sport; 2022 [cited 2025 Dec 23]. Available from: https://www.rijksoverheid.nl/documenten/rapporten/2022/09/16/integraal-zorgakkoord-samen-werken-aan-gezonde-zorg
[64] ActiZ, De Nederlandse ggz, Federatie Medisch Specialisten, GGD GHOR Nederland, InEen, Inspectie Gezondheidszorg en Jeugd, et al. Aanvullend zorg- en welzijnsakkoord (AZWA). Den Haag: Ministerie van Volksgezondheid, Welzijn en Sport; 2025 [cited 2026 Apr 16]. Available from: https://www.rijksoverheid.nl/documenten/rapporten/2025/08/31/aanvullend-zorg-en-welzijnsakkoord-azwa
[65] Programma Uitkomstgerichte Zorg. Uitkomstgericht werken als bouwsteen naar passende zorg: voortgangsrapportage van het programma Uitkomstgerichte Zorg 2023–2024. Den Haag: Ministerie van Volksgezondheid, Welzijn en Sport; 2024 2022 [cited 2025 Dec 23]. Available from: https://open.overheid.nl/documenten/39fc2f59-c288-44aa-b14c-b28b1a340667/file
[66] Programma Uitkomstgerichte Zorg: voortgangsrapportage 2025. Den Haag: Ministerie van Volksgezondheid, Welzijn en Sport; 2026 [cited 2026 Apr 16]. Available from: https://open.overheid.nl/documenten/18dee876-7650-44db-8dc4-50d6b2d2781a/file
[67] Leusder M, Porte P, Ahaus K, van Elten H. Cost measurement in value-based healthcare: a systematic review. BMJ Open 2022;12(12):e066568. doi:10.1136/bmjopen-2022-066568
[68] Leusder M, Relijveld S, Demirtas D, Emery J, Tew M, Gibbs P, et al. Toward value-based care using cost mining: cost aggregation and visualization across the entire colorectal cancer patient pathway. BMC Med Res Methodol 2024;24(1):321–12. doi:10.1186/s12874-024-02446-5
[69] Leusder M, van Elten HJ, Ahaus K, Hilders CGJM, van Santbrink EJP. Patient-level cost analysis of subfertility pathways in the Dutch healthcare system. Eur J Health Econ 2025;26(6):927–943. doi:10.1007/s10198-024-01744-5
[70] Wade DT. What is rehabilitation? An empirical investigation leading to an evidence-based description. Clin Rehabil 2020;34(5):571–583.

doi:10.1177/0269215520905112
[71] Wade D. Rehabilitation – a new approach. Part four: a new paradigm, and its implications. Clin Rehabil 2016;30(2):109–118. doi:10.1177/0269215515601177
[72] Porter ME, Lee TH. Integrated practice units: a playbook for health care leaders. NEJM Catal Innov Care Deliv 2021;2(1).
[73] Cossio-Gil Y, Omara M, Watson C, Casey J, Chakhunashvili A, Gutiérrez-San Miguel M, et al. The roadmap for implementing value-based healthcare in European university hospitals—consensus report and recommendations. Value Health 2022;25(7):1148–1156. doi:10.1016/j.jval.2021.11.1355
[74] Westerink HJ, Steinmann G, Koomans M, Van der Kemp MH, Van der Nat PB. Value-based healthcare implementation in the Netherlands: a quantitative analysis of multidisciplinary team performance. BMC Health Serv Res 2024;24(1):224–8. doi:10.1186/s12913-024-10712-x
[75] Silveira Bianchim M, Crane E, Jones A, Neukirchinger B, Roberts G, Mclaughlin L, et al. The implementation, use and impact of patient reported outcome measures in value-based healthcare programmes: a scoping review. PLoS One 2023;18(12):e0290976. doi:10.1371/journal.pone.0290976
[76] Koster F, Lopes Barreto D, Nair SC, Kok MR, Weel-Koenders AEAM. Defining the care delivery value chain and mapping the patient journey in rheumatoid arthritis. Rheumatol Int 2023;43(4):743–750. doi:10.1007/s00296-022-05215-z
[77] Trebble TM, Hansi N, Hydes T, Smith MA, Baker M. Process mapping the patient journey: an introduction. BMJ 2010;341:c4078. doi:10.1136/bmj.c4078
[78] Vanhaecht K, Panella M, van Zelm R, Sermeus W. An overview on the history and concept of care pathways as complex interventions. Int J Care Pathw 2010;14(3):117–123. doi:10.1258/jicp.2010.010019
[79] Jerjes W, Harding D. Enhancing primary care through integrated care pathways: a convergence of theory and practice. Front Health Serv 2024;4. doi:10.3389/frhs.2024.1432901
[80] Metzendorf M, Madrid E, van Raaij E. Reducing the environmental impact of healthcare to improve health, sustainability and equity. BMJ Evid Based Med 2025;30(2):75–76. doi:10.1136/bmjebm-2024-113124
[81] Van Royen FS, Schuit E. Environmental sustainability considerations in the reporting of randomised clinical trials. Lancet Planet Health 2026;10:101412. doi:10.1016/j.lanplh.2025.101412
[82] Luo OD, Razvi Y, Kaur G, Lim M, Smith K, Carson JJK, et al. A qualitative study of what motivates and enables climate-engaged physicians in Canada to engage in health-care sustainability, advocacy, and action. Lancet Planet Health 2023;7(2):e164–e171. doi:10.1016/S2542-5196(22)00311-4
[83] Yan TD, Jalal S, Harris A. Value-based radiology in Canada: reducing low-value care and improving system efficiency. Can Assoc Radiol J 2025;76(1):61–67. doi:10.1177/08465371241277110
[84] Tossaint-Schoenmakers R, Versluis A, Chavannes N, Talboom-Kamp E, Kasteleyn M. The challenge of integrating eHealth into health care: systematic literature review of the Donabedian model of structure, process, and outcome. Journal of medical Internet research 2021;23(5):e27180.
[85] Thompson DS, Fazio X, Kustra E, Patrick L, Stanley D. Scoping review of complexity theory in health services research. BMC Health Serv Res 2016;16(1):87. doi:10.1186/s12913-016-1343-4
[86] Rusoja E, Haynie D, Sievers J, Mustafee N, Nelson F, Reynolds M, et al. Thinking about complexity in health: a systematic review of the key systems thinking and complexity ideas in health. J Eval Clin Pract 2018;24(3):600–606. doi:10.1111/jep.12856
[87] Casey M, Coghlan D, Carroll Á, Stokes D, Roberts K, Hynes G. Application of action research in the field of healthcare: a scoping review protocol. HRB Open Res 2021;4:46. doi:10.12688/hrbopenres.13276.2
[88] Coghlan D. Action research as the social science of change and changing. Handbook of research methods in organizational change Cheltenham, UK: Edward Elgar Publishing; 2023. p. 19–46.
[89] Coghlan D, Shani AB. Creating action research quality in organization development: rigorous, reflective and relevant. Syst Pract Action Res 2014;27(6):523–536. doi:10.1007/s11213-013-9311-y
[90] Coghlan D, Shani AB. Understanding action research. In: Coghlan D, Shani AB, editors. Conducting action research for business and management students London: SAGE; 2018. Chapter 2. doi:10.4135/9781529716566
[91] Coghlan D, Shani AB(, Coughlan P. Enhancing the quality of project management through action research. Int J Manag Proj Bus 2023;16(1):9–21. doi:10.1108/IJMPB-10-2021-0291
[92] Berwick D, Fox DM. "Evaluating the quality of medical care": Donabedian's classic article 50 years later. Milbank Q 2016;94(2):237–241. doi:10.1111/1468-0009.12189
[93] Donabedian A. An introduction to quality assurance in health care. 1st ed. United Kingdom: Oxford University Press; 2002.
[94] Moore L, Lavoie A, Bourgeois G, Lapointe J. Donabedian's structure-process-outcome quality of care model: validation in an integrated trauma system. J Trauma Acute Care Surg 2015;78(6):1168–1175. doi:10.1097/TA.0000000000000663
[95] Donabedian A. Evaluating the quality of medical care.

Milbank Q 2005;83(4):691–729. doi:10.1111/j.1468-0009.2005.00397.x
[96] Donabedian A. The quality of care. How can it be assessed? JAMA 1988;260(12):1743–1748. doi:10.1001/jama.260.12.1743
[97] Schouten LMT, Hulscher MEJL, Everdingen JJEv, Huijsman R, Grol RPTM. Evidence for the impact of quality improvement collaboratives: systematic review. BMJ 2008;336; International edition(7659):1491–1494. doi:10.1136/bmj.39570.749884.BE
[98] Institute for Healthcare Improvement. The Breakthrough Series: IHI's collaborative model for achieving breakthrough improvement. IHI Innovation Series White Paper. Boston: Institute for Healthcare Improvement; 2003 [cited 2025 Jan 13]. Available from: https://www.ihi.org/sites/default/files/2023-09/IHIBreakthroughSerieswhitepaper2003.pdf
[99] Øvretveit J, Bate P, Cleary P, Cretin S, Gustafson D, McInnes K, et al. Quality collaboratives: lessons from research. Qual Saf Health Care 2002;11(4):345–351. doi:10.1136/qhc.11.4.345
[100] Kilo CM. A framework for collaborative improvement: lessons from the Institute for Healthcare Improvement's Breakthrough Series. Qual Manag Health Care 1998;6(4):1–14. doi:10.1097/00019514-199806040-00001
[101] Flores EJ, Mull NK, Lavenberg JG, Mitchell MD, Leas BF, Williams A, et al. Using a 10-step framework to support the implementation of an evidence-based clinical pathways programme. BMJ Qual Saf 2018;28(6):476. doi:10.1136/bmjqs-2018-008454
[102] Seys D, Deneckere S, Lodewijckx C, Bruyneel L, Sermeus W, Boto P, et al. Impact of care pathway implementation on interprofessional teamwork: an international cluster randomized controlled trial. J Interprof Care 2025;39(1):48–56. doi:10.1080/13561820.2019.1634016
[103] Deneckere S, Euwema M, Lodewijckx C, Panella M, Mutsvari T, Sermeus W, et al. Better interprofessional teamwork, higher level of organized care, and lower risk of burnout in acute health care teams using care pathways: a cluster randomized controlled trial. Med Care 2013;51(1):99–107. doi:10.1097/MLR.0b013e3182763312
[104] Hanselaar T, Van Der Kemp M, Wiersma V, Van Der Linde M, Bos WJ. Getting started with value-based healthcare. Linnean Initiative 2022.
[105] Pressman A. Design thinking : a guide to creative problem solving for everyone. New York: Routledge; 2019.
[106] Hollnagel E, Clay-Williams R. Work-as-imagined and work- as-done. In: Rapport F, Clay-Williams R, Braithwaite J, editors. Implementation science: the key concepts. London: Routledge; 2022. p. 175–177. doi:10.4324/9781003109945-52.
[107] Chen K, Huang JJ, Torous J. Hybrid care in mental health: a framework for understanding care, research, and future opportunities. NPP Digit Psychiatry Neurosci 2024;2(1):16–4. doi:10.1038/s44277-024-00016-7
[108] Vanhaecht K, De Witte K, Panella M, Sermeus W. Do pathways lead to better organized care processes? J Eval Clin Pract 2009;15(5):782–788. doi:10.1111/j.1365-2753.2008.01068.x
[109] Vanhaecht K, Sermeus W. The Leuven Clinical Pathway Compass. Int J Care Pathw 2003;7(1):2–7. doi:10.1177/147322970300700102
[110] Comeau-Vallée M, Langley A. The interplay of inter- and intraprofessional boundary work in multidisciplinary teams. Organ Stud 2020;41(12):1649–1672. doi:10.1177/0170840619848020
[111] Gieryn TF. Boundary-work and the demarcation of science from non-science: strains and interests in professional ideologies of scientists. Am Sociol Rev 1983;48(6):781–795. doi:10.2307/2095325
[112] Ashforth BE, Kreiner GE, Fugate M. All in a day's work: boundaries and micro role transitions. Acad Manage Rev 2000;25(3):472–491. doi:10.2307/259305
[113] Helfen M. Institutionalizing precariousness? The politics of boundary work in legalizing agency work in Germany, 1949–2004. Organ Stud 2015;36(10):1387–1422. doi:10.1177/0170840615585338
[114] Lamont M, Molnár V. The study of boundaries in the social sciences. Annu Rev Sociol 2002;28(1):167–195. doi:10.1146/annurev.soc.28.110601.141107
[115] Langley A, Lindberg K, Mørk BE, Nicolini D, Raviola E, Walter L. Boundary work among groups, occupations, and organizations: from cartography to process. Acad Manag Ann 2019;13(2):704–736. doi:10.5465/annals.2017.0089
[116] Hjort-Enemark E, Meier N, Hald AN. On the interplay between boundary work and organizational context. J Organ Sociol 2025;3(1):127–158. doi:10.1515/joso-2024-0016
[117] Gee JP, Handford M. The Routledge handbook of discourse analysis. London: Routledge; 2012.
[118] Bombard Y, Baker GR, Orlando E, Fancott C, Bhatia P, Casalino S, et al. Engaging patients to improve quality of care: a systematic review. Implement Sci 2018;13(1):98. doi:10.1186/s13012-018-0784-z
[119] Wind A, Van der Linden C, Hartman E, Siesling S, Van Harten W. Patient involvement in clinical pathway development, implementation and evaluation – A scoping review of international literature. Patient Educ Couns 2022;105(6):1441–1448. doi:10.1016/j.pec.2021.10.007
[120] Grocott MPW. Pathway redesign: putting patients ahead of professionals. Clin Med (Lond) 2019;19(6):468–472. doi:10.7861/clinmed.2019-0292

[121] Gualandi R, Masella C, Viglione D, Tartaglini D. Exploring the hospital patient journey: What does the patient experience? PLoS ONE 2019;14(12):e0224899. doi:10.1371/journal.pone.0224899
[122] World HO. WHO framework for meaningful engagement of people living with noncommunicable diseases, and mental health and neurological conditions. 2023.
[123] Cox R, Molineux M, Kendall M, Tanner B, Miller E. Co-produced capability framework for successful patient and staff partnerships in healthcare quality improvement: results of a scoping review. BMJ Qual Saf 2022;31(2):134–146. doi:10.1136/bmjqs-2020-012729
[124] Cribb A, Entwistle V, Mitchell P. Talking it better: conversations and normative complexity in healthcare improvement. Med Humanit 2022;48(1):85–93. doi:10.1136/medhum-2020-012129
[125] Rijndam Revalidatie. Bestuursverslag 2024. Rotterdam: Rijndam Revalidatie; 2025. [cited 2026 Apr 5]. Available from: https://digimv8.desan.nl/archive/search/results?year=2024&town=&organization=Rijndam%20
[126] Rijndam Revalidatie. Contact & locaties. [Internet]. Rotterdam: Rijndam Revalidatie; [cited 2026 Apr 5]. Available from: https://www.rijndam.nl/praktisch/naar-rijndam/contact-locaties/
[127] Nembhard IM. Learning and improving in quality improvement collaboratives: which collaborative features do participants value most? Health Serv Res 2009 Apr;44(2):359–378. doi:10.1111/j.1475-6773.2008.00923.x
[128] Zamboni K, Baker U, Tyagi M, Schellenberg J, Hill Z, Hanson C. How and under what circumstances do quality improvement collaboratives lead to better outcomes? A systematic review. Implementation Sci 2020;15(1):27. doi:10.1186/s13012-020-0978-z
[129] Schouten LM, Grol RP, Hulscher ME. Factors influencing success in quality-improvement collaboratives: development and psychometric testing of an instrument. Implement Sci 2010;5(1):84. doi:10.1186/1748-5908-5-84
[130] Green J, Thorogood N. Qualitative methods for health research. 4th edition ed. Los Angeles: SAGE; 2018.
[131] Roberts K, Casey M, Coghlan D, Cornall C, Hudson C, Stokes D, et al. A scoping review protocol to map the evidence on the use of action research methodology by healthcare professionals and in healthcare team settings. HRB Open Res 2021(4):68. doi:10.12688/hrbopenres.13275.1
[132] Mortelmans D. Handboek kwalitatieve onderzoeksmethoden. 3rd ed. Leuven: Acco; 2020.
[133] Schreier M. Sampling and generalization. In: Flick U, editor. The SAGE handbook of qualitative data collection. 1st ed. London: SAGE Publications Ltd; 2018. Chapter 6. doi:10.4135/9781526416070.n6



Chapter 2

Action research as a methodology for adaptive care pathway development in a dynamic organisational context

Published as:
Visser M, De Mul M, Ahaus K, Osterthun R, Pangalila R, Grauwmeijer E, et al. Action research as a methodology for adaptive care pathway development in a dynamic organisational context. Health Res Policy Syst. 2026. doi:10.1186/s12961-026-01520-2

2.1 Abstract

Background Care pathway development is a well-known strategy in value-based quality improvement. Developing care pathways in parallel in a coordinated programme requires flexibility. In this study, care pathway development was based on five quality improvement principles: collaborative improvement; stepwise, goal-oriented care pathway development; hybrid care pathway development; outcome monitoring; and shared ownership. This study had two aims: (1) understand how various teams develop care pathways in parallel in a dynamic organisational context, and (2) explore how action research can contribute to aligning care pathway development with the dynamic context.

Methods A two-year action research guided 11 multidisciplinary teams through a care pathway development programme, conducted in a Dutch specialised rehabilitation hospital with 16 sites. Reflexive data were collected from journal reports (N=169), conversations with team members and senior managers (N=44), research team meetings (N=25), and programme documents (N=149). Data were analysed in four iterative phases, combining elements of process and reflexive thematic analysis.

Results This study revealed six challenges that emerged when developing multiple care pathways in parallel, each exposing assumptions embedded in the programme design that were challenged in practice and led to successive programme refinements: (1) aligning teams' progress, learning needs, and clinical scope with the programme structure; (2) balancing innovation with manageable change; (3) the organisation's limited readiness for hybrid care; (4) problems with outcome monitoring and reliance on expert support; (5) distributed leadership and capability development; and (6) the hybrid nature of the programme, combining design elements with learning and adaptation. Action research facilitated customisation, enabling teams to progress in response to the dynamic context.

Conclusions This study shows that action research can support care pathway development by linking change, learning and scientific knowledge generation. By embedding reflection and adaptation into the care pathway development programme, action research helped balance structure with flexibility, strengthened shared ownership, and integrated sustainability early in the process. The findings suggest that action research offers a feasible methodology for implementing and adapting care pathway development methods through phased, reflective, and context-sensitive learning. Thus, action research bridges the gap between care pathway development methods and their practical application.

Keywords Care pathways, hybrid care, complex interventions, action research, participatory methods, quality improvement, healthcare innovation, health services research, qualitative research, rehabilitation medicine.

2.2 Background

Since its introduction by Porter and Teisberg in 2006, value-based healthcare has become a widely adopted strategy in healthcare organisations aiming to shift from volume-driven to value-based care [1]. Value-based healthcare seeks to improve outcomes in relation to the costs associated with delivering care. To achieve this transition in practice, healthcare providers systematically work on value-based quality improvement [2–4]. Value-based quality improvement aims to improve the organisation of care, and the subsequent outcomes for both patients and professionals [2]. In the Netherlands, value-based quality improvement is applied by developing a care pathway [3,5]. This entails a thorough examination and, where needed, redesign of care delivery to improve care quality and safety [6–12]. A widely cited definition describes a care pathway as "a complex intervention for the mutual decision-making and organisation of care processes for a well-defined group of patients during a well-defined period" [9, p137]. In general, care pathways aim to enhance patient experience, integrate evidence-based practices, improve efficiency through standardisation and process optimisation [6–10,12]. Recent, care pathway development has increasingly incorporated digital tools to create hybrid care pathways, and placed more emphasis on routinely monitoring outcomes to track the attainment of objectives systematically [6–10,13–15].

However, when various multidisciplinary teams (with members located in multiple sites) are developing care pathways in parallel in a coordinator care pathway development programme, overall progress is far from straightforward [6,16,17]. First, large-scale development requires sustained long-term effort across various teams [6,8,16,18]. Second, it requires both managerial and financial coordination to align resource allocation, productivity targets and institutional priorities [19]. It also demands specialist expertise and cross-departmental collaboration (e.g., quality, finance, education, business intelligence, IT), particularly when integrating outcome measurement and digital technologies [14]. Third, when value-based quality improvement initiatives take place in dynamic contexts, internal and external shifts require ongoing alignment between the methods and the context [6,16,17]. Taken together, these features indicate that developing multiple care pathways in one programme is a systemic challenge rather than a linear project. Consequently, both research and practice recognise that it requires a holistic approach, attentive to both complexity and context [6,16,18]. Despite the availability of methods that offer structured guidance to developing individual care pathways [20–23], little is known about how these methods can be applied effectively to developing multiple care pathways in parallel across teams in dynamic contexts, and particularly how to navigate the tension between the established structure and required adaptive action [18,24].

Given the need to reconcile structured methods with dynamic contexts, action research (AR) offers a suitable approach. By addressing real organisational situations, action research seeks to achieve three interrelated aims: drive change, foster organisational learning, and generate scientific insight [25–30]. Action research's cyclical, intervention-driven processes and close researcher-practitioner collaboration enable cross-team learning and contextual tailoring of the care pathway development [25–29, 31–33]. While action research is often applied in healthcare, its specific contribution to care pathway development remains underexplored. Therefore, this study focusses on an action research programme for care pathway development. The study aim was twofold: (1) understand how various teams develop care pathways in parallel in a dynamic organisational context, and (2) explore how action research can contribute to aligning care pathway development with the dynamic context.

2.3 Quality improvement principles

To initiate the action research, a care pathway development programme was designed following five quality improvement principles grounded in the literature (see Table 2.1).

Table 2.1: The five quality improvement principles included in the care pathway development programme

Quality improvement principle	Description	Theoretical foundation
Collaborative improvement	Follows a quality improvement collaborative structure in which multidisciplinary teams work together on a shared topic, learn from implementation experts and scientifically established quality improvement work and by deliberate cross-team learning to maintain progress and focus.	Quality improvement collaborative methodology [34–37].
Stepwise, goal-oriented care pathway development	Progresses from current situation analysis and shared vision to defining objectives, (re)designing care processes and iterative refinement through small-scale experiments and learning.	Belgian Network Clinical Pathway's 7-phase method [20,23]; Design-thinking building blocks by Pressman [38]; Work-as-Imagined and Work-as-Done theory by Hollnagel [39].
Hybrid care pathway development	Purposefully combines in-person and digital modes of care, using hybrid solutions to support accessibility, continuity and patient self-management.	Hybrid care: the purposeful combination of face-to-face care with web-based digital interventions or technologies [40–44].
Outcome monitoring	Uses systematic outcome measurement across clinical, process, financial, team, and service domains to evaluate performance and guide continuous improvement.	Care pathway performance monitoring using the Leuven Clinical Compass [7,8,16,45,46]; VBHC perspective on outcome- and cost-based improvement [1,15,47,48]; quality improvement and care pathway development perspectives on process, service, and team outcome improvement [6–8,13,16,45,49-54].
Shared ownership	Relies on multidisciplinary collaboration, partner-level patient involvement, and distributed leadership based on shared responsibility to coordinate efforts and align professional and organisational goals.	Multidisciplinary involvement of healthcare professionals based on care pathway development methods [18,20–22]; Quality collaborative improvement [34–37]; Value-based healthcare [1–3,5,47,48,55,56].

2.3.1 Collaborative improvement

The first principle entailed establishing a quality improvement collaborative, based on the improvement model described in the Institute for Healthcare Improvement Breakthrough Series [34–37]. In a quality improvement collaborative, multidisciplinary teams work simultaneously on a shared quality improvement topic, engage in cross-team learning, and maintain focus through regular meetings [34–37]. Quality improvement collaborative meetings centre on knowledge exchange with subject experts and change/implementation management and offer space for teams to exchange their experiences. Between collaborative meetings, autonomous teams continue their own improvement efforts during so-called self-directed action periods. [34–37,57,58]. This collaborative structure formed the basis of the care pathway development programme.

2.3.2 Stepwise, goal-oriented care pathway development

The second principle involved an approach comprising six steps: (1) current situation analysis and identify bottlenecks; (2) formulate a shared care pathway vision and set overall objectives; (3) segment the care pathway into distinct phases (e.g., intake, screening, treatment, aftercare); (4) define objectives per care pathway phase aligned with the overall care pathway vision; (5) (re)design each phase to achieve set objectives; and (6) implement through experiments, learning, and refinement.

This stepwise approach follows the Belgian Network Clinical Pathways (Netwerk Klinische Paden) method, where a diagnostic phase precedes formulating pathway objectives and translating these in a redesigned care pathway [20,23]. Accordingly, such activities as analysing the current situation, formulating a vision, and setting objectives were operationalised in interactive exercises at quality improvement collaborative meetings. To help teams articulate the vision and goals that stimulate creativity and innovation in care pathway design, quality improvement collaborative meeting formats were inspired by Pressman's [38] design-thinking building blocks (information gathering, problem analysis and definition, and synthesis through modelling) adapted to the local context and integrated into design-oriented formats. Following the Belgian Network Clinical Pathway method [20,23], the teams specified key clinical interventions based on their objectives and elaborated their care pathway by assigning tasks and roles and organising care logistics (step 5).

Drawing on Hollnagel's theory of Work-as-Imagined and Work-as-Done [39], step 6 included small-scale experiments as a strategy to help teams identify discrepancies between the designed care pathway (Work-as-Imagined) and daily practice (Work-as-Done). These discrepancies then served as a basis for iterative refinement of the pathway design.

2.3.3 Hybrid care pathway development

The third principle addressed hybrid care, also called blended care, which refers to the purposeful combination of in-person care with web-based, digital interventions or technologies [40–44]. Hybrid care has gained international attention as a means to safeguard access to care amid growing workforce shortages and rising healthcare costs, by enabling care delivery independent of location [42,59,60]. Moreover, digital interventions have been shown to support patient self-management and autonomy [40-43,59,61]. During the quality improvement collaborative meetings, interactive design exercises encouraged the teams to explore how digital elements could complement existing care processes.

2.3.4 Outcome monitoring

The fourth principle emphasised defining outcome measures as the basis for monitoring and improving care pathway performance. This focus reflects a core component of the value-based healthcare framework, which uses health outcome and cost data to assess value, support learning, and guide improvement [47]. In the care pathway development programme, following Vanhaecht et al. [8,45] and Seys et al. [7,16], care pathway teams were instructed to determine which indicators aligned with the aims of their care pathway using the Leuven Clinical Compass [46] to inform ongoing reflection on care pathway performance and the subsequent improvement efforts. This compass covers five performance domains: clinical, process, financial, team and service [46]. By applying these five domains, the care pathway development programme integrated the value-based healthcare perspective on both clinical outcome- and cost-based improvements [1,15,47,48] as well as the quality improvement and care pathway development perspectives, which emphasise improvements in process, service, and team outcomes [6–8,13,16,45,49–54].

2.3.5 Shared ownership

The fifth principle of shared ownership focused on combining participatory engagement with shared, distributed leadership. Accordingly, a multidisciplinary team was established for each care pathway in the programme. This approach aligns with existing care pathway development methods [18,20–23], quality improvement collaborative methodology [34-37], and the value-based healthcare literature [1–3,5,47,48,55,56], which all emphasise the involvement of multidisciplinary professionals in quality improvement. Each team was instructed to include a patient as an equal team member, reflecting the quality improvement principle of partner-level patient and public involvement as recommended by the WHO and the literature [62–66].

2.4 Methods

2.4.1 Study design and setting

Action research was conducted within a two-year care pathway development programme, following an interpretivist paradigm [67,68], at a Dutch specialised rehabilitation hospital, with approximately 550 FTE across 16 sites treating around 15,000 patients annually [69,70]. While guiding 11 multidisciplinary care pathway development teams functioning as the primary units of analysis, action research pursued three interrelated objectives: (1) The change objective was to enable healthcare professionals to reorganise and improve rehabilitation care through care pathway development. (2) The learning objective was to build the capabilities of healthcare professionals and management to collaboratively design, implement and continuously refine care pathways. (3) The scientific objective was to generate insight into care pathway development processes in dynamic organisational contexts.

Five quality improvement principles provided the theoretical and methodological foundation for the care pathway development programme (see Background), which was implemented jointly by the research team and the organisation. Each action research cycle concluded with joint reflection sessions between the research team and organisational stakeholders to evaluate and identify targeted interventions for refining the care pathway development programme in the next cycle. These reflection sessions informed ongoing adjustments to the work of the multidisciplinary teams and the overall care pathway development programme. Thus, reflection shaped both the programme and the context in which the teams operated.

2.4.2 Data collection and participants

A multi-method, reflexive data collection strategy was employed: A) journal reports (N=169); B) conversations with care pathway team members and senior managers (N=44); C) research team meetings (N=25); and D) care pathway development programme documents (N=149), including action plans and presentations at quality improvement collaborative meetings, feedback forms, preparatory and communication materials, meeting minutes, progress reports, project memos, and stakeholder management presentations. Data were collected between May 2021 and November 2023. Validity was enhanced by applying method triangulation, combining data from diverse sources [67].

Participants for reflective conversations were selected through criterion sampling [71], which ensured the inclusion of diverse backgrounds and organisational levels, middle managers (N=13), rehabilitation physiatrists (N=5), healthcare professionals (N=20), senior managers (N=6), to capture a broad range of perspectives. The 44 reflective conversations occurred at various points of the programme (see Figure 2.1) with 26 unique participants, who took part in 1–4 conversations, with an average duration of 38 minutes.

The conversations and research team meetings were held in person or online and were recorded using Microsoft Teams or a voice recorder, transcribed verbatim and pseudonymised. All data were securely stored in compliance with General Data Protection Regulation guidelines.

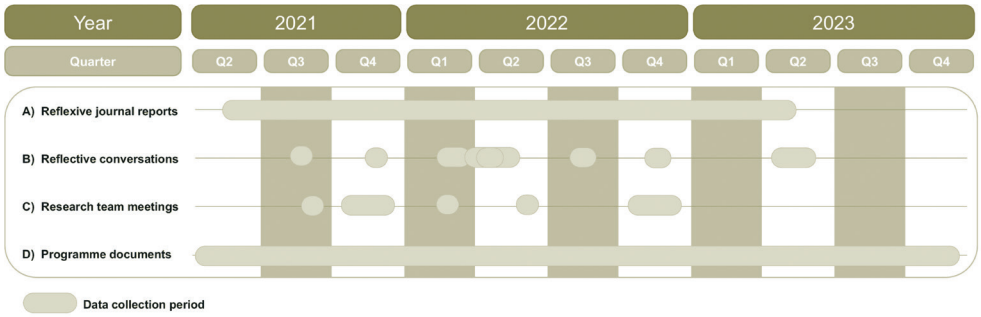


Figure 2.1: Action research data collection timeline

2.4.3 Data analysis

Combining elements from Langley's process-data analysis approach [72] and reflexive thematic analysis [73–75], an iterative, four-phased analytical process was followed (see Figure 2.2). In the first phase, the lead researcher familiarised herself with the data by reviewing journal reports, conversation transcripts, and project documentation. This formed the foundation for identifying interventions for each principle, associated reflections, and perceived outcomes.

In the second phase, the lead researcher coded the transcripts of research team meetings, conversations, and journal reports using Atlas.ti 24. Codes were organised around two domains: programme design and facilitation and care pathway design principles. A cross-sectional category captured contextual barriers, enabling conditions, and programme management. Within each domain, sub-codes were tagged with a prefix (I, R, or O) to denote interventions, reflections, or outcomes.

The third phase involved ongoing reflexive dialogue within the research team allowing diverse perspectives to shape the findings, including a dedicated session to explore patterns and consolidate key insights. Phases two and three were dynamically intertwined, involving an iterative process of alternating between data and interpretation until consensus was reached.

In the fourth phase, the interventions, reflections and outcomes were described for each principle and presented as a narrative. To validate the interpretation, this narrative was reviewed by five stakeholders closely involved in the care pathway development programme (three rehabilitation physiatrists, one programme manager, one adviser). They were invited to reflect on the findings using a structured reflection document and their feedback both confirmed and refined the interpretation of the six challenges. The research team supported analytical rigour with reflexive discussions, which helped to cross-check interpretations and integrate varied perspectives [67].

The five quality improvement principles provided the framework for reporting the findings; their connection to the inductively developed codes emerged progressively from the second phase onwards, through iterative reflexive dialogue within the research team (see Appendix 2.8.1).

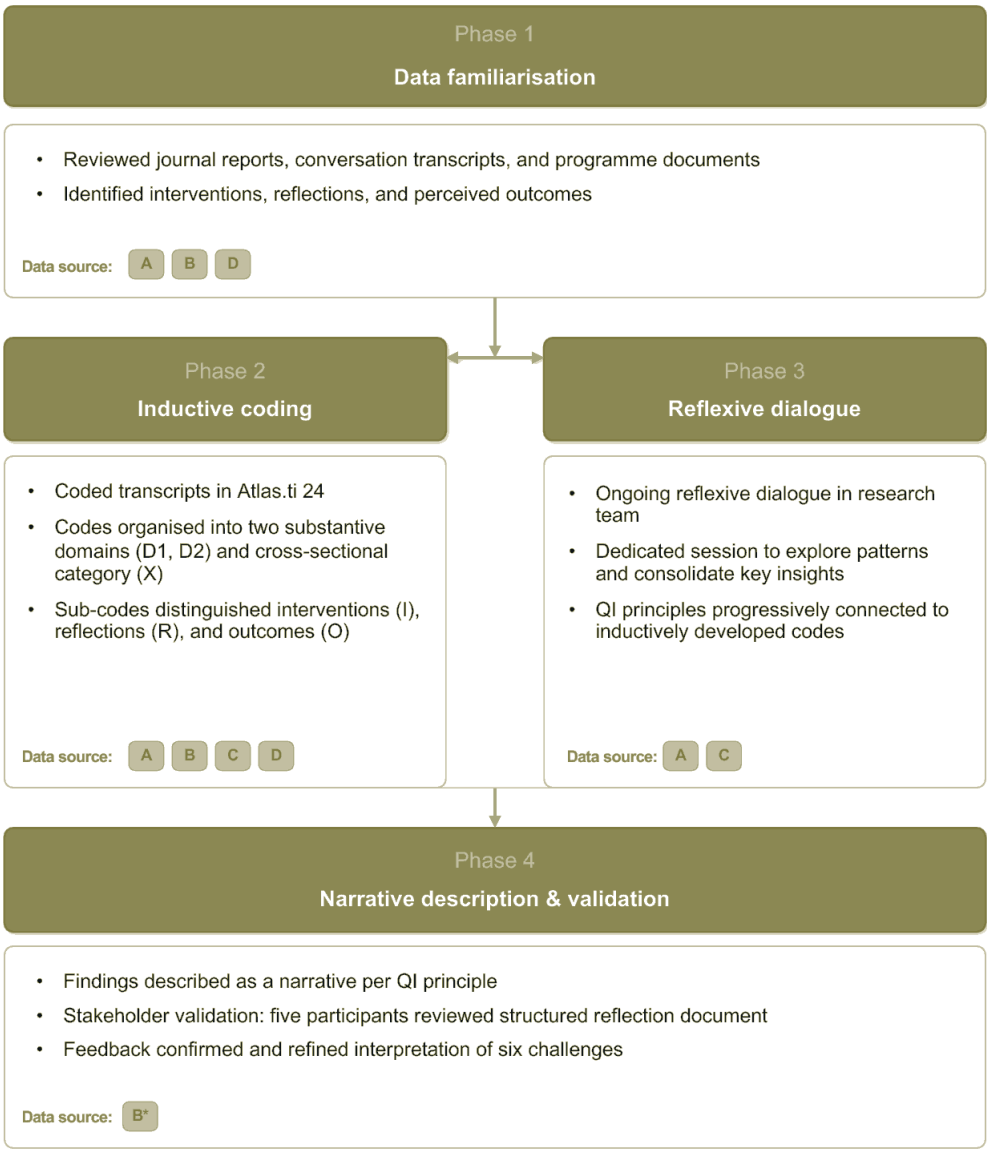


Figure 2.2: Four-phased analytical process

2.4.4 Action research team and reflexivity

The research team had three members: the lead researcher, an associate professor (Erasmus School of Health Policy and Management), and an endowed professor (Tranzo, Tilburg University). The lead researcher was embedded in the specialised rehabilitation hospital as project manager coordinating the care pathway development programme, coaching the multidisciplinary teams, and organising the quality improvement collaborative meetings.

The research team participated in the action research as both researchers and facilitators. Throughout the programme, they applied three-level reflexivity [76,77] to critically examine their own assumptions and prevent 'going native' [78–80]. Reflexivity strategy involved: (1) the lead researcher kept weekly journal reports not only to capture experiences, observations and evolving organisational dynamics, but also as a reflexive tool to reflect on the role of tensions, assumptions, and researcher impact; (2) reflexive research team meetings (N=25) critically interrogated interpretations, power dynamics, and interactions with participants; and (3) two moments of academic reflection by an advisory board convened by Erasmus University, when academic experts, the research team, and hospital representatives reflected on the progress of the programme.

The action research programme was supervised by a steering committee, to which the lead researcher reported on progress and brought forward issues for joint alignment and direction-setting. To enhance transparency, this researcher created an audit trail documenting the research process [67]. The Standards for Reporting Qualitative Research guided the writing process [81]. OpenAI's ChatGPT (GPT-5) was used to enhance clarity and a professional English editor further enhanced readability. The authors critically reviewed, revised, and approved all the AI- and editor-generated suggestions to ensure scientific accuracy.

2.5 Results

This section describes how care pathway development evolved over two years in response to organisational dynamics and how iterative reflection on the change objective, care pathway team progress, and the organisational dynamics influencing care pathway development informed targeted interventions and programme refinements.

2.5.1 General overview

At start-up, five quality improvement principles informed the care pathway development programme. Participating across three action research cycles, each of the 11 multidisciplinary teams represented a specific rehabilitation pathway (see Table 2.2). Given the long-term, complex nature of care pathway development, a clear project structure was put in place. This included for each team appointing a healthcare professional to act as the day-to-day project leader to steer, coordinate and monitor the team's care pathway development process, and a middle manager responsible for allocating time and resources. Both were employees of the organisation.

Table 2.2: The specific rehabilitation pathways of the 11 multidisciplinary care pathway development teams per action research cycle

Cycle 1	Cycle 2	Cycle 3
1. Inpatient Spinal Cord Injury 2. Inpatient Stroke 3. Amyotrophic Lateral Sclerosis 4. Adult pain 5. Paediatric pain	6. Post-discharge Spinal Cord Injury (network pathway) 7. Multiple Sclerosis 8. Paediatric (ages 0–4) 9. Paediatric diagnostic outpatient clinic	10. Cerebral Palsy Paediatric 11. Post-discharge Stroke (network pathway)

Teams were supported by a series of quality improvement collaborative meetings, which centred on expert-led knowledge exchange, guided teamwork using interactive exercises, and learning through experiments. Between quality improvement collaborative meetings, the teams continued autonomously their care pathway development. In addition, reflective meetings were held to discuss progress, support cross-team learning, and to adapt teams' care pathway development strategies (see Figure 2.3).

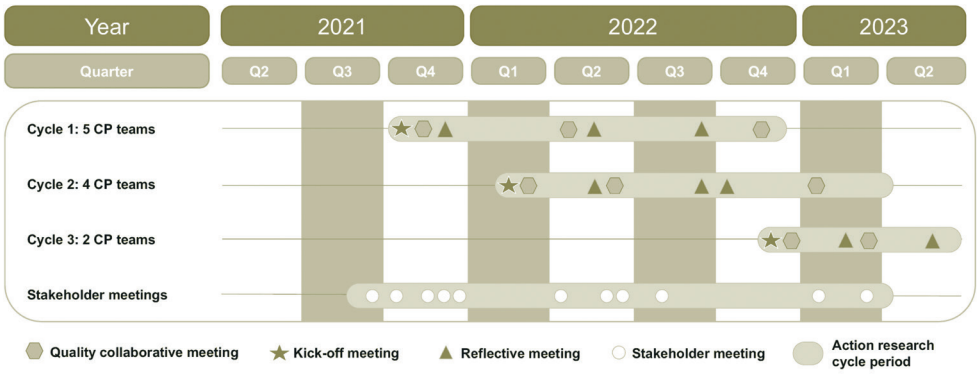


Figure 2.3: care pathway development programme timeline

Key stakeholders were members of the Board of Directors, middle management, clinical leadership, and the client council. Their engagement was supported by internal meetings and presentations, aligning the care pathway development programme with organisational priorities (see Figure 2.3). While key stakeholders were not always directly involved, their engagement ensured organisational support and alignment of care pathway development activities and data collection.

Throughout, systematic reflection and adaptation were integral to maintaining alignment between the action research process and the context, covering both organisation-wide dynamics (financial pressures and managerial discontinuity) and individual team dynamics (reduced engagement and motivation) (see Collaborative improvement, below).

2.5.2 Care pathway development programme refinements

This part describes how the care pathway development programme was refined for the five quality improvement principle to respond to the organisational dynamics.

2.5.2.1 Collaborative improvement: from structure to practice

The structured rhythm of collaborative improvement in quality improvement collaborative meetings and the autonomous work of individual teams during the self- directed action periods fostered a shared direction and supported both collective and independent learning. The combination of collaborative learning, the practical applications teams made independently, and structured feedback and reflection created the conditions for teams to adjust their approaches over time. Each quality improvement collaborative meeting combined knowledge transfer, guided teamwork in interactive exercises to develop a hybrid care pathway, aimed at strengthening collaboration and mutual learning in and across teams. The rhythm of structured meetings and autonomous, independent teamwork provided continuity and positively influenced motivation. Members felt the opportunity to step away from daily routines and work together in a dedicated learning space was energising:

> *"It was such a positive day. Everyone was keen and got straight down to work. The atmosphere was constructive, focused on developing things together. The group had a really good vibe." (care pathway manager I_17)*

However, the meeting structure also posed challenges. Care pathway teams varied widely in their pace of care pathway development due to differences in scope and the organisational complexity of redesigning a care pathway, ranging from multi-site care pathway redesigns to single-site outpatient care pathways, and from complex in- and outpatient rehabilitation to one-day diagnostic consultations. This variation in care pathway development pace was further shaped by two significant dynamics. First, the organisation faced significant financial pressure, reflecting wider trends across the Dutch healthcare sector, as documented in journal reports and steering committee minutes, which increased productivity demands on staff and ultimately reduced project engagement. Second, ongoing management restructuring led to discontinuity in key leadership and coordination roles on both the programme and team level, as documented in journal reports and based on conversations with middle managers across all three cycles. Together, these factors contributed to differences in progress and engagement across teams, making it difficult to align the programme's meetings with each team's needs and stage of progress. To accommodate these differences, from cycle 2 onwards teams were given greater influence over the quality improvement collaboratives' and reflection meetings' agendas to better match their own needs and stage of care pathway development. In practice, teams prioritised dedicated time to work on their own over shared programme themes. While this increased autonomy, it reduced the programme's overall learning potential, as the teams had fewer opportunities to learn from each other's progress.

One of the interventions to mitigate this was to organise knowledge exchange sessions with internal experts (staff from HR, finance, clinical outcome metrics, hybrid care). These sessions provided useful insights for several teams. In contrast, external experts (operation management or peer rehabilitation experts) yielded mixed responses. Some team members perceived their specialist input as too abstract or disconnected from their daily practice:

> *"I struggled to find a connection with [expert A]'s presentation. [Expert B] was more relatable. Was it the delivery, the content, or terminology? I'm not sure. But once we started working with the Compass and applying the input, it started making sense." (care pathway project leader, I_31)*

To promote peer learning, each cycle included reflective meetings for exchanging news on progress and team reflection. Initially, teams were hesitant to reflect on their change strategy or draw lessons from others. Over time, small examples of cross-team learning emerged. For example, the Amyotrophic Lateral Sclerosis team in cycle 1 and the Multiple Sclerosis team in cycle 2 adopted the idea of modular pathway design from the Inpatient Stroke team in cycle 1.

Despite structured efforts to support peer learning and reflection, care pathway teams found it hard to apply the shared input in their autonomous work during the self-directed action periods. Any practical use of shared materials and exercises remained limited. care pathway leaders cited competing priorities and limited time as key reasons, with some struggling to follow up on input or losing oversight amidst clinical demands:

> *""In the beginning it was too much… Getting used to Microsoft Teams [recently implemented in the organisation and used for collaboration in the care pathway development programme], new pathway concepts, and everything else happening in the organisation. You leave a meeting and it all just slips away.." (care pathway project leader, I_39)*

Nonetheless, the research team observed that some shared experiences did spark change. For example, the Inpatient Stroke team was inspired by a peer organisation and adopted their ideas and practices later on (see Textbox 2.1).

Textbox 2.1: Learning from others.

When the Inpatient Stroke team were developing their change plan at a reflection meeting, they considered visiting a peer rehabilitation hospital. Initially, nothing happened. But when progress stalled, the lead researcher mentioned the site visit idea again. More than a year later, the team independently arranged the site visit, returned inspired, and promptly implemented several practices they had observed. In sum, introducing the idea at the reflection meeting planted a seed that eventually took root; the visit enabled the team to move from intention to action.

2.5.2.2 Stepwise, goal-oriented care pathway development: enabling creativity through structure

The stepwise, goal-oriented care pathway development approach was flexibly adapted across the cycles to maintain focus and progress, allowing teams to align the timing and content of their care pathway development work with their capacity and circumstances.

- **Fostering creativity through shared visioning**

During the first quality improvement collaborative meeting of cycle 1, each team was guided through a strategy exercise, in which they jointly articulated a strategic vision or 'dream' for their care pathway (see Textbox 2.2). This exercise was intended to inspire creative thinking. The result served as a foundation for the design process and helped align the team's efforts.

> *"[Having a] dream is really important. As a starting point, it's good to think outside the box: what would be ideal? Discussing that scenario really helped lay the groundwork for what comes next. It gave me more clarity about what we're actually going to do." (care pathway project leader, I_25)*

However, when the research team reflected on cycle 1, it became clear that formulating a vision did not always lead to innovation; teams often stayed close to their current practices.

> *"By the end of day one, we hadn't really thought through what the dream actually meant. It was there at the start but then we sort of parked it. The focus shifted to how we do things now. […] So we ended up falling into the trap of just describing what's already happening." (care pathway project leader, I_28)*

To address this difficulty, the interactive design exercises were refined from cycle 2 onwards. The core exercise ('dream') remained unchanged. However, following stakeholder consultation and mind mapping, an explicit idea-generation step using guided brainstorming was added to strengthen the link between the hypothetical vision and actual, concrete design.

Textbox 2.2: Vision statement by the Post-discharge Spinal Cord Injury team

Wouldn't it be great if patients…
- felt supported in adopting a new perspective, rediscovering the world from a seated position, and gaining insight into what lies ahead (in work, sports, and social life)?
- received this support from experts both inside and outside the rehabilitation hospital (e.g. coach, psychologist)?
- had autonomy and self-direction in their capabilities, and shared decisions with healthcare professionals about their care?
- could rehabilitate at home whenever possible?

Wouldn't it be great if care...
- focused on participation at home and maintaining quality of life, with physical activity tailored to the patient's daily life (preferred sport, ADL)?
- eliminated silos between care providers, ensuring the right care in the right place, with home rehabilitation as the guiding principle from the start, seamless transitions between hospital, outpatient and community care, and clarity and continuity throughout the process?

- **Refining the care pathway design process**

In cycle 1, care pathway teams were instructed to integrate elements of hybrid care and formulate indicators for outcome measurement into their care pathway. This made the design phase take longer than expected, partly due to the wide range of design choices teams had to make. In addition to clinical and logistical decisions, aimed at achieving uniformity across locations and disciplines, teams also had to incorporate hybrid care and formulate indicators for outcome measurement. Several team leaders reported that it was challenging to address all these aspects while the core structure of the care pathway was not finalised yet.

> *"Looking back at the early meetings, I think we went too deep into certain topics, like outcome measurement, while the basic structure of our pathway wasn't clear yet. We spent quite a time brainstorming about which outcome measures to use and how, and in hindsight, I sometimes think that maybe that wasn't the right moment. When you don't have a clear picture of the pathway, it's harder to think about where and how to measure it." (care pathway project leader, I_33)*

To address this difficulty, the sequence of step 5 (Redesign) and step 6 (Implementation) was refined in cycle 2 onwards. Special interactive exercises at quality improvement collaborative meetings guided teams in redesigning their care pathway. They first segmented their care pathway into phases (screening, treatment, aftercare), then set objectives per phase based on the shared vision they had formulated in the previous step. Then they incorporated clinical content and logistics in each phase. Hybrid care and outcome measurement were postponed until the core clinical and logistical aspects (referral, admission procedures, and scheduling) were in place. This refinement enabled teams to work more systematically, increased manageability, and helped them maintain oversight.

> *"Yes, I really think that [refinement] worked well. [...] Would people have made different design choices if they had thought about hybrid care earlier? I don't think so. They definitely don't feel overwhelmed now. I also don't feel like we've missed anything essential in the current design." (Reflexive research team meeting, RR_14)*

As the programme progressed, the focus on continuous care pathway improvement became more explicit. While the idea of ongoing development was integral to the programme from the outset, the term 'living care pathways' was introduced to articulate this evolving focus. It underscored that care pathways should remain open to continuous learning and adaptation over time, using outcome measurement as a basis for ongoing improvement. This concept helped deepen awareness among management of the importance of structurally embedding continuous improvement as the cycles progressed.

- **Iterative care pathway development through small-scale experiments**

As teams progressed from designing to implementing their care pathway, it became apparent that translating the designed care pathway into daily practice was not straightforward. To support transition and stimulate learning, small-scale experiments were introduced as a strategy to identify discrepancies between the design and actual practice. Testing design choices in daily routines uncovered potential bottlenecks and enabled iterative adaptation. The lead researcher included small-scale experiments in the interactive design exercises at quality improvement collaborative meetings and subsequently guided teams to develop change plans outlining how experiments could support their design decisions.

Despite this support, several obstacles limited actual experiments. A direct-implementation mindset led some teams to view experiments as unnecessary, preferring to implement their care pathways immediately and evaluate afterwards. This tendency was documented in journal reports and is illustrated by the quotes below. Some teams wanted to wait until they considered their care pathway fully developed, feeling that experiments required a mature and stable care pathway. Some professionals wanted to have every detail figured out in advance rather than experiment with open questions. This preference for detailed planning and full consensus before acting also reduced opportunities for iterative learning. Slow advances, time pressure to test and reflect due to clinical demands and uncertainty about next steps left other teams hesitant to act. Finally, reluctance to deviate from familiar routines sometimes blocked teams from exploring alternatives, and they thought the preparatory work needed to shape a small-scale test was burdensome. These challenges are illustrated by the following reflections:

"The manager said we didn't need experiments: 'we'll just do it!' We should just implement the pathway and evaluate after three months." (Journal report, 25 October 2022)

"I keep trying to help them get on with preparing the experiment, but they feel stuck. They want to act but struggle to take ownership and get started." (Journal report, 24 March 2023)

Over time, reflection in the action research cycles helped those involved recognise that introducing small-scale experimentation required not only methodological guidance but also cultural and motivational support. As the programme progressed, openness towards small-scale experimentation gradually increased across care pathway teams.

"We're in the experimentation phase now. [it can teach us how to] develop concrete plans and agreements." (care pathway project leader, RO_06)

The lead researcher observed that framing experimentation as low-risk, iterative implementation helped lower the threshold for action. Teams became more willing to try things out, recognising that failure could lead to useful insights:

"I said, well, maybe just try it with three people. See if it works. I could see they needed to hear me repeat in a relaxed tone: let's try it. If it doesn't work, we'll stop, adjust and try again." (Reflexive research team meeting, RR_02)

Building on this growing openness, several teams initiated small-scale experiments to explore divergent viewpoints in their team, testing different approaches and new routines in practice before reaching final decisions. One team used a group meeting to brainstorm and document multiple experiments, reflecting on how to take incremental steps to implement and explore different routines in parallel. Another team simulated a patient admission using a mock trajectory, inviting colleagues involved in the planning process to join, which enabled cross-disciplinary learning. These examples illustrate how repeated encouragement helped care pathway teams gradually shift their routines and begin embedding testing and learning into their care pathway development process.

2.5.2.3 Hybrid care pathway development: working through barriers

The findings in this section illustrate how professional attitudes, technical barriers, and organisational readiness influenced both the pace and scope of hybrid care pathway development.

From the start of cycle 1, care pathway teams were encouraged to create a hybrid care pathway with available digital tools. The organisation provided a predefined set of tools, including video consultations, a self-guided rehabilitation platform, and a patient portal for accessing health records and managing appointments. Teams received support by knowledge transfer from internal and external experts, and interactive exercises on hybrid care design at quality improvement collaborative meetings.

Working with a fixed set of digital tools did not always align with the needs of care pathway teams and at times evoked negative associations. For example, using the self-guided rehabilitation platform generated resistance among teams working with patients with progressive conditions (e.g., multiple sclerosis, amyotrophic lateral sclerosis), as both the name and content of the platform seemed to focus on recovery, which did not reflect these patients' experiences.

"They really struggled with the name. It just didn't fit their patient group. And the content is too focused on getting better, rather than on people who are only going to deteriorate. To be honest, that's not something that comes up naturally in care pathway development, but it's a big issue for them." (Reflexive research team meeting, RR_03)

In some teams, the constraints of the available digital tools limited creative thinking. For instance, the post-discharge Spinal Cord Injury team wanted to integrate care planning across the regional network of physiotherapists by sharing documentation and secure data exchange. However, technical barriers made this vision unfeasible.

Additional obstacles included the extra workload associated with implementing digital tools (e.g., scheduling e-consults or developing tailored content for the self-guided platform), as well as a general hesitancy to use them, driven by unfamiliarity, limited digital literacy among staff, and a strong preference for personal care.

> *"We discussed introducing hybrid care, like video consults. Several professionals said they preferred in-person visits and believed patients did too. That contradicted findings from our hybrid care evaluation focus groups." (Journal report, 13 December 2021)*

Early uptake was also constrained by infrastructural limitations, such as limited Wi-Fi availability, inadequate audio-video equipment, and a lack of suitable rooms. Moreover, limited managerial prioritisation led to uncertainty among teams about the role and status of hybrid care in their care pathways.

Despite these barriers, hybrid care became increasingly embedded in care pathways over time (see Textbox 2.3). This shift was enabled by improved technological infrastructure, targeted in-house expert support to guide the teams, the continuous emphasis on the importance and value of hybrid care at quality improvement collaborative meetings, and the deployment of internal ambassadors to promote tool use and enhance digital skills.

Textbox 2.3: Self-guided inpatient stroke rehabilitation

In February 2023, the Inpatient Stroke team launched an experiment to familiarise patients and their families with the self-guided rehabilitation platform. The aim was to enable patients to keep using the online platform straight after discharge to support independent progress towards their rehabilitation goals before outpatient follow-up. All newly admitted patients and their families were invited to two instruction meetings, where a therapy assistant gave practical tips on using the platform. The experiment focused on initiating tool use early in the care pathway to strengthen engagement by patients, families, and staff.

2.5.2.4 Care pathway outcome monitoring: early ambition, limited realisation

To monitor and continuously improve care pathways, teams were guided in selecting and defining care pathway performance indicators across the five domains of the Leuven Clinical Compass [46] (clinical, financial, process, team, and service). At quality improvement collaborative meetings in cycles 1 and 2, a carousel exercise invited teams to formulate one or two care pathway performance indicators per domain. Internal experts and research team members facilitated the exercise, helping teams translate selected measures into actionable insights for care pathway monitoring. This marked an initial step towards using data for improving the redesigned care pathways. The Leuven Clinical Compass [46] broadened the teams' opinions of relevant care pathway performance indicators. However, some teams felt overwhelmed by the volume of new information and their unfamiliarity with evaluating care in this way.

> *"I felt a lot of information was given while I was still figuring things out. I wondered, was it really the right moment to be working on it?" (care pathway project leader, I_39)*

Besides the carousel exercise, each care pathway team was assigned an internal expert to act as a contact person during and after the collaborative meetings. This led three teams to actively develop and implement clinical outcome measurement trajectories, thanks to the organisation's strategic commitment to value-based healthcare and the resources allocated to clinical outcome measurement to support shared decision-making and scientific research.

Despite progress in the clinical domain, developing indicators in the four other domains proved challenging. Team outcome indicators were particularly difficult to conceptualise and operationalise. In the financial, process, and service domains, data were unavailable or inaccessible due to registration issues and IT-system limitations. There were no dashboards and few resources (expertise, time, and budget), which hindered teams' engagement in these domains. Nevertheless, some initial steps towards financial awareness and steering were taken, as illustrated by the example described in Textbox 2.4 and reflected in the following quote:

> *"I think it was an eye-opener for everyone […]. We did our work, but had no idea what it meant financially. Now I'm having talks with our manager about training colleagues to read the financial system, so we can compare financial and clinical aspects at team meetings. That's something the care pathway programme taught us, that we need this. Now we understand what it means financially when we say we want to keep someone admitted an extra week." (care pathway project leader, I_39)*

Textbox 2.4: Facilitating financial steering

The organisation's financial expert explained the funding structure and trends in costs for specialist rehabilitation care in the Netherlands. His modelling tool enabled teams to test the affordability of their care pathway designs. Given the planned time allocation for each discipline, the model calculated actual costs vs. expected revenues. Using the model enhanced teams' financial insight and design decision-making and thus served as an initial step towards enabling financial steering in care pathways.

However, fully integrated outcome monitoring and continuous care pathway improvement was not realised by the end of the programme. Multiple care pathway teams continued to struggle with selecting and applying care pathway performance indicators. Moreover, since the care pathway development programme was not structurally embedded in the management hierarchy, some perceived it as a temporary initiative, which discouraged long-term investment in IT systems, care pathway development expertise and improvement infrastructure. On the other hand, the repeated emphasis on continuous improvement in embedded 'living care pathways' created momentum for further dialogue in stakeholder meetings, thereby advancing strategic awareness and alignment on care pathway outcome monitoring, both essential for systematic, sustained care pathway improvement.

2.5.2.5 Shared ownership

Reflecting the principle of participatory engagement and distributed leadership senior management was instructed to compose teams with representatives from each discipline and location involved. This was largely successful for medical and paramedical disciplines, though selecting which discipline and location to represent the whole group proved challenging. To keep teams manageable, a maximum of ten members was set, meaning that not all disciplines in every location could be represented, which limited opportunities for participatory engagement across all disciplines and locations.

Nurses (only involved in the two inpatient pathways) and support staff (secretaries, planners) were generally not fixed team members. Most teams argued that these colleagues could not contribute much to the care content of the care pathway design, and were worried that including them might lead to loss of focus:

> *"I don't think you need to involve them from the start. [...] When we did, lots of concerns surfaced and the discussion quickly became repetitive instead of action-oriented. Of course we must involve them, they play a major role, but in a different way." (care pathway project leader, D_23)*

So, nursing and support staff were involved only at moments deemed relevant by the care pathway team. However, there were exceptions. In the paediatric (ages 0-4) rehabilitation team, a planner was included from the start, bringing a process- and logistics-oriented perspective that proved invaluable to the design process.

Each care pathway team was encouraged to involve a patient representative as a full partner. However, achieving this proved challenging, as team members held differing views on the feasibility and value of such participation. Some expressed uncertainty about how to involve patients as equal partners in a complex, multidisciplinary design process, while others were concerned about the skills, representativeness, or the vulnerability it might evoke in professional discussions.

While patients were not involved in cycle 1, efforts were made in subsequent cycles. In cycle 2, two care pathway teams invited patient representatives to their first quality improvement collaborative meeting (see Textbox 2.5). In cycle 3, one team organised two reflective meetings with network partners and patient representatives to present and refine their initial pathway design. These incremental steps illustrate how the two-year programme provided space to experiment with patient participation, though sustained, partner-level involvement across all phases of care pathway development was not achieved.

Textbox 2.5: Patient involvement

In cycle 2, the care pathway teams for multiple sclerosis and post-discharge spinal cord injury invited patient representatives to their first quality improvement collaborative meeting. Both teams reported that their presence shifted the focus of the design process. The multiple sclerosis representative stressed the need for a single contact point. The spinal cord injury representatives felt friction between supporting patients' autonomy and their need for guidance, advocating for stronger collaboration across all professionals involved in post-discharge, including community-based providers such as home carers and psychologists. Teams appreciated the patients' input, stating that certain perspectives and decisions would not have happened without it.

To stimulate shared ownership, each team was asked to nominate a care pathway project leader. In cycle 1, this role was filled in three cases by a professional (two physical therapists and one social worker), and in two cases by a middle manager. Care pathway development progress during the first cycle was slow, prompting reflection by the research. This reflection highlighted two key issues. First, although the action research learning objective was to build capacity, developing these competencies in practice was challenging. The care pathway project leader role required change- and project-management skills that were not self-evident nor easily acquired within the available time.

> *"We're being asked to take responsibility [for developing something] quite different from a clinical perspective. [...] Leading a pathway team requires project leadership skills, and that's not something we've been trained for." (care pathway project leader, I_37)*

Second, in addition to skill-related challenges, structural barriers also hindered the development of shared ownership. Although time had been formally allocated to the project, it was not consistently honoured in practice due to decisions by line management, beyond the control of care pathway project leaders. Finally, combining a middle-management position with the care pathway project leader role proved particularly demanding, especially under conditions of financial pressure.

To strengthen distributed leadership and accelerate the design process, a leadership triad model was introduced in cycle 2. Each team was jointly led by a project leader, a manager, and a medical leader, who were collectively responsible for guiding the team process, shaping the care pathway design, and ensuring enabling conditions. This model was introduced to combine complementary skills and perspectives, and built on the lessons from cycle 1, where leading the care pathway development process proved too demanding for a single leader, both in scope and required expertise. Establishing the triad enabled leadership responsibilities to be shared, combining managerial, clinical, and project perspectives that were all essential for progress.

To support the triad, a preparatory meeting was held in cycles 2 and 3 prior to the first quality improvement collaborative meeting. These kick-off meetings explicitly addressed the pathway vision, decision-making, mandate, and boundary conditions, and were followed by recurring coaching and reflection sessions with the lead researcher to address emerging challenges and maintain alignment during the care pathway development process. This joint preparation strengthened mutual understanding of expectations, objectives, roles and boundaries, creating a shared foundation for collaboration. It enabled a stronger start, clearer direction, and firmer commitment. The visible involvement of medical staff and management in the triads reinforced their legitimacy in the organisation and encouraged broader engagement with care pathway development.

Together, introducing the triad and the preparatory meeting improved the balance between developing care pathway content and guiding the care pathway development process, enabling emerging challenges to be addressed proactively. While some triads established effective collaboration and decision-making routines, others struggled with fluctuating engagement or unclear role boundaries, which delayed progress. These experiences revealed that fostering shared ownership and distributed leadership required not only a suitable leadership structure but also ongoing attention to role clarity, alignment, and the development of leadership capabilities.

2.6 Discussion

This study aimed to understand care pathway development and explore the value of action research in guiding and aligning care pathway development in a large-scale, multi-site, dynamic organisational context.

2.6.1 Principal findings

Applying the five quality improvement principles in a programme in which multiple care pathways were developed in parallel revealed six practical challenges. Each exposed assumptions embedded in the programme design that were challenged in practice and led to successive programme refinements.

The first challenge emerged in relation to collaborative improvement that guided the programme structure. While this initially created energy, direction, and coherence across teams, the synchronous design was challenged by differences in teams' development pace, learning needs, and clinical scope. These differences limited the potential for cross-team learning and hindered alignment throughout the care pathway design phase. quality improvement collaborative typically brings together teams from different organisations to work on a shared topic, enabling the exchange, translation, and local application of existing knowledge [35,36]. A quality improvement collaborative assumes thematic similarity across teams and has proven effective for relatively straightforward interventions [82,83]. In our study, however, 11 teams in a single organisation developed care pathways that varied considerably in clinical content and scope, which limited joint learning and knowledge translation. This in turn increased the need for tailored support.

This suggests that quality improvement collaborative-based care pathway development can be valuable, but only when designed to be adaptable, accommodating team-specific variation in content, pace and context through a balance of shared structure and tailored facilitation. This calls for an adaptable approach that can accommodate multiple teams in parallel. This finding challenges the linear logic underlying well-known care pathway development methods [20–23], and aligns with the Learning care pathway Framework by Gartner et al. [18], which conceptualises care pathway development as an ongoing, organisation-wide learning process that integrates feedback loops, cross-team learning, and adaptive system change.

The second challenge involved aligning the organisation's ambition to innovate care pathways, by incorporating evidence-based care and relevant healthcare developments, and care pathway teams' need to keep the change effort manageable (stepwise, goal-oriented care pathway development principle). The care pathway development literature supports this finding, describing care pathways as complex interventions in complex systems [16], with multiple care pathway attributes and intended outcomes [6]. As understanding of care pathways has deepened, the complexity of the change processes teams are expected to manage has also increased. In light of this complexity, this study suggests that introducing design elements such as care logistics, hybrid care, and outcome monitoring in phases can help maintain clarity and manageability without compromising innovation. This allows care pathway teams to stay focused while gradually expanding their care pathway. Further research is needed to validate these findings across healthcare settings and to inform the ongoing refinement of care pathway development methods [20–22].

The third challenge concerned the gap between the programme's ambition to develop hybrid care pathways and the organisational and technical barriers teams encountered in practice. Initial resistance reflected professionals' unfamiliarity with digital tools, preference for delivering traditional care personally, infrastructural limitations (digital literacy, insufficient Wi-Fi, delayed availability of tools), and limited managerial guidance and prioritisation. Over time, however, resistance declined as enabling conditions improved through targeted action research interventions: repeatedly articulating the value of hybrid care, using interactive exercises, and offering hands-on support.

Prior research has shown that facilitating conditions strongly influence organisational readiness for eHealth implementation [84,85]. Our findings illustrate how engaging in hybrid care pathway development can act as a catalyst for developing such readiness, provided that the process is adequately supported and allows for iterative learning and adaptation. Nonetheless, structural adoption of hybrid care remained limited, and organisational and IT readiness lagged behind care pathway ambitions. Given the societal urgency to scale up eHealth due to growing workforce shortages and rising healthcare costs [42,59,60], these findings suggest that waiting for full readiness before starting hybrid care pathway development may be counterproductive. However, existing care pathway development methods [20–22] implicitly assume a stable organisational context in which implementation can proceed as planned, without accounting for contextual variability such as differing levels of readiness of available support. In contrast, action research offers a suitable methodology for incremental change and for creating the organisational conditions needed for sustainable implementation. Further research is needed to understand how organisational readiness evolves during hybrid care pathway development and how action research can accelerate this process.

The fourth challenge related to integrating outcome monitoring as a foundation for continuous performance improvement. To broaden teams' perspectives on care pathway outcomes, the Leuven Clinical Compass [46] was introduced early in the programme. However, at this early stage, teams perceived the framework as abstract and difficult to apply. Many felt overwhelmed and uncertain about how to translate its five domains into meaningful performance indicators while their care pathway designs were still developing. As a result, translating the Compass' five domains into concrete indicators required intensive guidance from internal experts, who supported teams with indicator formulation, data access, interpretation, and visualisation. This reliance revealed a structural dependency: progress in outcome monitoring depended on the availability and capacity of internal experts outside the programme.

Refining the care pathway design process in cycle 2 showed that explicitly phasing outcome measurement after the core care pathway structure had been established helped teams maintain focus, increased manageability, and supported learning. In line with this, the literature highlights that outcome monitoring and dashboard development require close collaboration between users and experts to safeguard ownership and practical relevance [86].

Taken together, our findings suggest that sustainable outcome monitoring requires not only expert support but also the gradual development of teams' analytical and interpretive capacity. This points to a phased, team-centred approach that balances external expertise with internal capability building to achieve sustainable care pathway performance improvement. Sustainability, understood as the continued delivery and adaptation of programme activities and behaviour change over time [87], should be embedded into routine practice and organisational systems during development, rather than be treated as a separate phase following implementation, as long-term sustainment depends on early integration and continuous adaptation [88,89]. These insights refine existing care pathway development frameworks [20–22] by positioning outcome monitoring not as a final evaluation step but as an iterative learning process embedded throughout care pathway development.

The fifth challenge related to shared ownership. In cycle 1, each team appointed a project leader to support the team's process. Although the leadership triad introduced in cycle 2 helped share leadership responsibilities, it required change management and project coordination skills that were not yet fully developed, even when shared. Triads varied in effectiveness: some established strong collaboration and decision-making routines, whilst others struggled with fluctuating engagement and unclear role boundaries. This revealed a challenge between promoting shared ownership and the capabilities needed to lead such a complex change process as care pathway development.

The literature suggests that successful quality improvement requires deliberate attention to technical, soft and learning skills [90,91]. Our findings align with this view, showing that shared leadership benefits from ongoing facilitation and coaching to build capabilities over time. Structured reflection, tailored coaching, and visible clinical and managerial engagement were found to reinforce alignment, sustain momentum and enhance the legitimacy of the leadership roles in care pathway development. Conversely, if a triad member did not engage consistently or expectations were unclear, decision-making slowed and shared ownership weakened. Together, these findings indicate that shared leadership does not emerge automatically from distributed structures: it requires continuous support, explicit role clarity, and deliberate capability development.

Finally, a sixth challenge became visible in the hybrid nature of the care pathway development programme, which combined design-oriented elements (e.g., structure and phasing) with development-oriented learning, adaptation, and experimentation. While this hybrid approach generated energy and direction, it also created challenges around pace, role clarity, and expectations. For instance, themes like hybrid care and outcome monitoring were introduced before teams had finalised their basic care pathway design, which hindered alignment and caused uncertainty. In some cases, experimentation led to resistance and a need for greater clarity. To address these issues, targeted interventions were introduced, including rephasing the care pathway design process, clearer role allocation, and structured support for experiments. These interventions helped teams regain focus, maintain progress, and strengthened ownership.

Such difficulties are well-documented in complex change processes, where existing routines clash with new ways of working and where co-creation, responsive facilitation, and relational awareness are essential to enable progress [25,92,93]. In this study, repeated encouragement to conduct small-scale experiments gradually increased teams' confidence and engagement in implementing new practices. These insights demonstrate how a hybrid programme structure can help strengthen adaptive capacity in structured programmes and underscores the importance of process-oriented support as a condition for learning and development.

These six challenges together served as entry points for reflection, adjustment and shared learning, underscoring the need for care pathway development approaches that are learning-oriented, responsive, and iterative in dynamic settings. They also reflect the ambitious scope of the care pathway development programme, which spanned multiple locations, teams and diagnoses, while simultaneously integrating digital tools and outcome monitoring. In retrospect, this level of ambition likely amplified some of the tensions encountered.

This study also revealed a broader tension related to the alignment of parallel innovation efforts. The programme aimed for synergy between care pathway development, hybrid care and its digital infrastructure, and outcome monitoring. However, this interplay proved difficult to realise in practice. Trajectories were not synchronised, progressing from different starting points and methodological logics. This limited the ability to fully embed outcome monitoring and hybrid care into the care pathways. These contextual challenges underscore the importance of sustained, low-threshold support and iterative coordination across interconnected innovation domains.

2.6.2 Action research as a methodology for adaptive care pathway development

Action research aligns well with complex change efforts in healthcare, where evolving insights require ongoing reflection and adjustment. In this study, organisational dynamics, including financial pressure, leadership turnover, shifting engagement, and cross-departmental collaboration challenges, called for the flexible, reflective, learning-oriented approach provided by action research's cyclical, intervention-driven design and close collaboration between researchers and practitioners, enabling simultaneous change, learning, and knowledge generation [25–27,29,31–33].

Using action research for the care pathway development programme inextricably linked change and learning [25–29,31–33]. It's cyclical nature enabled continuous alignment of the programme to evolving organisational realities, allowing tailored support, phased implementation, and responsive quality improvement collaborative meetings to accommodate teams with different development speeds and learning needs to maintain progress within the shared programme. Systematic reflection on team, management, and steering committee interactions surfaced underlying dynamics, including role unclarity, mandate misalignment, and friction between design and implementation, that often remain implicit in more linear change strategies and informed targeted interventions. Over time, this shifted perceptions of care pathway development from a fixed implementation process to a joint process of learning and change.

Action research also helped counter the reflex to fall back on short-term operational responses, such as scaling down innovation efforts under financial pressure, by enabling participants to reflect on and integrate the dynamics into the care pathway development learning process. An important advantage was the lead researcher's embedded position, which provided awareness of informal dynamics, implicit organisational patterns and assumptions, interdependencies between parallel initiatives, and relational tensions. Although not systematically analysed in this study, these insights contributed meaningfully to programme adjustments in the dynamic context.

What distinguishes action research from other approaches is its explicit research orientation: by continuously integrating practical and scientific knowledge, action research aims to generate theory-informed interventions and actionable knowledge for broader audiences [25–29,32,33,93,94]. In this study, a 'research-follows-action' strategy [25] was adopted, which emphasised action and learning during the quality improvement programme, followed by systematic analysis to identify broader patterns and generate scientific insight. As illustrated by the six challenges described in the principal findings, this allowed a better understanding of how programme-based care pathway development can be adaptively shaped in dynamic organisational contexts, and generated transferable insights for care pathway development methodology.

Existing care pathway development methods provide valuable structure for care pathway design, implementation, and evaluation, including project phasing, stakeholder engagement, data-driven evaluation, and continuous follow-up [20–23]. However, in complex, dynamic contexts, our findings indicate that existing care pathway development models can benefit from another four elements to enhance responsiveness and orientation: (1) explicit room for reflection and course correction; (2) support for small-scale experimentation as a learning strategy; (3) attention to underlying assumptions about change and project logic, and (4) embedding sustainability throughout the care pathway development process. These elements help balance programme structure with flexibility, promoting an iteratively adaptive care pathway development that reflects the nature of complex healthcare innovation and learning-driven change [25,92,93]. The insights of this study can inform and enrich such models, particularly when applied in dynamic settings.

The Learning Care Pathway framework by Gartner et al. [18] exemplifies this methodological richness. It advances traditional methods by framing care pathway development as a continuous learning process, explicitly linking design, implementation and evaluation through iterative feedback loops. However, like earlier care pathway development methods, it presupposes substantial analytical and

organisational capacity, both in teams and at the programme level, to sustain iterative learning and data-driven improvement. In practice, such capacities are often limited, constraining the practical application of both traditional care pathway development methods [20–23] and the Learning Care Pathway framework [18]. Action research can help bridge this gap by embedding reflective inquiry and academic expertise in daily practice. Through its participatory cyclic nature, action research supports the envisioned in-depth analysis, co-design, and organisational learning [18,20–23]. Thus action research offers a methodological bridge between traditional care pathway development methods and the Learning Care Pathway framework and their practical application, providing both a means to guide adaptive care pathway development and a knowledge strategy for sustaining complex healthcare change in dynamic organisational contexts.

2.6.3 Strengths and limitations

A key strength lies in the close integration of practice and research. Embedded in the dynamic organisational context, the action research was able to shape a care pathway development programme, tailoring interventions to local dynamics and fostering adaptive learning throughout. Data source triangulation and prolonged engagement of the research team enhanced the contextual sensitivity and credibility of the findings. The research team's ongoing reflexivity was another strength, as members critically examined their biases and assumptions to avoid the risk of 'going native' [78–80].

However, the action research took place in a single, albeit multi-site, specialised rehabilitation hospital, which may limit transferability of the findings to other healthcare contexts. To mitigate this first limitation, the study offers detailed accounts of the setting, programme design, interventions and context [67]. Second, the criterion sampling strategy might have led to selection bias, especially as several interviews were conducted with the same respondents over time. Future studies could test the applicability of these findings and explore how action research can support context-responsive care pathway development and similarly complex change efforts in other healthcare organisations.

A third limitation concerns patient involvement. Although the shared ownership principle aimed for partner-level patient participation, this was not sustained across all phases or teams. Patients were not involved in the design, conduct, or reporting of the action research study itself. Consequently, the patient perspective did not systematically inform the reflective process or the programme-level findings reported here. This limits the extent to which conclusions on shared ownership and outcome monitoring reflect a patient-informed perspective and highlights patient and public involvement in action research methodology as a priority for future research.





2.7 Conclusion

Using action research, a care pathway development programme was iteratively designed and refined for multiple multidisciplinary teams developing care pathways in parallel, revealing six challenges that exposed assumptions embedded in the programme design and informed successive programme refinements. The findings show that programme-based care pathway development can foster innovation, shared ownership, and learning when structure is balanced with adaptability. Care pathway development methods could be strengthened by incorporating phased design, reflective adaptation, and small-scale experimentation, and by embedding sustainability from in the outset of the improvement process.

Action research proved a feasible methodology for navigating complexity in care pathway development within dynamic organisational contexts, enabling both change and actionable knowledge generation. Whilst recent contributions such as Gartner et al.'s Learning Care Pathways framework [18] advance care pathway development methodology by integrating feedback loops and iterative learning, their application presupposes substantial analytical and organisational capacity. Action research helps bridge this gap: by embedding phased, reflective, and context-sensitive learning, that builds the readiness such methods require, enabling teams to begin before all conditions are met while strengthening capacity through action and reflection. Thus, action research serves both as a methodology for guiding reflective and adaptive care pathway development and as knowledge strategy for sustaining complex healthcare innovation.

Future research could build on these findings by exploring how to support care pathway development effectively in other healthcare contexts. Comparative studies may help identify which design principles and facilitation strategies are most effective under varying organisational conditions. Future research could examine how organisational readiness evolves during complex quality improvement programmes, and whether the embedded, reflexive support that action research provides can be sustained beyond grant-funded projects. Finally, how patients can participate more systematically in action research processes for care pathway development as co-inquirers, rather than as stakeholders in individual teams, remains an underexplored direction.

2.8 References

[1] Porter ME, Teisberg EO. Redefining health care: creating value-based competition on results. 1st ed. Boston: Harvard Business School Press; 2006.

[2] Van der Nat PB. The new strategic agenda for value transformation. Health Serv Manage Res 2022;35(3):189–193. doi:10.1177/09514848211011739

[3] Daniels K, Rouppe van der Voort MBV, Biesma DH, Van der Nat PB. Five years' experience with value-based quality improvement teams: the key factors to a successful implementation in hospital care. BMC Health Serv Res 2022;22(1):1271. doi:10.1186/s12913-022-08563-5

[4] van Engen V, Buljac-Samardzic M, Baatenburg de Jong R, Braithwaite J, Ahaus K, Den Hollander-Ardon M, et al. A decade of change towards value-based health care at a Dutch university hospital: a complexity-informed process study. Health Res Policy Syst 2024;22(1):94. doi:10.1186/s12961-024-01181-z

[5] Heijsters FACJ, Van Breda FGF, Van Nassau F, Van der Steen MKJ, Ter Wee PM, Mullender MG, et al. A pragmatic approach for implementation of value-based healthcare in Amsterdam UMC, the Neth-erlands. BMC Health Serv Res 2022;22(1):550. doi:10.1186/s12913-022-07919-1

[6] Gartner J, Abasse KS, Bergeron F, Landa P, Lemaire C, Côté A. Definition and conceptualization of the patient-centered care pathway, a proposed integrative framework for consensus: a concept analysis and systematic review. BMC Health Serv Res 2022;22(1):558. doi:10.1186/s12913-022-07960-0

[7] Seys D, Bruyneel L, Deneckere S, Kul S, Van der Veken L, van Zelm R, et al. Better organized care via care pathways: A multicenter study. PLoS One 2017;12(7):e0180398. doi:10.1371/journal.pone.0180398

[8] Vanhaecht K, Panella M, van Zelm R, Sermeus W. An overview on the history and concept of care pathways as complex interventions. Int J Care Pathw 2010;14(3):117–123. doi:10.1258/jicp.2010.010019

[9] Vanhaecht K. The impact of clinical pathways on the organisation of care processes [dissertation]. Leuven: KU Leuven; 2007.

[10] Vanhaecht K, Bollmann M, Bower K, Gallagher C, Gardini A, Guezo J, et al. Prevalence and use of clinical pathways in 23 countries – an international survey by the European Pathway Association. J Integr Care Pathw 2006;10(1):28–34. doi:10.1177/205343540601000106

[11] Bergin RJ, Whitfield K, White V, Milne RL, Emery JD, Boltong A, et al. Optimal care pathways: A national policy to improve quality of cancer care and address inequalities in cancer outcomes. J Cancer Policy 2020;25:100245. doi:10.1016/j.jcpo.2020.100245

[12] De Bleser L, Depreitere R, De Waele K, Vanhaecht K, Vlayen J, Sermeus W. Defining pathways. J Nurs Manag 2006;14(7):553–563. doi:10.1111/j.1365-2934.2006.00702.x

[13] Deneckere S, Euwema M, Lodewijckx C, Panella M, Mutsvari T, Sermeus W, et al. Better interprofessional teamwork, higher level of organized care, and lower risk of burnout in acute health care teams using care pathways: a cluster randomized controlled trial. Med Care 2013;51(1):99–107. doi:10.1097/MLR.0b013e3182763312

[14] Jerjes W, Harding D. Enhancing primary care through integrated care pathways: a convergence of theory and practice. Front Health Serv 2024;4:1432901. doi:10.3389/frhs.2024.1432901

[15] Silveira Bianchim M, Crane E, Jones A, Neukirchinger B, Roberts G, Mclaughlin L, et al. The implementation, use and impact of patient reported outcome measures in value-based healthcare programmes: A scoping review. PLoS One 2023;18(12):e0290976. doi:10.1371/journal.pone.0290976

[16] Seys D, Panella M, Van Zelm R, Sermeus W, Aeyels D, Bruyneel L, et al. Care pathways are complex interventions in complex systems: New European Pathway Association framework. Int J Care Coord 2019;22(1):5–9. doi:10.1177/2053434519839195

[17] Gartner J, Côté A. Optimization of care pathways through technological, clinical, organizational and social innovations: a qualitative study. Health Serv Insights 2023;16:1-8. doi:10.1177/11786329231211096

[18] Gartner J, Lemaire C, Côté A. Learning care pathways framework: a new method to implement, learn, replicate, and scale up care pathways for and with the patient. Int J Health Policy Manag 2025;14:8517. doi:10.34172/ijhpm.8517

[19] Visser M, De Mul M, Ahaus K, Weggelaar-Jansen AM. Navigating value complexity in care pathway development: a qualitative case study. BMJ Open 2025;15(8):e098157. doi:10.1136/bmjopen-2024-098157

[20] Vanhaecht K, Van Gerven E, Deneckere S, Lodewijckx C, Janssen I, Van Zelm R, et al. The 7-phase method to design, implement and evaluate care pathways. Int J Pers Cent Med 2012;2(3):341. doi:10.5750/ijpcm.v2i3.247

[21] Flores EJ, Mull NK, Lavenberg JG, Mitchell MD, Leas BF, Williams A, et al. Using a 10-step framework to support the implementation of an evidence-based clinical pathways programme. BMJ Qual Saf 2018;28(6):476. doi:10.1136/bmjqs-2018-008454

[22] Lodewijckx C, Decramer M, Sermeus W, Panella M, Deneckere S, Vanhaecht K. Eight-step method to build the clinical content of an evidence-based care pathway: the case for COPD exacerbation. Trials 2012;13(1):229. doi:10.1186/1745-6215-13-229

[23] Aeyels D, Van der Veken L, Vanhaecht K. 7-fasenmodel voor de ontwikkeling, implementatie,

evaluatie en continue opvolging van zorgpaden: uitdieping voor transmurale zorg. Leuven: Netwerk Klinische Paden – Leuvens Instituut voor Gezondheidszorgbeleid; 2016.
[24] Greenhalgh T, Papoutsi C. Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Med 2018;16(1):95. doi:10.1186/s12916-018-1089-4
[25] Zandee DP, Coghlan D. Action research for impact in addressing the grand challenges. Strateg Organ 2025;23(1):147–161. doi:10.1177/14761270241270913
[26] Casey M, Coghlan D, Carroll Á, Stokes D, Roberts K, Hynes G. Application of action research in the field of healthcare: a scoping review protocol. HRB Open Res 2021;4:46. doi:10.12688/hrbopenres.13276.2
[27] Coghlan D. Action research as the social science of change and changing. In: Szabla DB, Coghlan D, Pasmore W, Kim J, editors. Handbook of research methods in organizational change. Cheltenham: Edward Elgar Publishing; 2023. p. 19–46.
[28] Coghlan D, Shani AB. Creating action research quality in organization development: rigorous, reflective and relevant. Syst Pract Action Res 2014;27(6):523–536. doi:10.1007/s11213-013-9311-y
[29] Coghlan D, Brannick T. Doing action research in your own organization. 5th ed. London: Sage; 2019.
[30] Coghlan D, Shani AB. Introducing action research. In: Coghlan D, Shani AB, editors. Conducting action research for business and management students. London: SAGE; 2018. Chapter 1. doi:10.4135/9781529716566
[31] Coghlan D, Shani AB. Abductive reasoning as the integrating mechanism between first- second- and third-person practice in action research. Syst Pract Action Res 2021;34(4):463–474. doi:10.1007/s11213-020-09542-9
[32] Casey M, Coghlan D, Carroll Á, Stokes D. Towards a checklist for improving action research quality in healthcare contexts. Syst Pract Action Res 2023;36(6):923–934. doi:10.1007/s11213-023-09635-1
[33] Coghlan D, Shani AB. Components of action research. In: Coghlan D, Shani AB, editors. Conducting Action Research for Business and Management Students London: SAGE; 2018. Chapter 3. doi:10.4135/9781529716566
[34] Schouten LMT, Hulscher MEJL, Everdingen JJEv, Huijsman R, Grol RPTM. Evidence for the impact of quality improvement collaboratives: systematic review. BMJ 2008;336(7659):1491–1494. doi:10.1136/bmj.39570.749884.BE
[35] Institute for Healthcare Improvement. The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement. IHI Innovation Series White Paper. Boston: Institute for Healthcare Improvement; 2003. [cited 2025 Jan 13]. Available from: https://www.ihi.org/sites/default/files/2023-09/IHIBreakthroughSerieswhitepaper2003.pdf.
[36] Kilo CM. A framework for collaborative improvement: lessons from the Institute for Healthcare Improvement's breakthrough series. Qual Manag Health Care 1998;6(4):1–14. doi:10.1097/00019514-199806040-00001
[37] Øvretveit J, Bate P, Cleary P, Cretin S, Gustafson D, McInnes K, et al. Quality collaboratives: lessons from research. Qual Saf Health Care 2002;11(4):345–351. doi:10.1136/qhc.11.4.345
[38] Pressman A. Design thinking: a guide to creative problem solving for everyone. London: Routledge; 2018.
[39] Hollnagel E, Clay-Williams R. Work-as-Imagined and Work- as-Done. In: Rapport F, Clay-Williams R, Braithwaite J, editors. Implementation Science: The Key Concepts. London: Routledge; 2022. p. 175–177. doi:10.4324/9781003109945-52.
[40] Toonders SAJ, Poolman EY, Nieboer ME, Pisters MF, Veenhof C. Healthcare professionals' perspectives on a blended care program in primary care; A qualitative study. Internet Interv 2021;26:100440. doi:10.1016/j.invent.2021.100440
[41] Kip H, Wentzel J, Kelders SM. Shaping blended care: adapting an instrument to support therapists in using e-mental health. JMIR Ment Health 2020;7(11):e24245. doi:10.2196/24245
[42] Hohberg V, Fuchs R, Gerber M, Künzler D, Paganini S, Faude O. Blended care interventions to promote physical activity: a systematic review of randomized controlled trials. Sports Med Open 2022;8(1):100. doi:10.1186/s40798-022-00489-w
[43] Wentzel J, Van der Vaart R, Bohlmeijer ET, Van Gemert-Pijnen JEWC. Mixing online and face-to-face therapy: how to benefit from blended care in mental health care. JMIR Ment Health 2016;3(1):e9–e9. doi:10.2196/mental.4534
[44] Chen K, Huang JJ, Torous J. Hybrid care in mental health: a framework for understanding care, research, and future opportunities. NPP Digit Psychiatry Neurosci 2024;2(1):16–24. doi:10.1038/s44277-024-00016-7
[45] Vanhaecht K, De Witte K, Panella M, Sermeus W. Do pathways lead to better organized care processes? J Eval Clin Pract 2009;15(5):782–788. doi:10.1111/j.1365-2753.2008.01068.x
[46] Vanhaecht K, Sermeus W. The Leuven Clinical Pathway Compass. Int J Care Pathw 2003;7(1):2–7. doi:10.1177/147322970300700102
[47] Teisberg E, Wallace S, O'Hara S. Defining and implementing value-based health care: a strategic framework. Acad Med 2020;95(5):682–685. doi:10.1097/acm.0000000000003122
[48] Porter ME, Lee TH. The strategy that will fix health care. Harv Bus Rev. 2013;91(10):50–70.
[49] Berwick D, Fox DM. "Evaluating the quality of medical

care": Donabedian's classic article 50 years later. Milbank Q 2016;94(2):237–241. doi:10.1111/1468-0009.12189
[50] Donabedian A. An introduction to quality assurance in health care. 1st ed. United Kingdom: Oxford University Press; 2002.
[51] Moore L, Lavoie A, Bourgeois G, Lapointe J. Donabedian's structure-process-outcome quality of care model: validation in an integrated trauma system. J Trauma Acute Care Surg 2015;78(6):1168–1175. doi:10.1097/TA.0000000000000663
[52] Donabedian A. Evaluating the quality of medical care. Milbank Q 2005;83(4):691–729. doi:10.1111/j.1468-0009.2005.00397.x
[53] Seys D, Deneckere S, Lodewijckx C, Bruyneel L, Sermeus W, Boto P, et al. Impact of care pathway implementation on interprofessional teamwork: An international cluster randomized controlled trial. J Interprof Care 2025;39(1):48–56. doi:10.1080/13561820.2019.1634016
[54] Donabedian A. The quality of care. How can it be assessed? JAMA 1988;260(12):1743–1748. doi:10.1001/jama.260.12.1743
[55] Hanselaar T, Van der Kemp M, Wiersma V, Van der Linde M, Bos WJ. Getting started with value-based healthcare. Diemen: Linnean Initiative; 2022.
[56] Cossio-Gil Y, Omara M, Watson C, Casey J, Chakhunashvili A, Gutiérrez-San Miguel M, et al. The roadmap for implementing value-based healthcare in European university hospitals—consensus report and recommendations. Value Health 2022;25(7):1148–1156. doi:10.1016/j.jval.2021.11.1355.
[57] Nembhard IM. Learning and improving in quality improvement collaboratives: which collaborative features do participants value most? Health Serv Res 2009;44(2p1):359–378. doi:10.1111/j.1475-6773.2008.00923.x
[58] Zamboni K, Baker U, Tyagi M, Schellenberg J, Hill Z, Hanson C. How and under what circumstances do quality improvement collaboratives lead to better outcomes? A systematic review. Implement Sci 2020;15(1):27. doi:10.1186/s13012-020-0978-z
[59] Zorginstituut Nederland. Kader Passende zorg. Nederlands Zorginstituut 2022.
[60] ActiZ, De Nederlandse ggz, Federatie Medisch Specialisten, InEen, Nederlandse Federatie van Universitair Medische Centra, Nederlandse Vereniging van Ziekenhuizen, et al. Integraal zorgakkoord: samen werken aan gezonde zorg. Ministerie van Volksgezondheid Welzijn en Sport 2022.
[61] Cruz-Martínez RR, Noort PD, Asbjørnsen RA, Van Niekerk JM, Wentzel J, Sanderman R, et al. Frameworks, models, and theories used in electronic health research and development to support self-management of cardiovascular diseases through remote monitoring technologies: protocol for a metaethnography review. JMIR Res Protoc 2019;8(7):e13334. doi:10.2196/13334
[62] Vandekerckhove P, De Mul M, Bramer WM, De Bont AA. Generative participatory design methodology to develop electronic health interventions: systematic literature review. J Med Internet Res 2020;22(4):e13780. doi:10.2196/13780
[63] Wiig S, Storm M, Aase K, Gjestsen MT, Solheim M, Harthug S, et al. Investigating the use of patient involvement and patient experience in quality improvement in Norway: rhetoric or reality? BMC Health Serv Res 2013;13(1):206. doi:10.1186/1472-6963-13-206
[64] Wiig S, Rutz S, Boyd A, Churruca K, Kleefstra S, Haraldseid-Driftland C, et al. What methods are used to promote patient and family involvement in healthcare regulation? A multiple case study across four countries. BMC Health Serv Res 2020;20(1):616. doi:10.1186/s12913-020-05471-4
[65] Armstrong N, Herbert G, Aveling E, Dixon‐Woods M, Martin G. Optimizing patient involvement in quality improvement. Health Expect 2013;16(3):e36–e47. doi:10.1111/hex.12039
[66] Visser M, 't Hart N, Mul M, Weggelaar‐Jansen AM. The perspectives of healthcare professionals and managers on patient involvement in care pathway development: a discourse analysis. Health Expect 2024;27(3):e14101. doi:10.1111/hex.14101
[67] Green J, Thorogood N. Qualitative methods for health research. 4th ed. Los Angeles: SAGE; 2018.
[68] Roberts K, Casey M, Coghlan D, Cornall C, Hudson C, Stokes D, et al. A scoping review protocol to map the evidence on the use of action research methodology by healthcare professionals and in healthcare team settings. HRB Open Res 2021;4:68. doi:10.12688/hrbopenres.13275.1
[69] Rijndam Revalidatie. Contact & locaties. [Internet]. Rotterdam: Rijndam Revalidatie; [cited 2026 Apr 5]. Available from: https://www.rijndam.nl/praktisch/naar-rijndam/contact-locaties/.
[70] Rijndam Revalidatie. Bestuursverslag 2024. Rotterdam: Rijndam Revalidatie; 2025. [cited 2026 Apr 5]. Available from: https://digimv8.desan.nl/archive/search/results?year=2024&town=&organization=Rijndam%20.
[71] Schreier M. Sampling and generalization. In: Flick U, editor. The SAGE handbook of qualitative data collection. 1st ed. London: SAGE Publications Ltd; 2018. Chapter 6. doi:10.4135/9781526416070.n6
[72] Langley A. Strategies for theorizing from process data. Acad Manage Rev 1999;24(4):691–710. doi:10.5465/amr.1999.2553248.
[73] Braun V, Clarke V, Hayfield N. 'A starting point for

your journey, not a map': Nikki Hayfield in conversation with Virginia Braun and Victoria Clarke about thematic analysis. Qual Res Psychol 2022;19(2):424–445. doi:10.1080/14780887.2019.1670765
[74] Braun V, Clarke V. Reflecting on reflexive thematic analysis. Qual Res Sport Exerc Health 2019;11(4):589–597. doi:10.1080/2159676X.2019.1628806
[75] Braun V, Clarke V. One size fits all? What counts as quality practice in (reflexive) thematic analysis? Qual Res Psychol 2021;18(3):328–352. doi:10.1080/14780887.2020.1769238
[76] Bradbury H, Glenzer K, Apgar M, Embury DC, Friedman V, Kjellström S, et al. Action Research Journal's seven quality choice points for action oriented research for transformations. Action Res 2020;18(1):3–6. doi:10.1177/1476750320904562
[77] Bradbury H, Glenzer K, Ku B, Columbia D, Kjellström S, Aragón AO, et al. What is good action research: quality choice points with a refreshed urgency. Action Res 2019;17(1):14–18. doi:10.1177/1476750319835607
[78] Tresch J. On going native: Thomas Kuhn and anthropological method. Philos Soc Sci 2001 Sep 1;31(3):302–322. doi:10.1177/004839310103100302
[79] Fuller D. Part of the action, or 'going native'? Learning to cope with the 'politics of integration'. Area 1999;31(3):221–227. doi:10.1111/j.1475-4762.1999.tb00086.x
[80] Kanuha VK. "Being" native versus "going native": Conducting social work research as an insider. Soc Work 2000;45(5):439–447. doi:10.1093/sw/45.5.439
[81] O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med 2014;89(9):1245–1251. doi:10.1097/ACM.0000000000000388
[82] Lowther HJ, Harrison J, Hill JE, Gaskins NJ, Lazo KC, Clegg AJ, et al. The effectiveness of quality improvement collaboratives in improving stroke care and the facilitators and barriers to their implementation: a systematic review. Implement Sci 2021;16(1):95. doi:10.1186/s13012-021-01162-8
[83] Wells S, Tamir O, Gray J, Naidoo D, Bekhit M, Goldmann D. Are quality improvement collaboratives effective? A systematic review. BMJ Qual Saf 2018;27(3):226–240. doi:10.1136/bmjqs-2017-006926
[84] Alotaibi N, Wilson CB, Traynor M. Enhancing digital readiness and capability in healthcare: a systematic review of interventions, barriers, and facilitators. BMC Health Serv Res 2025;25(1):500–15. doi:10.1186/s12913-025-12663-3
[85] Schreiweis B, Pobiruchin M, Strotbaum V, Suleder J, Wiesner M, Bergh B. Barriers and facilitators to the implementation of eHealth services: systematic literature analysis. J Med Internet Res 2019;21(11):e14197–e14197. doi:10.2196/14197
[86] Weggelaar-Jansen AMJWM, Broekharst DSE, De Bruijne M. Developing a hospital-wide quality and safety dashboard: a qualitative research study. BMJ Qual Saf 2018;27(12):1000–1007. doi:10.1136/bmjqs-2018-007784
[87] Moore JE, Mascarenhas A, Bain J, Straus SE. Developing a comprehensive definition of sustainability. Implementation Sci 2017;12(1):110–8. doi:10.1186/s13012-017-0637-1
[88] Devi R, Martin GP, Banerjee J, Gladman JR, Dening T, Barat A, et al. Sustaining interventions in care homes initiated by quality improvement projects: a qualitative study. BMJ Qual Saf 2023;32(11):665–675. doi:10.1136/bmjqs-2021-014345
[89] Lennox L, Maher L, Reed J. Navigating the sustainability landscape: a systematic review of sustainability approaches in healthcare. Implementation Sci 2018;13(1):27. doi:10.1186/s13012-017-0707-4
[90] Wright D, Gabbay J, Le May A. Determining the skills needed by frontline NHS staff to deliver quality improvement: findings from six case studies. BMJ Qual Saf 2022;31(6):450–461. doi:10.1136/bmjqs-2021-013065
[91] Gabbay J, le May A, Connell C, Klein JH. Balancing the skills: the need for an improvement pyramid. BMJ Qual Saf 2018;27(1):85–89. doi:10.1136/bmjqs-2017-006773
[92] Wilson P, Kislov R. Learning how and why complex improvement interventions work: insights from implementation science. BMJ Qual Saf 2023;32(8):438–440. doi:10.1136/bmjqs-2023-016008
[93] Coghlan D, Shani AB, Coughlan P. Enhancing the quality of project management through action research. Int J Manag Proj Bus 2023;16(1):9–21. doi:10.1108/IJMPB-10-2021-0291
[94] Coghlan D, Shani AB. Understanding action research. In: Coghlan D, Shani AB, editors. Conducting Action Research for Business and Management Students London: SAGE; 2018. Chapter 2. doi:10.4135/9781529716566

2.9 Appendix

2.9.1 Coding structure and mapping to the five quality improvement principles

Data were coded in Atlas.ti 24 using an approach that combined inductive development with subsequent analytical structuring. The primary coding structure was organised around two domains: D1 (programme design and facilitation) and D2 (care pathway design principles), with a cross-sectional category X covering contextual barriers, enabling conditions, and programme management (see Table 2.3). Within each code, sub-codes were prefixed to distinguish three analytical categories: interventions (I), reflections (R), and outcomes (O). This tripartite distinction reflects the process-data logic of the analysis, tracing how interventions gave rise to reflections and, over time, to identifiable outcomes across the three action research cycles.

The five quality improvement principles that structure the Results section were not the primary coding categories. They provided the theoretical and programmatic framework within which the care pathway development programme was designed and reported. The connection between the inductively developed codes and these principles emerged progressively from the second phase onwards, through iterative reflexive dialogue within the research team. The cross-sectional X codes do not map exclusively to any single principle; they capture organisational dynamics that shaped progress across all five principles and all three action research cycles.

Table 2.3: Mapping of the Atlas.ti coding structure to the five quality improvement principles

Quality improvement principle	Primary Atlas.ti codes	Nature of connection to the quality improvement principle
Collaborative improvement	D1_B QIC opbouw bijeenkomsten D1_B QIC_Werkvormen D1_B Procesbegeleiding X_Helpende factoren X_Belemmeringen	Codes capturing the design, facilitation, and evaluation of quality improvement collaborative (QIC) meetings and working methods, including cross-team peer learning, expert knowledge transfer, and contextual barriers and enabling factors shaping collaborative progress across cycles.
Stepwise, goal-oriented care pathway development	D1_C Vernieuwing zorgpad positief D1_C Vernieuwing zorgpad remmend D1_E Doelgericht en gefaseerd ontwerpen D1_G Experimenteren	Codes capturing creative visioning and shared ambition (the droom exercise), phased and goal-oriented pathway design, the management of design complexity, and the use of small-scale experimentation as a learning and decision-making strategy.
Hybrid care pathway development	D2_A Blended ontwerpen	Codes capturing teams' engagement with hybrid care design in quality improvement collaborative sessions, including professional attitudes towards digital tools, barriers to adoption, and the gradual growth of organisational readiness across cycles.
Outcome monitoring	D2_B Borgen en sturen D2_C Financiën zorgpad	Codes capturing teams' engagement with the Leuven Clinical Compass, the development of clinical and financial outcome indicators, challenges in data access and infrastructure, and growing strategic awareness of continuous improvement.
Shared ownership	D1_D Patient involvement D1_F Zorgpadteam D1_A Actieonderzoek	Codes capturing patient and public involvement in pathway design, the composition and functioning of the care pathway team and leadership triad, and the reflexive and facilitative role of the action research process in building distributed ownership.
Cross-cutting contextual factors (inform all five principles)	X_Belemmeringen X_Helpende factoren X_Projectmanagement	Codes capturing organisational barriers (financial pressure, management discontinuity, engagement fluctuation) and enabling conditions that shaped care pathway development progress across all five principles and all three action research cycles. These codes do not map exclusively to one principle.



Chapter 3

Boundary work in value-based quality improvement: a qualitative multiple case study of multidisciplinary teams

Based on:
Visser M, Broughton T, De Mul M, Sülz S, Ahaus K, Weggelaar-Jansen AM. Boundary work in value-based quality improvement: a qualitative multiple case study of multidisciplinary teams. PLoS One. Revision submitted
Mildred Visser and Tamara Broughton contributed equally to this manuscript and share first authorship.

3.1 Abstract

Objectives Multidisciplinary teams are central to value-based quality improvement initiatives aimed at enhancing patient outcomes and care organization. However, collaborative improvement efforts often face challenges related to professional boundaries. This study examines how professionals navigate these boundaries during value-based quality improvement processes, drawing on the concept of boundary work. The research question is: how do different forms of boundary work influence multidisciplinary teams' value-based quality improvement processes?

Design A qualitative multiple case study of 17 multidisciplinary teams was conducted. Analysis followed an interpretive, multiphase abductive approach to identify and compare boundary work forms and their influence on improvement dynamics.

Setting This study was conducted in two Dutch healthcare organisations: a teaching hospital (7 sites, 3.265 employees) and a specialised rehabilitation hospital (16 sites, 746 employees).

Participants 17 multidisciplinary teams were studied. Data included 4 group interviews, 8 hours of participatory observations, 60 reflective conversations, 25 reflective debriefing sessions, and 214 journal reports.

Results All three forms of boundary work were observed, each supporting or hindering value-based quality improvement. Collaborative boundary work enabled shared decision-making, relational alignment and trust-building, particularly through inclusive language, co-location and interpersonal alignment. Competitive boundary work reinforced professional roles, but limited multidisciplinary engagement, slowed progress and reduced motivation. Configurative boundary work, typically enacted by advisors, created structural and relational conditions for collaboration through team composition, facilitation and framing. While often stimulating collaborative boundary work, it sometimes generated role confusion, slowed decision-making and introduced dependency risks, leading to weaker ownership of value-based quality improvement initiatives.

Conclusion Boundary work is a dynamic force that can both support and hinder value-based quality improvement processes. Understanding how competitive, collaborative and configurative forms interact provides valuable insights into how teams navigate professional boundaries in complex improvement contexts. Organisations should help teams recognise boundary work patterns and in build capacity to manage them constructively, reducing reliance on external facilitation over time.

Keywords Boundary work; multidisciplinary teams; value-based healthcare; value-based quality improvement; care pathways; outcome measurement; change management; health services research; qualitative research; organisational development; quality improvement.

3.2 Introduction

Value-based healthcare (VBHC) is a management strategy that aims to maximise value, defined as patient relevant health outcomes relative to the costs required to achieve them [1]. Since its introduction in 2006, value-based healthcare has gained global attention, promoting a shift from volume-based to value-based care [2]. This 'new value' agenda has stimulated efforts to organise care around value, focusing on patient needs, outcome measurement, and integrated services across organisations [1]. However, both research and practice have highlighted limitations of the Porter & Teisberg [2] framework, prompting calls for its refinement and expansion [3].

One such refinement is the growing emphasis on value-based quality improvement, which seeks to embed continuous learning and improvement more explicitly within the value-based healthcare framework [3-5]. value-based quality improvement calls for a systemic approach to enhance care quality and safety and the subsequent outcomes achieved [3]. It typically involves care pathway development and the implementation of dashboards and other outcome measurement tools [4,6,7]. To drive value-based quality improvement, healthcare organisations frequently establish value-based quality improvement programmes in which multidisciplinary team (MDT) members aim to collaborate, exchange knowledge, drive innovation, and explore new working routines across professional boundaries [4,5,7-9]. While multidisciplinary teams play a central role in value-based quality improvement programmes, most research on multidisciplinary teams has focused on their composition and functioning within clinical care delivery contexts [10-15], including how multiple intraprofessional, interprofessional and interdisciplinary boundaries complicate collaboration and care integration [16]. However, less is known about how multidisciplinary teams contribute to value-based quality improvement processes, or how interprofessional and interdisciplinary dynamics shape the conduct and outcomes of improvement work.

This gap is particularly relevant given the complexity and time-consuming nature of value-based quality improvement processes, which often disrupt and challenge established professional norms, work routines, and role identities [4], making tangible improvements in care delivery challenging [5,8,9]. These processes not only require redistribution of tasks and responsibilities but also demand collective engagement in assessing outcome measures and evaluating care quality [4,5,9,17,18]. As a result, value-based quality improvement frequently triggers negotiations across multiple professional boundaries within multidisciplinary teams, further amplifying the complexity of collaborative processes [19].

To better understand these negotiations, this study draws on the concepts professional boundaries and boundary work. Professional boundaries are socially and symbolically constructed demarcations, sometimes reinforced by organisational structures, that distinguish professional groups and their associated roles and knowledge claims [16,20-23]. They define who is authorised to perform certain tasks and to make judgements in specific domains, and thereby shape authority and collaboration in multidisciplinary teams [16,20,23,24]. Such boundaries often materialise as 'invisible walls' that shape communication, decision-making and the distribution of responsibilities [16]. In multidisciplinary collaboration, healthcare professionals often engage in boundary spanning activities to operate beyond the boundaries of their own group, organisation or profession to facilitate flows of information, knowledge, or resources across boundaries [22,25]. The boundary spanning literature usually treats boundaries as relatively fixed entities, emphasising activities that bridge these boundaries, establish linkages and manage interactions with actors beyond them [21].

However, in practice, these boundaries are continuously (re)shaped through interactions in which professionals negotiate their expertise, responsibilities and legitimacy [16,21,23,24]. The boundary work concept grasps these dynamics, as it refers to the purposeful individual and collective efforts through which professionals create, maintain, blur or shift boundaries that shape roles, knowledge domains and relationships within and between groups [16,21,23,26]. Langley et al. [21] distinguish

three forms of boundary work: competitive, collaborative and configurative. Competitive boundary work occurs when professionals reinforce their own boundaries to protect their territory, thereby excluding others. Collaborative boundary work involves the deliberate realignment of personal or professional boundaries to enable joint work across professions. Configurative boundary work refers to the rearrangement of boundaries by actors working from outside existing boundaries, focusing on the boundaries of others rather than on their own boundaries. This typology provides a useful lens to study interactions and individual behaviours in multidisciplinary teams, since professionals do not merely span existing boundaries but also actively negotiate and redefine them in practice.

While previous studies have explored boundary work across organisations or professional domains, less is known about how boundary work manifests among multidisciplinary team members engaged in interprofessional collaboration aimed at value-based quality improvement [23,26]. In particular, previous work has paid limited attention to how competitive, collaborative, and configurative forms of boundary work shape value-based quality improvement processes and influence progress towards shared quality goals. This study addresses this gap by studying the research question: *How do different forms of boundary work influence multidisciplinary teams' value-based quality improvement processes?* By addressing this research question, this study aims to contribute to boundary work knowledge by examining how these forms coexist and create conditions that either hinder or support value-based quality improvement processes.

3.3 Methods

3.3.1 Study design and setting

A qualitative multiple case study was conducted, following an interpretivist paradigm to study the role of multidisciplinary teams in value-based quality improvement programmes [27]. The study examined value-based quality improvement processes across 17 multidisciplinary teams in two Dutch healthcare organisations: a teaching hospital and a specialised rehabilitation hospital (see Table 3.1 for characteristics and Appendix 3.8.1 for an overview of multidisciplinary team compositions). These organisations differ in their clinical focus, size, and organisational arrangements, providing a broad perspective for studying boundary work in multidisciplinary teams. Within each organisation's value-based quality improvement programme, multidisciplinary teams engaged in value-based quality improvement projects. Data collection and analysis were led by two embedded researchers (A and B), who coordinated the value-based quality improvement programmes and provided direct guidance to the multidisciplinary teams, supported by a broader research team consisting of experienced researchers.

Table 3.1: Overview of case organisations

Organisation	Organisation 1	Organisation 2
Type	Specialised rehabilitation hospital	Teaching hospital
Number of multidisciplinary teams	11	6
Scale (annually)	16 sites* 120 inpatient beds*** 746 employees** 15.093 outpatient contacts ** 700 inpatient admissions**	7 sites** 416 inpatient beds** 3.265 employees** 429.054 outpatient contacts** 23.105 inpatient admissions** 29.847 day admissions**
* Organisational characteristics retrieved from the organisation's website, July 2025. ** Derived from 2024 annual reports. *** Based on internal communication.		

3.3.2 Data collection and participants

Data were collected between 24 June 2022 and 31 May 2025 across two healthcare organisations, using a multi-method strategy. Following ethical approval granted by the ESHPM Research Ethics Review Committee (approval date: 24 June 2022; reference number: ETH2122-0333), data collection in Organisation 1 commenced on 24 June 2022 and continued until 30 June 2023. Following ethical approval granted by the Tilburg University Ethical Review Committee (approval date: 19 December 2023; reference number: TSB_RP1196), data collection in Organisation 2 commenced on 19 December 2023 and continued until 31 May 2025.

Data collection methods included: A) group interviews (N=4), with an average length of 92 minutes, held to explore collective reflections on value-based quality improvement processes across the programme period; B) participatory observations of multidisciplinary team meetings (8 hours), during which the lead researcher participated as advisor and recorded observations of multidisciplinary team dynamics; C) reflective conversations with multidisciplinary team members (N=60), with an average length of 38 minutes, conducted to deepen insights into participants' experiences of engaging in value-based quality improvement processes; and D) reflective debriefing sessions (N=25), involving research team members supplemented by programme staff (e.g. quality advisors, steering committee members), in varying compositions, used to debrief on observed events and discuss emerging themes throughout the programme; and E) journal reports (N=214), documenting observations of

multidisciplinary team dynamics. Method triangulation was used to enhance validity. An overview of data sources and participant characteristics is provided in Table 3.2.

Table 3.2: overview data sources and participant characteristics

Data source	N	Notes
A) Group interviews G1-G4 Unique participants Participants per interview - *Interview G1* - *Interview G2* - *Interview G3* - *Interview G4* Breakdown - *Medical specialists* - *Nurse practitioners* - *Middle managers* - *Data analysts* - *VBHC advisors* - *Quality advisors* - *Academic VBHC researchers*	4 41 23 12 4 3 5 2 4 3 15 8 4	Average length 92 minutes
B) Participatory observations of multidisciplinary team meetings	5	Total of 8 hours
C) Reflective one-to-one conversations Unique participants Breakdown - *Medical specialists* - *Healthcare professionals* - *Nurse practitioners* - *Senior managers* - *Middle managers* - *Data analysts* - *VBHC advisors*	60 42 7 9 2 7 10 4 3	Average length 38 minutes
D) Reflective debriefing sessions	25	
E) Journal reports	214	

All 17 multidisciplinary teams across both organisations were included in the study. Participants for the group interviews and reflective conversations were selected using criterion sampling [28], ensuring representation of multidisciplinary team members from diverse professional backgrounds and organisational levels, including medical specialists, managers, healthcare professionals, nurse practitioners, data analysts, and VBHC advisors to capture a broad range of perspectives essential for understanding boundary work in value-based quality improvement. Selection was based on availability and was not based on attitude towards value-based quality improvement.

General information on aim, data collection, ethics and methods to object of the study was provided digitally. Before the group interviews, participatory observations, reflective conversations, and reflective debriefing sessions, all participants received written or verbal information about the study and provided oral informed consent prior to participation. Written consent was not always obtained because data collection was embedded in routine professional meetings and reflective sessions that formed part of a broader organisational improvement programme. Requesting written consent was sometimes considered disproportionate and potentially disruptive to the naturalistic research setting. In these instances, verbal informed consent was obtained in accordance with the procedures approved by the respective ethics committees and documented through audio- or video-recordings at the start of each session.

Participatory observations were conducted during multidisciplinary team meetings in which the researchers themselves participated as advisors within the programme. Participants were informed about the researchers' dual role and the use of observational insights for research purposes. Observational data were recorded in participatory observation reports produced by the lead researchers.

The group interviews, reflective conversations and reflective debriefing sessions were held face-to-face or online and audio- or video-recorded using Microsoft Teams or a digital voice recorder, pseudonymised and transcribed verbatim. All data were securely stored in compliance with the General Data Protection Regulation (GDPR) guidelines.

3.3.3 Data analysis

Data were analysed through an iterative, multiphase process. In the first phase, both lead researchers engaged in data familiarisation by reading the group interview transcripts, participatory observation reports, reflective conversation transcripts, journal reports, and reflective debriefing session transcripts. This initial exploration served to identify actions perceived as positively or negatively influencing value-based quality improvement processes within multidisciplinary teams, drawing on the data sources A-E alongside the researchers' situated knowledge, consistent with the action research tradition [29]. This resulted in an initial mapping of observed actions and their perceived influence on value-based quality improvement, without applying a predefined theoretical framework.

In the second phase, an abductive approach [30] was adopted by engaging with relevant literature to interpret emerging patterns in the data, related to multidisciplinary collaboration in the context of value-based quality improvement. The concept of boundary work [21] was retrospectively identified as an interpretive lens [30], through which interprofessional dynamics within the multidisciplinary teams were re-examined (see Appendix 3.8.2).

Building on this interpretive lens, in the third phase the abductive analysis was continued through the development of interpretive matrices. The lead researchers iteratively returned to the full dataset, re-reading sources through the lens of the boundary work typology, additionally drawing on their situated knowledge [29,30]. Observed actions were systematically mapped onto the three boundary work forms (competitive, collaborative, configurative) and their supportive or hindering influence on value-based quality improvement. This captured how each form of boundary work shaped value-based quality improvement processes across multidisciplinary teams, whilst actively attending to divergent patterns within the data. Multiple rounds of analytical dialogue between the lead researchers served to challenge and refine emerging interpretations, explicitly attending to disconfirming evidence and patterns that did not fit the emerging boundary work typology. In the final phase, the matrices were used to compare insights across multidisciplinary teams, enabling the identification of patterns in

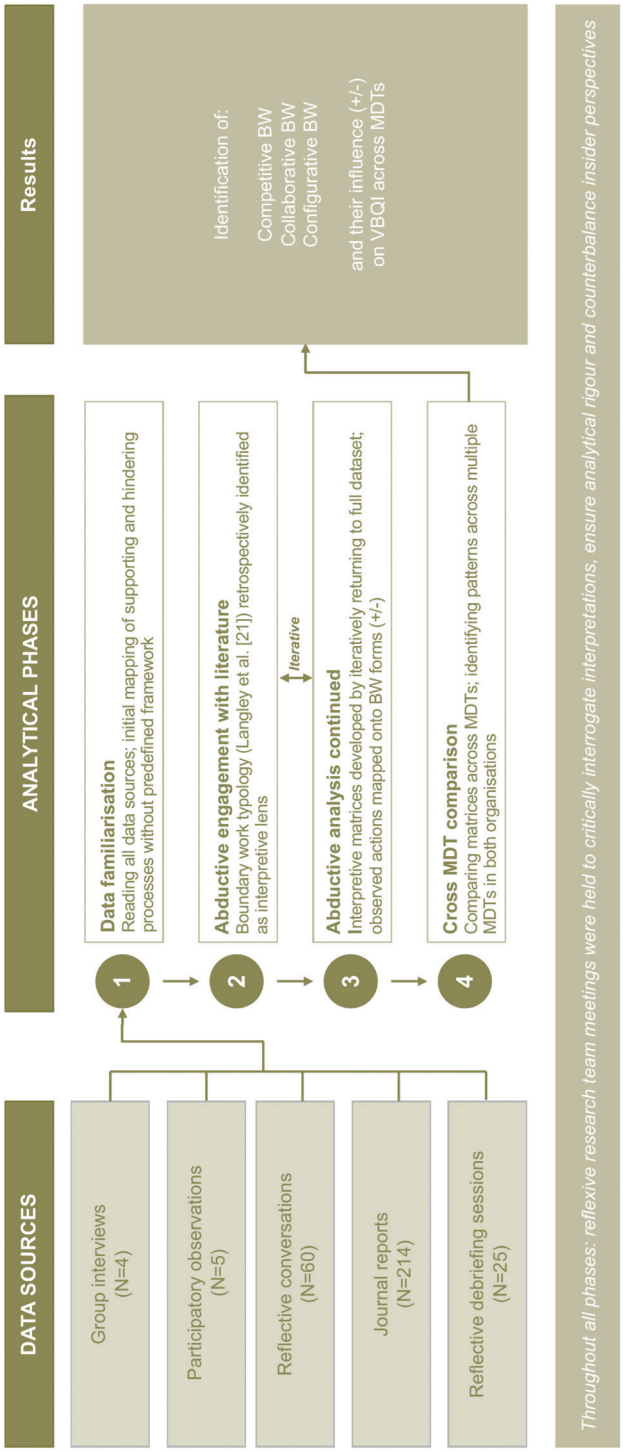


Figure 3.1: Analytical process flow. BW = boundary work; VBQI = value-based quality improvement

boundary work influencing value-based quality improvement processes. Findings were included in the results section when patterns were observed across multidisciplinary teams in both organisations. Results are presented through analytical descriptions of identified patterns, illustrative vignettes in textboxes, and participant quotations. The vignettes were reconstructed from observations, reflective conversations and journal reports, and were included to provide contextualised examples of the boundary work patterns identified across cases. Participant quotations were selected from group interviews, reflective conversations, participatory observations, and journal reports to illustrate how multidisciplinary team members themselves experienced and articulated these boundary work dynamics. To enhance transparency [27], a set of additional empirical boundary work examples is provided in the Appendix 3.8.3. The Standards for Reporting Qualitative Research guideline guided the writing process [31]. The analytical process is visualised in Figure 3.1.

3.3.4 Researcher positionality and reflexivity

This study was led by two embedded lead researchers (Researcher A and Researcher B), one in each organisation. Both were embedded as advisors within a value-based quality improvement programme, guiding multidisciplinary teams in care pathway development and in using outcome data for learning and improvement. The research team in Organisation 1 comprised lead researcher A, an associate professor (Erasmus School of Health Policy and Management), a full professor (Erasmus School of Health Policy and Management) and an endowed professor (Tranzo, Tilburg University). The research team in Organisation 2 comprised lead researcher B, an assistant professor (Erasmus School of Health Policy and Management) and the same endowed professor (Tranzo, Tilburg University), supporting consistency in analytical oversight across organisations.

To mitigate the risk of 'going native' [32–34] and circular reasoning, journal reports and research team meetings were used throughout the study to critically examine assumptions and researchers' positionalities [27,35–37]. Each researcher kept regular journal reports not only to capture multidisciplinary team dynamics, but also to reflect on role tensions and researcher impact, including observations of their own advisory actions, which were included in the dataset as observational data subjected to the same data analysis process as all other sources. Reflexive research team meetings critically interrogated interpretations, power dynamics, and interactions with participants, with non-embedded team members providing analytical distance to counterbalance insider perspectives. These discussions ensured consistency in data interpretation and contributed to the ongoing refinement in the analysis. An audit trail was maintained to systematically document the research process. Additionally, the lead researchers critically analysed each other's data interpretations, to further reduce circularity.

This reflexive approach shaped the analysis. Critical dialogue in research team meetings prompted more balanced interpretations where initial readings were overly positive or negative. One example is the greater prominence given to the risks of overdependency on external facilitation. This reframing is reflected in both the Results and the Strengths and limitations section.

3.4 Results

In the multidisciplinary teams studied, three forms of boundary work shaping value-based quality improvement processes were studied: 1) competitive (reinforcement of professional boundaries), 2) collaborative (realigning boundaries to enable cooperation), and 3) configurative (rearranging boundaries of others rather than one's own). The following sections illustrate how each form influenced the dynamics and outcomes of value-based quality improvement. The examples used are illustrative for patterns across multidisciplinary teams in both organisations (for more examples see Appendix 3.8.3).

3.4.1 Competitive boundary work in value based quality improvement

Several forms of competitive boundary work were found to influence value-based quality improvement processes. While diverse perspectives were essential for creative and effective improvement discussions, multidisciplinary team members across most multidisciplinary teams often limited their contribution to their area of expertise or were disengaged when discussions extended beyond their responsibilities. This dynamic was observed during multidisciplinary team meetings, for example when most team members remained silent while a shared improvement challenge was raised, deferring to one professional role (see Textbox 3.1). This selective engagement reinforced existing profession-based boundaries, constrained multidisciplinary dialogue, and ultimately limited the multidisciplinary team's capacity for collective improvement.

Textbox 3.1: Illustrative vignette of competitive boundary work in MDT 14

> During a value-based quality improvement meeting of multidisciplinary team oncology B, the team discussed how to improve response rates to patient-reported outcome (PROM) questionnaires. PROMs were implicitly viewed as the nurse practitioner's responsibility. Most questions were directed to the nurse practitioner, while others remained silent. Attempts by the advisor to involve physicians were redirected, reinforcing the nurse practitioner's responsibilities and limiting cross professional engagement.

Competitive boundary work also emerged when multidisciplinary team members were unfamiliar with one another, for instance when they weren't colocated or lacked prior working relationships. This relational distance, characterised by uncertainty and unfamiliarity with each other's work practices, amplified professional separation and hindered value-based quality improvement progress. In such cases, multidisciplinary team members tended to adopt a less cooperative stance during value-based quality improvement projects and prioritised their routines and perspectives. However, once trust developed, boundaries became more permeable, enabling joint reflection and negotiation. This illustrates the importance of investing in team relationships as a critical precondition for transforming boundary work into a productive force for value-based quality improvement.

Another form of competitive boundary work involved discursive contestation, particularly when value-based quality improvement activities were perceived to challenge existing roles and responsibilities. A frequently used rhetoric was to elevate clinical duties as top priority, sidelining value-based quality improvement projects. For instance, in all studied multidisciplinary teams, meetings were often shortened or cancelled to accommodate clinical work, even when scheduled well in advance. Rarely questioned, these actions were legitimised through the discourse of "patient care comes first", which served as a boundary preserving mechanism. Additionally, "patient-centredness" was invoked to resist population-level standardisation efforts through care pathway development, as part of value-based quality improvement. In some multidisciplinary teams, professionals emphasised the need for individual variation to argue that standardisation was incompatible with true patient-

centred care. These framings defended professional autonomy, justified disengagement from cross-boundary improvement efforts within multidisciplinary teams, and over time eroded motivation, fuelling resistance to value-based quality improvement.

However, competitive boundary work did not always obstruct value-based quality improvement. In some multidisciplinary teams, professionals used competitive boundary work to strengthen their position in their teams. For example, nurse practitioners actively redefined their role and rearticulated their unique contributions, which contributed to their earlier and more consistent involvement in multidisciplinary teams. Their competitive boundary work was actively supported by managers and advisors, who endorsed their increased participation in value-based quality improvement teams, thereby reinforcing diverse multidisciplinary team compositions. As one medical specialist described it:

> *"We started the value-based quality improvement project with the lead specialists, in our case the surgeon and the oncologist. And at some point [red: after nurse practitioners redefined their role], we decided to involve the nurse practitioners of both specialties". (Group interview, GI_3, MDT 12)*

Whereas physicians had previously initiated most value-based quality improvement projects without nurse practitioners, their involvement gradually became standard practice from the outset. This strengthened the representation of their perspective in multidisciplinary teams, broadening the range of professional insights available and thereby supporting value-based quality improvement processes.

3.4.2 Collaborative boundary work in value based quality improvement

Collaborative boundary work was observed when multidisciplinary team members engaged in activities that downplayed, bridged or negotiated boundaries to facilitate teamwork and support value-based quality improvement. Firstly, downplaying professional boundaries occurred through interpersonal connection and inclusive language. Several multidisciplinary teams actively invested in building mutual understanding and relational alignment, which reconciled differences in perspective and strengthened collaboration. Especially the use of first-person plural pronouns ("we") and collective framing fostered this. As one team member emphasised:

> *"What we should all aim for is to think beyond our own domain, surpass ourselves, and to keep returning to what ultimately benefits the patient". (Reflective conversation I_06B, MDT 4)*

This inclusive language downplayed professional demarcations and sustained a shared focus on value-based quality improvement, which simultaneously supported value-based quality improvement. Additionally, colocation further facilitated informal interaction and openness, enabling compromise and joint decision-making. Conversely, collaborative boundary work rarely emerged when team members were geographically dispersed, unfamiliar with one another's work routines, or lacked insight into each other's organisational contexts.

A second collaborative boundary work form involved bridging roles to manage tension between multidisciplinary team members or professional domains. Some members absorbed conflict or redirected blame during difficult conversations, helping to maintain trust and shared purpose. Others informally acted as intermediaries between colleagues who were showing more competitive behaviour. For example, during a meeting of multidisciplinary team oncology D, tensions rose during a discussion about who was responsible for the complications. One medical specialist tried to diffuse the tension:

> *"Why do we collect and discuss these data? To learn from and with each other and to measure outcomes that say something about the quality of care!" (Participatory Observation O_3, MDT 16)*

By shifting the focus away from individual responsibility and towards collective learning, his reframing helped preserve engagement and maintained team alignment around value-based quality improvement goals. These types of actions buffered professional differences and sustained engagement in value-based quality improvement. However, when collaboration efforts became concentrated in the hands of a few, teams risked asymmetry in boundary work. This imbalance made collaboration vulnerable, particularly when boundary tensions resurfaced or team continuity was disrupted and ultimately impeded value-based quality improvement progress.

A third form of collaborative boundary work involved actively negotiating professional and functional boundaries to coordinate value-based quality improvement and enable joint decision making. Several multidisciplinary team members sought workable agreements on issues such as task division, responsibility, and alignment of expertise. These negotiations built trust, resolved tensions, and helped maintain value-based quality improvement progress (see Textbox 3.2 for an example). When supported by clear agreements, on task division, responsibilities and expertise, and relational sensitivity between team members, these efforts enabled more sustainable collaboration.

Textbox 3.2: Illustrative vignette of negotiated boundary work in MDT 2.

During the development of a neurological care pathway, multidisciplinary team members reorganised the sequencing of interventions to complete the treatment plan by the end of the first admission week. Achieving this required careful negotiation across disciplines, as professionals had to reconsider established routines and agree on shared preconditions for good care. By aligning the overarching goal of providing patients with earlier clarity and more efficient treatment, the team created a new shared routine that both improved care quality and strengthened collaboration.

While such negotiations often strengthened collaboration, we observed how unresolved or repetitive negotiations had the opposite effect. In several multidisciplinary teams, differences on roles, responsibilities and tasks resurfaced when debates about indicators or care processes were repeatedly reopened. This created a collaboration façade that undermined clarity in relation to decisions, responsibilities, and direction. This led to indecisiveness and ultimately delayed value-based quality improvement progress.

3.4.3 Configurative boundary work in value based quality improvement

Configurative boundary work in multidisciplinary teams was characterised by boundary rearrangement initiated by actors acting from outside these boundaries. While any actor may engage in configurative boundary work, in our study mainly value-based quality improvement programme advisors and managers were involved. Their role was to create conditions for multidisciplinary team members to reconsider and reorganise boundaries, stimulating collaborative or configurative boundary work among multidisciplinary team members, and thereby influencing value-based quality improvement.

A first example of configurative boundary work was the formative step to establish multidisciplinary teams and organise regular multidisciplinary team meetings taken by value-based quality improvement programme advisors. This intervention, enacted from outside profession-based boundaries, created space for multidisciplinary team members to distance themselves from their daily care routines and discuss their work practices in relation to care quality and safety. In doing so, it enabled perspective shifting and shared reflection, laying the foundation for collaborative boundary rearrangement, as bringing people together and exchanging views was a prerequisite for value-based quality improvement collaboration. Additionally, advisors engaged in further configurative boundary work activities by shaping multidisciplinary team composition. They promoted the inclusion of all relevant disciplines involved, including healthcare professionals, a manager and a patient representative. The rationale was to coalesce diverse perspectives and stimulate discussion about current practices and improvement needs. This inclusive approach aimed to level the field for role and responsibility rearrangement and positively influenced value-based quality improvement by stimulating collaboration. Although this strategy often stimulated collaborative boundary work, this inclusive approach sometimes produced unintended consequences due to the large multidisciplinary teams, such as delaying decision-making or creating confusion about roles and responsibilities, thereby delaying their value-based quality improvement projects (see Textbox 3.3 for an illustration).

Textbox 3.3: Illustrative vignette of configurative boundary work hindering collaboration in MDT 15.

> In the Oncology C MDT, the advisor really pushed to include all specialties and roles, reflecting the multidisciplinary nature of the care pathway. This broad composition made the practical planning of meetings difficult and caused confusion about individual roles and responsibilities. This hindered decision-making as the inclusion of more multidisciplinary team members made it easier for individuals to deflect responsibility for improvement initiatives.

In response to the configurative establishment of multidisciplinary teams and shaping of their composition, some multidisciplinary team members proposed the initial exclusion of certain roles (e.g. managers, nurses or patients), arguing that this would reduce the complexity of the value-based quality improvement project and accelerate decision-making. While framed as a practical consideration, this response to configurative boundary work reflected competitive boundary work, as excluding specific roles narrowed who could participate in conversations about boundary rearrangement.

Bringing people together in multidisciplinary teams laid the foundation for collaborative boundary rearrangement during value-based quality improvement processes. Following multidisciplinary team establishment and composition, advisors created reflexive spaces for collaborative boundary rearrangement. They organised most multidisciplinary team meetings and carefully prepared them by selecting interactive working methods and stimulating working at offsite locations with elements such as meal sharing to encourage cross-disciplinary understanding and psychological safety in a neutral setting. The experienced value of multidisciplinary teams as reflexive spaces is illustrated by the following quote:

> *"It was a very positive [MDT] meeting. Everyone was enthusiastic and we immediately got to work. There was a positive atmosphere within the group, with constructive conversations focused on developing an improved care pathway." (Reflective conversation I_17, MDT 5)*

During the meetings, advisors moderated discussions and posed reflective questions or encouraged to start with experiments to support boundary rearrangement (illustrated in Textbox 3.4).

Textbox 3.4: Illustrative vignette of bridging boundary work

To support multidisciplinary teams in their care pathway design, the advisor developed a two-day programme at an off-site location, including a rationale for care pathway development, expert input, and interactive design activities, e.g. mind mapping and goal–task matrices. Multiple teams worked together outside the constraints of daily clinical routine. Throughout, the advisor facilitated discussion across disciplines, ensured multiple perspectives were heard, and helped surface implicit assumptions, enabling teams to jointly explore new configurations of roles and responsibilities.

Besides meeting preparation and moderation, advisors often enacted configurative boundary work through strategic framing during multidisciplinary team discussions. For instance, they would open meetings by reiterating the rationale and shared objectives of the value-based quality improvement programme, emphasising patient benefit, professional gains, and organisational relevance. While this often helped multidisciplinary team members align, it required caution: repeated emphasis, particularly when voiced by advisors, risked positioning value-based quality improvement as a management-driven, rather than team-owned. For value-based quality improvement to succeed, it needed to be framed as a shared responsibility across professional domains.

Another example of configurative boundary work through framing involved advisors who at times adopted a deliberately 'ignorant' stance during discussions, asking multidisciplinary team members to explain their perspective or routines in basic, non-technical of professional jargon terms. This approach prompted multidisciplinary team members to articulate implicit assumptions, often revealing opportunities for boundary rearrangement. Over time, such framing strategies fostered a more constructive attitude towards value-based quality improvement, paving the way for more collaborative boundary work. As a result, discussions gradually shifted from justifying data or defending existing practices towards jointly exploring strategies for quality improvement.

Our findings indicate that the impact of configurative boundary work depends on its sustained presence. In several multidisciplinary teams, value-based quality improvement progress was closely tied to the continued involvement of advisors or managers who provided structure, time, and direction. When this presence weakened or was interrupted, the conditions for collaborative boundary work deteriorated and value-based quality improvement stalled. In one multidisciplinary team, a manager who had guided the value-based quality improvement process left the organisation, leaving the team without clear direction:

> *"How we are going to cover his role regarding care pathway development is unknown. For now, we will probably have no manager." (From email logged in Journal report)*

In another multidisciplinary team, value-based quality improvement processes were affected by the prolonged absence of the medical leader, which weakened the team's ability to engage in multidisciplinary collaboration. As one team member reflected:

> *"We also functioned for a period without a physician [red: the medical leader]. The physician was absent, and it is really important that all disciplines are represented. We can come up with things, but I cannot speak for the physiotherapist or the occupational therapist [red: or other disciplines]" (Reflective conversation I_39)*

During this period, the absence of the medical leader limited the team's capacity to align perspectives with the broader clinical constituency and resulted in the absence of a medical perspective in team meetings, thereby constraining progress in value-based quality improvement. This, in turn, increased the multidisciplinary teams' reliance on configurative support by both the advisor and the manager to facilitate alignment and sustain momentum. Subsequently, the manager of this multidisciplinary team also became increasingly unavailable, which further weakened the conditions for configurative boundary work. These findings suggest that when key roles within multidisciplinary teams are not fulfilled, teams may become increasingly dependent on advisors' configurative boundary work to sustain value-based quality improvement progress.

However, in some multidisciplinary teams this reliance developed into overdependency on advisors' configurative boundary work. This created a tension in value-based quality improvement: although configurative interventions were crucial to initiate and support collaboration, their temporary and external nature undermined long-term sustainability of value-based quality improvement in multidisciplinary teams and even decreased the internal motivation of the professionals involved in value-based quality improvement collaboration. Together, these examples illustrate how actors positioned outside professional domains played a pivotal role in shaping the conditions for boundary rearrangement in value-based quality improvement.

3.5 Discussion

This study demonstrates how different forms of boundary work, competitive, collaborative, and configurative, can both support (+) and hinder (-) value-based quality improvement in multidisciplinary teams depending on how they are enacted. Unlike earlier empirical research which examined only subsets of boundary work [23,24,38,39], our analysis illustrates how all three boundary work forms unfold within multidisciplinary teams and shape value-based quality improvement processes. Table 3.3 provides a summary of the results, illustrating how each boundary work form can have a varying influence. This is particularly relevant in value-based quality improvement contexts, which often require crossing or rearranging professional and organisational boundaries both within multidisciplinary teams and in collaboration with other disciplines or higher management.

Table 3.3. Boundary work influence on value based quality improvement

Boundary work form	Supportive influence on value based quality improvement	Hindering influence on value based quality improvement
Competitive	**Role strengthening:** Professionals strengthened their position in multidisciplinary teams by redefining their role, enabling earlier and more consistent involvement. This reinforced diverse multidisciplinary team compositions essential for value based quality improvement.	**Selective engagement:** Professionals limited contributions to their own expertise or disengaged when discussions exceeded their boundaries, limiting creative and effective improvement discussions. **Less cooperative stance and prioritisation of own work:** In the context of relational distance multidisciplinary team members defended their own routines and reduced cooperation, which slowed value based quality improvement progress. **Discursive contestation:** value based quality improvement was sidelined through 'patient care comes first', resisting standardisation, and reducing motivation over time.
Collaborative	**Downplaying boundaries:** Interpersonal alignment, colocation and inclusive language ("we"), softened professional demarcations and strengthened shared purpose in value based quality improvement work. **Negotiating boundaries:** Workable agreements on tasks and responsibilities coordinated value based quality improvement and supported joint decision making, building trust and resolving tensions. **Bridging roles:** multidisciplinary team members absorbed tension, redirected blame or acted as intermediaries when differences arose to sustain value based quality improvement engagement.	**Collaboration façade:** Reopened or unresolved negotiations created only the appearance of collaboration, undermining clarity and delaying value based quality improvement progress. **Overreliance on individual bridging work:** Concentration of bridging actions in one or two individuals made collaboration in multidisciplinary teams vulnerable.

Boundary work form	Supportive influence on value based quality improvement	Hindering influence on value based quality improvement
Configurative	**Arranging boundaries:** Establishing multidisciplinary teams and structured meetings created reflective spaces for stepping back from daily routines, shifting perspectives and aligning on value based quality improvement processes. **Coalescing perspectives:** Inclusive multidisciplinary team composition levelled the field for role rearranging and stimulated collaboration necessary for value based quality improvement. **Framing and facilitation:** Advisors used framing, moderation and interactive formats to surface assumptions and support deliberation supporting value based quality improvement.	**Overly broad multidisciplinary team compositions:** Inclusive multidisciplinary team structures sometimes created role confusion, slowed decisions and enabled responsibility deflection, negatively influencing value based quality improvement. **Competitive pushback:** Requests to exclude certain roles (e.g., managers, nurses, patients) restricted boundary rearrangement and hindered value based quality improvement progress. **Overdependency on advisors:** Reliance on external facilitation reduced value based quality improvement sustainability and weakened internal motivation when advisors were unavailable or insufficiently embedded.

In line with previous research, the three forms of boundary work were found to coexist and interact [21,23]. For example, configurative boundary work by an advisor, e.g. moderating discussions or adjusting the team composition, stimulated collaborative boundary work within the multidisciplinary team. In practice, boundary work rarely occurs in isolation: competitive, collaborative and configurative boundary work often unfolded simultaneously and influenced one another. Therefore, it is important to understand boundary work as a dynamic process within multidisciplinary teams. We present a heuristic model (Figure 3.2) illustrating the dynamic interplay between the three boundary work forms, sometimes reinforcing or counteracting one another in influencing value-based quality improvement. In the figure, '+' denotes a supportive influence of the respective boundary work form on value-based quality improvement, whereas '–' indicates a hindering influence. This model synthesises key patterns identified in our analysis and can be refined by future research to deepen insights into how boundary work unfolds in multidisciplinary teams engaged in value-based quality improvement processes.

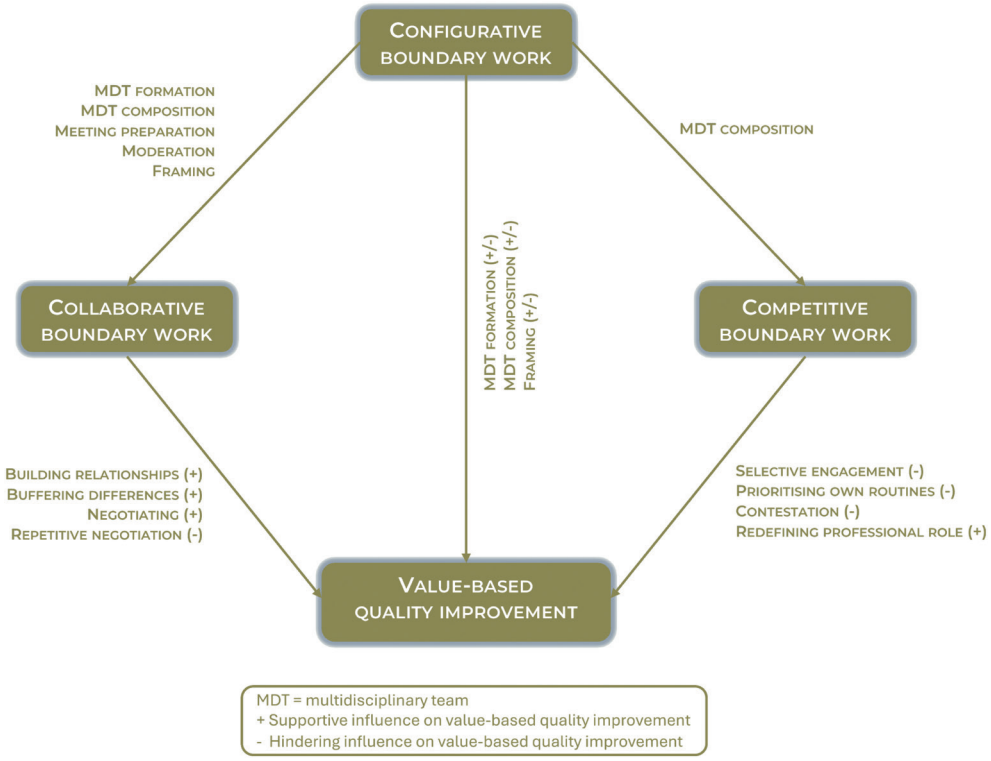


Figure 3.2: Heuristic model illustrating how competitive, collaborative and configurative forms of boundary work support or hinder multidisciplinary teams' value-based quality improvement

Although boundary work is a well-established concept in healthcare research to deepen the understanding of interprofessional collaboration and organisational change, to our knowledge this is the first study using it in the context of multidisciplinary value-based quality improvement programmes [24,40-42]. Our findings show that boundary work proved particularly useful for navigating complex improvement dynamics within multidisciplinary teams. By examining boundary related actions of individual multidisciplinary team members, we highlight how these influenced value-based quality improvement processes.

An important finding in the context of our study is that configurative boundary work can play a particularly prominent role in shaping multidisciplinary teams' engagement with value-based quality improvement, as illustrated in Figure 3.2. Although configurative boundary work is often described as reactive [24,38], mobilised when collaborative or competitive boundary work reaches an impasse, our findings suggest a more formative role for configurative boundary work in multidisciplinary teams' value-based quality improvement. Advisors' configurative boundary work at times acted as a catalyst: not only responding to existing tensions but proactively creating the conditions under which collaborative and competitive boundary work could be enacted productively. It shaped the initial conditions for engagement across boundaries, rather than merely responding to stalled collaboration. Actions by actors whose own professional boundaries were not directly at stake (i.e. advisors) stimulated multidisciplinary team members to reflect on, challenge, and reconfigure existing boundaries. Their relative outsider position allowed them to facilitate structured dialogue, alignment and negotiation of boundaries. Their actions buffered professional differences and helped teams navigate boundary tensions constructively. However, configurative boundary work also proved to have limits. For example, broad multidisciplinary team compositions, as a result of configurative

boundary work, could delay decision-making and obstruct role clarity, thereby hindering value-based quality improvement. This finding aligns with research demonstrating that broad multidisciplinary team compositions increase the complexity of goal alignment and decision-making in multidisciplinary teams [19], and that insufficient role clarity, role understanding, communication, and shared mental models undermine team effectiveness in value-based quality improvement processes [43-46].

Finally, our findings highlight the pivotal yet delicate role of advisors and managers. Through reflective, bridging and framing configurative boundary work practices, they contributed to value-based quality improvement by fostering ownership and sustaining team collaboration over time. These findings resemble with earlier work [40,47,48]. However, sustained reliance on external facilitation risked undermining long-term value-based quality improvement sustainability and diminishing internal motivation. While relative distance from day-to-day clinical practice allowed advisors to connect perspectives and prompt reflection, their legitimacy could be weakened if they became too closely aligned with particular professional interests or organisational agendas [49]. Ideally, as multidisciplinary teams mature, they become less reliant on facilitation from outsiders and more capable of enacting appropriate boundary work themselves to solve tensions and enhance care quality and safety. This reduces the risk of overdependency on advisors or managers, whose legitimacy may erode over time [49]. Developing such capacity is essential for multidisciplinary teams aiming to navigate boundary work dynamics independently and embed value-based quality improvement within routine practice.

To help multidisciplinary team members to be mindful of how their boundary work unfolds, ideally stimulating boundary work that supports value-based quality improvement or mitigate boundary work hindering value-based quality improvement, our empirical findings point towards three practical strategies that can be used to respond to boundary work dynamics:

1) **Focus on downplaying professional demarcations:** to mitigate selective engagement of multidisciplinary team members and stimulate collaboration between multidisciplinary team members, one could focus on downplaying professional demarcations to reduce professional distance. For example, by using inclusive 'we' language, creating reflexive spaces in which quality of care can actively and openly be discussed, or posing reflexive questions that refocus on shared value-based quality improvement goals.
2) **Build familiarity and trust:** to overcome an uncooperative stance between multidisciplinary team members, one could focus on enhancing familiarity between multidisciplinary team members work routines, tasks, and responsibilities. For example, by colocating multidisciplinary team members who are dispersed across sites or organising regular meetings that deliberately create opportunities to gain familiarity and build trust.
3) **Play with multidisciplinary team composition:** to prevent role confusion and an overload of perspectives, one could adjust the size of de multidisciplinary team. For example, by creating a core multidisciplinary team with a clear role and task division and a wider circle supporting it to provide focus and clarity. However, when improvement strategies start to narrow, expanding the multidisciplinary team can help introduce additional perspectives.

The above-described strategies are not a quick fix but can tip the balance from hindering to supportive value-based quality improvement processes by managing the boundary work dynamics within the multidisciplinary team. Recognising, understanding, and adequately reacting to the different boundary work forms can help multidisciplinary team members to navigate tensions and enhance collaboration to advance value-based quality improvement. Advisors can play a valuable, but ideally temporary, configurative role by fostering collaborative boundary work and tempering competitive boundary work. However, overreliance on advisors' or managers' configurative work can ultimately hinder long-term sustainability of value-based quality improvement processes and outcomes. To embed value-based quality improvement in routine practice, it is essential to build internal capacity within multidisciplinary teams to navigate and strategically use boundary work as part of ongoing improvement work and reduce dependency on external facilitation. We invite fellow researchers to further develop these or other strategies to advance value-based quality improvement in complex healthcare environments.

3.5.1 Strengths and limitations

This study's strengths are the multimethod data collection approach, including group interviews, observations, reflective conversations, and journal reports. Additionally, the sustained embeddedness of both lead researchers within the studied multidisciplinary teams yielded rich empirical data and in depth, practice-based insights into boundary work dynamics that would have been difficult to capture from an external perspective. This embeddedness enhanced the study's contextual sensitivity and credibility. While the study was conducted in only two healthcare organisations, which may limit transferability, the deliberate inclusion of distinctly different organisational contexts enabled insights into how boundary work shapes value-based quality improvement across varying settings. In addition, the findings were extensively discussed within the research team with ample experience across various healthcare settings. This strengthened the relevance and applicability of the results to other multidisciplinary teams engaged in value-based quality improvement.

Several limitations warrant consideration. The embedded position of the lead researchers introduced an inherent tension: as advisors enacting configurative boundary work themselves, they were studying the phenomenon in which they were active participants. This could result in 'going native' [32–34], potentially limiting the study's validity [27]. To mitigate potential bias from the researchers' embedded roles, regular journal reports and in-depth research team discussions were used. However, a residual risk remains: as the lead researchers were themselves advisors enacting configurative boundary work, they may have assessed this boundary work form more favourably than external observers would. Readers should interpret findings on configurative boundary work with this positionality in mind. Second, the use of the boundary work typology of Langley et al. [21] as an interpretive lens may have foregrounded interprofessional dynamics at the expense of other relevant processes, such as institutional politics or organisational power structures. Findings should be read as illuminating one lens on value-based quality improvement processes rather than providing an exhaustive account. Third, recall and self-presentation bias [27] may have affected the data: participants in the reflective conversations spoke with the lead researchers who simultaneously served as their programme advisors. This dual relationship may have influenced participants' willingness to voice criticism or concerns, introducing a degree of recall and self-presentation bias. Finally, regarding sampling bias [27]: all 17 multidisciplinary teams were included in the study, and participants were selected based on availability rather than attitude towards value-based quality improvement, meaning both proponents and critics were represented. Nonetheless, professionals who disengaged from value-based quality improvement entirely may be underrepresented.



3.6 Conclusion

This study examined how three boundary work forms (competitive, collaborative, and configurative) influence multidisciplinary teams' value-based quality improvement. All boundary work forms were found to both enable and constrain value-based quality improvement depending on how they were enacted and combined (see Table 3.3 and Figure 3.2). Competitive boundary work involved reinforcing professional boundaries, often through limited engagement or deflecting responsibility. While competitive boundary work sometimes clarified roles, it could also obstruct collaboration, stall progress, and reduce motivation among engaged team members. Collaborative boundary work occurred when team members actively bridged boundaries to foster trust, mutual understanding, and shared decision-making, thereby enabling processes of mutual learning in value-based quality improvement projects. It supported sustainable improvement by aligning perspectives and enabling joint ownership of the value-based quality improvement goals. However, it was sometimes used as façade to reopen discussions, stalling value-based quality improvement. Configurative boundary work, typically enacted by advisors (as external actors), through practices such as influencing team composition, facilitation and framing, shaped the conditions for productive interplay between competitive and collaborative forms. Recognising and navigating these boundary work dynamics is essential for sustainable value-based quality improvement. Over time, strengthening multidisciplinary teams' internal capacity for managing the boundary work dynamics may reduce reliance on external facilitation and fosters ownership over both value-based quality improvement processes and results.

3.7 References

[1] Porter ME, Lee TH. The strategy that will fix health care. Harv Bus Rev 2013;91(10):50–70.

[2] Porter ME, Teisberg EO. Redefining health care: creating value-based competition on results. 1st ed. Boston: Harvard Business School Press; 2006.

[3] Van der Nat PB. The new strategic agenda for value transformation. Health Serv Manage Res 2022; 35(3):189–193. doi:10.1177/09514848211011739

[4] Daniels K, Rouppe van der Voort MBV, Biesma DH, Van der Nat PB. Five years' experience with value-based quality improvement teams: the key factors to a successful implementation in hospital care. BMC Health Serv Res 2022; 22(1):1–14. doi:10.1186/s12913-022-08563-5

[5] van Engen V, Buljac-Samardzic M, Baatenburg de Jong R, Braithwaite J, Ahaus K, Den Hollander-Ardon M, et al. A decade of change towards value-based health care at a Dutch university hospital: a complexity-informed process study. Health Res Policy Syst 2024;22(1):94–1910.1186/s12961-024-01181-z.

[6] Teisberg E, Wallace S, O'Hara S. Defining and Implementing value-based health care: a strategic framework. Acad Med 2020; 95(5):682–685. doi:10.1097/acm.0000000000003122

[7] Heijsters FACJ, Van Breda FGF, Van Nassau F, Van der Steen MKJ, Ter Wee PM, Mullender MG, et al. A pragmatic approach for implementation of value-based healthcare in Amsterdam UMC, the Netherlands. BMC Health Serv Res 2022;22(1):550. doi:10.1186/s12913-022-07919-1

[8] Westerink HJ, Steinmann G, Koomans M, Van der Kemp MH, Van der Nat PB. Value-based healthcare implementation in the Netherlands: a quantitative analysis of multidisciplinary team performance. BMC Health Serv Res 2024;24(1):224. doi:10.1186/s12913-024-10712-x

[9] Zanotto BS, Etges APBdS, Marcolino MAZ, Polanczyk CA. Value-based healthcare initiatives in practice: a systematic review. J Healthc Manag 2021;66(5):340–365. doi:10.1097/JHM-D-20-00283

[10] Braam A, Van Wijngaarden J, Hilders C, Buljac-Samardzic M. Multidisciplinary collaboration in hospitals via patient- and process-oriented units: a longitudinal study. J Multidiscip Healthc 2024;17:3213–3226. doi:10.2147/JMDH.S454903

[11] Van Staalduinen DJ, Van den Bekerom PEA, Groeneveld SM, Franx A, Stiggelbout AM, Van den Akker-van Marle ME. Differing professional perspectives on the interprofessional collaboration in IPUs: a mixed-methods study. Int J Integr Care 2023;23(3):5. doi:10.5334/ijic.7516

[12] Lemieux-Charles L, McGuire WL. What do we know about health care team effectiveness? A review of the literature. Med Care Res Rev 2006;63(3):263–300. doi:10.1177/1077558706287003.

[13] Doekhie KD, Buljac-Samardzic M, Strating MM, Paauwe J. Who is on the primary care team? Professionals' perceptions of the conceptualization of teams and the underlying factors: a mixed-methods study. BMC Fam Pract 2017;18(1):1–14. doi:10.1186/s12875-017-0685-2

[14] Edmondson AC, Harvey J. Cross-boundary teaming for innovation: integrating research on teams and knowledge in organizations. Hum Resour Manag Rev 2018;28(4):347–360. doi:10.1016/j.hrmr.2017.03.002

[15] Wang H, van Wijngaarden J, Buljac-Samardzic M, Van de Klundert J. Factors and interventions determining the functioning of health care teams in county-level hospitals in less affluent areas of China: a qualitative study. Front Public Health 2023;11:1082070. doi:10.3389/fpubh.2023.1082070

[16] Liberati EG, Gorli M, Scaratti G. Invisible walls within multidisciplinary teams: disciplinary boundaries and their effects on integrated care. Soc Sci Med 2016;150:31–39. doi:10.1016/j.socscimed.2015.12.002

[17] Van Staalduinen DJ, Van den Bekerom P, Groeneveld S, Kidanemariam M, Stiggelbout AM, Van den Akker-van Marle ME. The implementation of value-based healthcare: a scoping review. BMC Health Serv Res 2022;22(1):270. doi:10.1186/s12913-022-07489-2

[18] Kampstra NA, Zipfel N, Van der Nat PB, Westert GP, Van der Wees PJ, Groenewoud AS. Health outcomes measurement and organizational readiness support quality improvement: a systematic review. BMC Health Serv Res 2018;18(1):1005. doi:10.1186/s12913-018-3828-9

[19] Visser M, De Mul M, Ahaus K, Weggelaar-Jansen AM. Navigating value complexity in care pathway development: a qualitative case study. BMJ Open 2025;15(8):e098157. doi:10.1136/bmjopen-2024-098157

[20] Lamont M, Molnár V. The study of boundaries in the social sciences. Annu Rev Sociol 2002;28(1):167–195. doi:10.1146/annurev.soc.28.110601.141107

[21] Langley A, Lindberg K, Mørk BE, Nicolini D, Raviola E, Walter L. Boundary work among groups, occupations, and organizations: from cartography to process. Acad Manag Ann 2019;13(2):704–736. doi:10.5465/annals.2017.0089

[22] Wallace C, Farmer J, McCosker A. Boundary spanning practices of community connectors for engaging 'hardly reached' people in health services. Soc Sci Med 2019;232:366–373. doi:10.1016/j.socscimed.2019.05.034

[23] Comeau-Vallée M, Langley A. The interplay of inter- and intraprofessional boundary work in multidisciplinary teams. Organ Stud 2020;41(12):1649–1672. doi:10.1177/0170840619848020

[24] van Muijden T, Petit-Steeghs V, Aspria M, Bal R, Van de Bovenkamp H. Frontline professionals' experiences of navigating boundaries in a layered care and support system for individuals with complex care needs in the Netherlands. Soc Sci Med 2025;366:117692. doi:10.1016/j.socscimed.2025.117692

[25] Long JC, Cunningham FC, Braithwaite J. Bridges, brokers and boundary spanners in collaborative networks: a systematic review. BMC Health Serv Res 2013;13(1):158. doi:10.1186/1472-6963-13-158

[26] Hjort-Enemark E, Meier N, Hald AN. On the interplay between boundary work and organizational context. J Organ Sociol 2025;3(1):127–158. doi:10.1515/joso-2024-0016

[27] Green J, Thorogood N. Qualitative methods for health research. 4th edition ed. Los Angeles: SAGE; 2018.

[28] Schreier M. Sampling and generalization. In: Flick U, editor. The SAGE handbook of qualitative data collection. 1st ed. London: SAGE Publications Ltd; 2018. Chapter 6. doi:10.4135/9781526416070.n6

[29] Coghlan D, Shani AB. Abductive reasoning as the integrating mechanism between first- second- and third-person practice in action research. Syst Pract Action Res 2021;34(4):463–474. doi:10.1007/s11213-020-09542-9

[30] Thornberg R. Abduction as a guiding principle in qualitative research design. In: Flick U, editor. The SAGE handbook of qualitative research design. London: SAGE Publications Ltd; 2022. doi: 10.4135/9781036243371

[31] O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med 2014;89(9):1245–1251. doi:10.1097/ACM.0000000000000388

[32] Fuller D. Part of the action, or 'going native'? Learning to cope with the 'politics of integration'. Area (Oxf) 1999;31(3):221–227. doi:10.1111/j.1475-4762.1999.tb00086.x

[33] Tresch J. On going native: Thomas Kuhn and anthropological method. Philos Soc Sci 2001;31(3):302–322. doi:10.1177/004839310103100302

[34] Kanuha VK. "Being" native versus "going native": Conducting social work research as an insider. Soc Work 2000;45(5):439–447. doi:10.1093/sw/45.5.439

[35] Mortelmans D. Handboek kwalitatieve onderzoeksmethoden. 3rd ed. Leuven: Acco; 2020.

[36] Bradbury H, Glenzer K, Apgar M, Embury DC, Friedman V, Kjellström S, et al. Action Research Journal's seven quality choicepoints for action oriented research for transformations. Action Res 2020;18(1):3–610.1177/1476750320904562

[37] Bradbury H, Glenzer K, Ku B, Columbia D, Kjellström S, Aragón AO, et al. What is good action research: quality choice points with a refreshed urgency. Action Res 2019;17(1):14–18. doi:10.1177/1476750319835607

[38] Reindersma T, Sülz S, Ahaus K, Fabbricotti I. Back to square one? Exploring boundary work by purchasers of health and social care. Public Manag Rev. 2026. doi:10.1080/14719037.2026.2617881

[39] Meier N. Collaboration in healthcare through boundary work and boundary objects. Qual Sociol Rev 2015;11(3):60–82. doi:10.18778/1733-8077.11.3.05

[40] Oldenhof L, Stoopendaal A, Putters K. From boundaries to boundary work: middle managers creating inter-organizational change. J Health Organ Manag 2016;30(8):1204–1220. doi:10.1108/JHOM-03-2016-0041

[41] Lindberg K, Walter L, Raviola E. Performing boundary work: The emergence of a new practice in a hybrid operating room. Soc Sci Med 2017;182:81–88. doi:10.1016/j.socscimed.2017.04.021

[42] Lunkka N, Jansson N, Mainela T, Suhonen M, Meriläinen M, Puhakka V, et al. Professional boundaries in action: using reflective spaces for boundary work to incorporate a new healthcare role. Hum Relat 2022;75(7):1270–1297. doi:10.1177/00187267211010363

[43] Suter E, Arndt J, Arthur N, Parboosingh J, Taylor E, Deutschlander S. Role understanding and effective communication as core competencies for collaborative practice. J Interprof Care 2009;23(1):41–51. doi:10.1080/13561820802338579

[44] Ly O, Sibbald SL, Verma JY, Rocker GM. Exploring role clarity in interorganizational spread and scale-up initiatives: the 'INSPIRED' COPD collaborative. BMC Health Serv Res 2018;18(1):680. doi:10.1186/s12913-018-3474-2

[45] Manges K, Groves PS, Farag A, Peterson R, Harton J, Greysen SR. A mixed methods study examining teamwork shared mental models of interprofessional teams during hospital discharge. BMJ Qual Saf 2020;29(6):499–508. doi:10.1136/bmjqs-2019-009716

[46] De Jong-Ultee SM, De Waard L, Van Staalduinen DJ, Mosselman MJ, Van Veghel D, Dijksman LM, et al. Professionals' perceptions of interprofessional collaboration within condition-based units. PLoS One 2026 June 8;21(6). Doi: 10.1371/journal.pone.0343792

[47] Chreim S, Langley A, Comeau-Vallée M, Huq J, Reay T. Leadership as boundary work in healthcare teams. Leadership 2013;9(2):201–228. doi:10.1177/1742715012468781

[48] Ferlie E, Fitzgerald L, Wood M, Hawkins C. The nonspread of innovations: the mediating role of professionals. Acad Manage J 2005;48(1):117–134. doi:10.5465/amj.2005.15993150

[49] Van Schothorst - van Roekel J, Weggelaar - Jansen, Anne Marie J W M, Hilders CCGJM, Wallenburg I, De Bont A. Role of Dutch internal policy advisors in a hospital quality improvement programme and their influence on nurses' role development: a qualitative study. BMJ Open 2021;11(9):e051998. doi:10.1136/bmjopen-2021-051998

3.8 Appendices

3.8.1 Overview of multidisciplinary team compositions.

MDT	MDT name	Composition
MDT 7	Neurological rehabilitation D	1 medical specialist 1 manager 8 healthcare professionals *
MDT 1	Spinal Cord Injury rehabilitation A	1 medical specialist 1 manager 2 healthcare professionals *
MDT 2	Neurological rehabilitation A	1 medical specialist 1 manager 5 healthcare professionals *
MDT 3	Neurological rehabilitation B	1 medical specialist 1 manager 3 healthcare professionals *
MDT4	Neurological rehabilitation C	2 medical specialists 1 manager 5 healthcare professionals *
MDT 5	Paediatric rehabilitation A	1 medical specialist 1 manager 5 healthcare professionals *
MDT 6	Spinal Cord Injury rehabilitation B	1 medical specialist 1 manager 5 healthcare professionals *
MDT 8	Paediatric rehabilitation B	1 medical specialist 1 manager 8 healthcare professionals * 1 medical secretary 1 scheduling administrator
MDT 9	Paediatric rehabilitation C	1 medical specialist 1 manager 5 healthcare professionals * 1 medical secretary 1 scheduling administrator
MDT 10	Paediatric rehabilitation D	1 medical specialist 1 manager 5 healthcare professionals * 1 medical secretary 1 scheduling administrator

MDT	MDT name	Composition
MDT 11	Neurological rehabilitation E	1 medical specialist 1 manager 5 healthcare professionals *
MDT 12	Oncology A	2 medical specialists 2 nurse practitioners 1 data analyst 1 advisor
MDT 13	Paediatrics	1 medical specialist 1 nurse practitioners 1 healthcare professional* data analyst 1 advisor
MDT 14	Oncology B	1 medical specialist 1 nurse practitioners 1 data analyst 1 advisor
MDT 15	Oncology C	3 medical specialists 2 nurse practitioners 1 data analyst 1 advisor
MDT 16	Oncology D	4 medical specialists 1 nurse practitioners 1 data analyst 1 advisor
MDT 17	Ophthalmology	1 medical specialist 1 manager 1 data analyst 1 advisor 1 healthcare professional*

* Such as physiotherapist, speech therapist, clinical neuropsychologist, occupational therapist or social worker
MDT = multidisciplinary team

3.8.2 Boundary work as interpretive lens

Boundary work type	Mode of boundary work	Effect on value-based quality improvement
Competitive	Defending	Supportive
	Defending	Hindering
	Contesting	Supportive
	Contesting	Hindering
	Creating	Supportive
	Creating	Hindering
Collaborative	Negotiating	Supportive
	Negotiating	Hindering
	Embodying	Supportive
	Embodying	Hindering
	Downplaying	Supportive
	Downplaying	Hindering
Configurative	Arranging	Supportive
	Arranging	Hindering
	Buffering	Supportive
	Buffering	Hindering
	Coalescing	Supportive
	Coalescing	Hindering

3.8.3 Boundary work interpretation and examples from empirical data

3.8.3.1 Competitive boundary work

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
Defending	To defend professional boundaries, multidisciplinary team members often limited their contribution to their own area of expertise or disengaged when discussions extended beyond their responsibilities, thereby limiting multidisciplinary team's capacity for improvement.	*Reflexive note:* During an multidisciplinary team value based quality improvement meeting, the clinical neuropsychologist explicitly defended his professional role in relation to the social worker, stressing that psychological assessment and counselling should remain under the domain of neuropsychology. By highlighting boundaries, he curtailed overlap with the social worker's role and limited opportunities for shared responsibility.	Organisation 1 MDT 2
		Reflexive note: During multiple multidisciplinary team value-based quality improvement meetings, the team discussed how to improve response rates to patient-reported outcome (PROM) questionnaires. PROMs were implicitly viewed as the nurse practitioner's responsibility. Most questions were directed to the nurse practitioner, while others remained silent. Attempts by the quality advisor to involve physicians were redirected, reinforcing the nurse practitioner's responsibilities and limiting opportunities for cross-professional engagement. *Quote GI_3: "We started the value-based quality improvement project with the lead specialists, in our case the surgeon and the oncologist. And at some point [red: after nurse practitioners redefined their role], we decided to involve the nurse practitioners of both specialties."* *Quote GI_4: ""You did that [the PROMs] with [name of medical psychologist]. I never really interfered with it. That part was yours.".*	Organisation 2 MDT 12 MDT 13 MDT 14
	Professional separation was maintained through defensive boundary work, especially when experiencing relational distance, thereby hindering value based quality improvement progress.	*Quote I_45:* "At the start, the four locations were clearly positioned against each other. We tried to find more uniformity, but we were too far apart. Over time, this changed. We got to know each other, we knew who was across the table, and it became more about working together rather than saying: this is how we do it, your way is wrong, our way is the best. […] By getting to know each other, also personally (how they approach things, their way of thinking) it became easier to work together."	Organisation 1 MDT 4
		Reflexive note: In the early stages of the multidisciplinary team, surgical indicators were reviewed separately from those of internal medicine, as members were concerned that the results might expose mistakes within their own specialties. Over time, as they became more familiar with each other's areas of practice and each other, the indicators were discussed collectively, with all specialties participating together.	Organisation 2 MDT 12

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
Contesting	When value based quality improvement activities were perceived to challenge existing roles and responsibilities, multidisciplinary team members performed discursive contestation, which justified disengagement from value based quality improvement efforts.	*Reflexive note:* Clinical duties were elevated as top priority, sidelining value based quality improvement efforts by shortening or cancelling multidisciplinary team meetings, which were planned well ahead of time.	Organisation 1&2 MDT 1-17
		Reflexive note: The argument 'we want to organise patient-centred care' was often used to resist population-level standardisation	Organisation 1&2 MDT 1 MDT 2 MDT 3 MDT 7 MDT 8 MDT 13 MDT 16
Creating/ expanding	By creating new or expanding professional boundaries certain multidisciplinary team members' presence within the multidisciplinary team was sustained, which contributed to more stable and diverse multidisciplinary team compositions, reducing disruptions and reinforcing momentum in value based quality improvement.	*Reflexive note:* Nurse practitioners actively redefined their professional role, which resulted in earlier engagement in value based quality improvement multidisciplinary teams.	Organisation 2 MDT 12-15
		Reflexive note: Medical psychologists made significant efforts to embed patient-reported outcome measures (PROMs) within their profession by initiating scientific research on the topic. As a result, their inclusion in the multidisciplinary team was perceived as a logical step, whereas in other multidisciplinary teams the integration of a more diverse group of healthcare professionals proved more challenging.	Organisation 2 MDT 13
	Professional roles were expanded, as members claimed new responsibilities. These attempts centred on claiming new responsibilities and reshaping task divisions, thereby provoking defensive responses from senior colleagues. These processes hindered value based quality improvement progress.	*Reflexive note:* In an multidisciplinary team meeting, members discussed new pathway ideas concerning task redistribution. One multidisciplinary team member became emotional as she anticipated resistance from senior colleagues in her professional group, where established boundaries were expected to be defended.	Organisation 1 MDT 7
		Reflexive note: During an multidisciplinary team value based quality improvement meeting, the social worker suggested expanding her professional role by positioning counselling and patient support as part of her domain within the pathway. By doing so, she attempted to reshape task division in organising psychological care for the patient group. In this debate she confronted the clinical neuropsychologist, who opposed the proposal and defended established professional boundaries.	Organisation 1 MDT 2

* Reflexive notes derived from reflexive journal reports, and participatory observations
** Quotes derived from reflexive conversations, group interviews, and reflective debriefing sessions
MDT = multidisciplinary team

3.8.3.2 Collaborative boundary work examples

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
Downplaying	Inclusive language and collective framing were used by multidisciplinary team members to downplay professional boundaries and enhance mutual understanding and relational alignment, which supported value based quality improvement.	*Quote reflexive conversation I_06B:* "What we should all aim for is to think beyond our own domain, to step over our own shadow, and to keep returning to what ultimately benefits the patient".	Organisation 1 MDT 4
		Quote reflexive research team meeting RR_22: "…it seemed sensible to start together as a group and then decide when, how often and how long we should meet and in what way. Better to meet collectively than to spend 20 emails back and forth…"	Organisation 1 MDT 6
		Reflexive note: When negative outcome indicators were discussed, multidisciplinary team members deliberately avoided mentioning the names of individual healthcare professionals involved in the cases that contributed to these outcomes. Instead, the discussion was directed to the team as a whole with the question: "What can we do to improve the outcomes?"	Organisation 2 MDT 16 MDT 17
	Co-location facilitated informal interaction and familiarity, enabling team members to overlook minor disagreements, build trust, and reach compromise. By downplaying professional and organisational differences, members were able to strengthen relationships, support joint decision-making, and foster collective ownership, which helped value based quality improvement processes.	*Reflexive note:* In one multidisciplinary team, professionals from different sites came together in co-located meetings. Initially, each discipline emphasised its own perspective. As members grew more familiar with each other's routines and organisational contexts, minor differences were increasingly downplayed. Over time, team members highlighted commonalities rather than divisions, which enabled collective reflection and shared responsibility.	Organisation 1 MDT 4 MDT 7 MDT 8
		Reflexive note: Due to a national initiative to centralise care, a regional collaboration was established for this patient group. In practice, this meant that medical specialists from multiple hospitals carried out procedures in the case hospital whilst continuing to spend most of their working time in their own hospitals. As part of this process, professionals from all participating hospitals were invited to join the multidisciplinary team. This increased the time spent co-located, which in turn supported relationship building and mutual familiarisation.	Organisation 2 MDT 16
Embodying	To enhance value based quality improvement, certain multidisciplinary team members bridged roles to manage tension between professional domains.	*Reflexive note:* In multidisciplinary teams, moments of tension or standstill arose. In one multidisciplinary team, the advisor sought to bridge divisions by narrowing the gap between the team and the value based quality improvement agenda. As resistance grew and no progress was made, she redirected attention towards themes prioritised by the team itself. This created space for progression.	Organisation 1 MDT 1
		Reflexive note: In another multidisciplinary team, the manager admitted feeling overwhelmed by financial pressures. Through reframing she was able to join discussions about how care pathway development could still contribute to collective improvement.	Organisation 1 MDT 2
		Reflexive note: In an multidisciplinary team meeting, the advisor helped break through a sense of impasse by emphasising the team's own room for action. By redirecting attention from barriers to possibilities, she encouraged the team to move forward with their value based quality improvement work.	Organisation 1 MDT 1

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
		Reflexive note: In the multidisciplinary team meeting, tensions rose during a discussion about complications. One medical specialist diffused the tension by shifting the focus away from individual responsibility towards collective learning. His reframing helped preserve engagement and maintained team alignment around value based quality improvement goals. *Quote O_3: "Why do we collect and discuss these data? To learn from and with each other and to measure outcomes that say something about the quality of care!"*	Organisation 2 MDT 16
		Reflexive note: In one multidisciplinary team, the manager who had created space for collaboration and offered guidance became unavailable. As no multidisciplinary team member stepped in to take over this configurative boundary work role, which reduced organisational backing and slowed the team's progress. Quote from email in journal report:" How we are going to cover his role regarding care pathway development is unknown. For now, we will probably have no manager."	Organisation 1 MDT 2
	In some multidisciplinary teams, progress slowed during the prolonged absence of key figures, such as the advisor, a manager or medical specialist, on whom the team (often unconsciously) relied for support and collaboration. These members embodied the progress of value based quality improvement initiatives, making their presence pivotal for sustaining momentum.	*Reflexive note: In one multidisciplinary team, the manager and formal pathway lead was unable to participate due to pressing organisational challenges. In her absence, the team lacked clear leadership, which resulted in limited progress and repeated discussions without concrete follow-up.* *Quote I_39: "We also functioned for a period without a physician [red: the medical leader], the physician was absent, and it is really important that all disciplines are represented. We can come up with things, but I cannot speak for the physiotherapist or the occupational therapist [or other disciplines]"*	Organisation 1 MDT 5
		Reflexive note: The advisor's level of involvement influenced the progress of multidisciplinary teams. When she did not take a strong lead or maintain direction, meetings were sometimes postponed and progress on improvement initiatives slowed. Some teams relied more heavily on her support, while others proceeded more independently. This was either because she could not provide the same level of input to all teams, or because they preferred to manage it themselves.	Organisation 1 MDT 1-11
		Reflexive note: If the advisor was absent, busy or occupied with other work priorities, multidisciplinary team meetings were often postponed, and progress on improvement initiatives was limited.	Organisation 2 MDT 12-16
		Quote group interview_3: "Sometimes I need a trigger to work on quality improvement, these meetings, or actually often you, are that trigger I need. Without it..."	Organisation 2 MDT 13
		Reflexive note: At one point the multidisciplinary team chair changed position in the hospital and therefor felt he shouldn't be an multidisciplinary team member anymore. Afterwords, it was very difficult for the advisor to find a new chair and organise multidisciplinary team meetings, since no one felt responsibility for value based quality improvement anymore. Until this day the organisation is still trying to restart this multidisciplinary team.	Organisation 2 MDT 17

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
Negotiating	Actively negotiating professional and functional boundaries enabled joint decision-making, which supported value based quality improvement.	Reflexive note: During the development of a care pathway, multidisciplinary team members reorganised the pathway to ensure that a treatment plan could be completed by the end of the first week. To achieve this, the sequencing of interventions had to be adjusted. This was a sensitive issue that required careful negotiation. Agreement was reached by establishing shared preconditions to good care and by aligning on the overarching goal of helping more patients, more efficiently.	Organisation 1 MDT 2
	Unresolved or repetitive negotiations had a negative effect on value based quality improvement	Reflexive note: In several multidisciplinary teams, repetitive discussions about pathway design choices, such as treatment frequencies and treatment modules, recurred during meetings. These unresolved negotiations slowed down the value based quality improvement process, as teams circled around the same issues instead of moving forward with concrete improvement initiatives	Organisation 1 MDT 1 MDT 2 MDT 4 MDT 6 MDT 7 MDT 8
		Reflexive note: Often repetitive discussions about data quality or indicator definitions occurred during multidisciplinary team meetings. This delayed the actual discussion about quality improvement initiatives, since without trustworthy data the multidisciplinary team did not want to talk about possible improvements.	Organisation 2 MDT 16 MDT 17

* Reflexive notes derived from reflexive journal reports, and participatory observations
** Quotes derived from reflexive conversations, group interviews, and reflective debriefing sessions
MDT = multidisciplinary team

3.8.3.3 Configurative boundary work examples

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
Coalescing	Advisors associated to the value based quality improvement programme formed multidisciplinary teams and organised regular multidisciplinary team meetings, therefore creating reflective spaces for boundary rearrangement, which supported value based quality improvement processes.	*Quote reflexive conversation I_17*: "It was a very positive [MDT] meeting. Everyone was enthusiastic and we immediately got to work. There was a positive atmosphere within the group, with constructive conversations focused on developing an improved care pathway."	Organisation 1 MDT 5
		Reflexive note: After identifying motivated medical specialties, advisors associated to the programme invited possible multidisciplinary team members to a kick-off meeting in which the programme and core principals of value based quality improvement multidisciplinary teams were explained, with explicit attentions to the soft skills needed for value based quality improvement, such as teamwork and trust.	Organisation 2 MDT 12-17
	Advisors created reflective spaces through a large and inclusive team composition, which shaped multidisciplinary team dynamics but could also create confusion about roles and responsibilities, slowing down decision-making, negatively influencing value based quality improvement.	*Reflexive note:* Management proposed a large team with representatives from all locations and disciplines, reflecting the care pathway's co-located nature. Despite good intentions, the wide composition caused confusion about individual roles and responsibilities, which hindered decision-making as they repeatedly started over the same discussion from another angle.	Organisation 1 MDT 8
		Reflexive note: In a later stage of the value based quality improvement projects, it was more common to include all disciplines at the start of the multidisciplinary team formation. The advisor really pushed for inclusion of all specialties and not just a few 'to get started'. However, trying to organise multidisciplinary team meetings with 3 different specialties with all medical specialists, nurse practitioners and other HC professionals made planning difficult. Also, the shared-responsibility between the specialties made it easier for individuals to deflect responsibility of improvement initiatives.	Organisation 2 MDT 15
	In response to the formation of broad multidisciplinary teams as a reflective space, nursing staff, management and patient representatives were excluded despite their close involvement in care delivery and organisational processes, which constrained opportunities for boundary rearrangement essential for value based quality improvement.	*Reflexive note:* Although nurses were central to patient care in the neurology clinic, they were not included in the multidisciplinary teams. The possibility of involving nursing staff was raised but ultimately not acted upon.	Organisation 1 MDT 1 MDT 2

Boundary work mode	Boundary work interpretation	Examples from empirical data (reflexive notes*, quotes**)	Case & MDT
		Reflexive note: In all multidisciplinary teams, managers were not actively involved throughout the projects. They were actively invited at the start of the multidisciplinary team formation but often they did not participate in later meetings. The managers themselves argued it was a 'medical project' and they could use their time for more organisational things. Also, other multidisciplinary team members argued that including managers was difficult due to practical planning reasons, and they could be consulted when needed.	Organisation 2 MDT 12-16
		Reflexive note: In multiple multidisciplinary teams it is often discussed it would be helpful to include more specialities, e.g., radiologists or pathologists during the oncological multidisciplinary teams. However, multidisciplinary teams never act upon these suggestions, so up until this day additional specialties have not been invited into the multidisciplinary team.	Organisation 2 MDT 12 MDT 14 MDT 15 MDT 16
		Reflexive note: In several multidisciplinary teams, inviting patients as team members was considered impractical. For some conditions this was seen as too burdensome, while for others it was argued that a single patient could not represent the diversity of the population.	Organisation 1 MDT 1-11
Buffering	Advisors had a central role in multidisciplinary team meeting preparation and moderating discussions, which served as a base for boundary discussions needed for value based quality improvement	*Reflexive note:* To support multidisciplinary teams in their care pathway design, the advisor developed a two-day programme at an off-site location. Multiple teams worked together outside the constraints of daily clinical routine. The programme combined a rationale for care pathway development, expert input, and interactive design activities, e.g., mind mapping and goal–task matrices. Throughout, the advisor facilitated discussion across disciplines, ensured multiple perspectives were heard, and helped surface implicit assumptions. This structured and safe setting enabled teams to jointly explore new configurations of roles and responsibilities.	Organisation 1 MDT 1-11
		Quote group interview_4: "And you did take us by the hand in the beginning. Because, well, at first, I always forgot about the [MDT] meetings. You kept scheduling the appointments and following up on us [the improvement actions]. And of course, improvement takes time, but we are a bit lazy. Or we are so busy with the day-to-day work, that it just doesn't happen."	Organisation 2 MDT 12
		Observation report_3: "She [red: advisor] always discusses the data in such a pleasant and respectful way, so I don't have the feeling we are talking about mistakes or faults"	Organisation 2 MDT 16
Arranging	During discussions concerning boundary rearrangement, advisors used strategic framing, which helped value based quality improvement.	R*eflexive note:* Advisors would open multidisciplinary team meetings by reiterating the rationale behind value based quality improvement, emphasising patient benefit (improved outcomes), professional gains (evidence-based or informed practices), and organisational relevance (efficient use of labour and resources).	Organisation 1&2 MDT 1-17
		Reflexive note: The advisors often deliberately adopted an 'ignorant' stance during value based quality improvement discussions, asking multidisciplinary team members to explain their perspective or routines in basic, non-technical terms. This approach prompted multidisciplinary team members to articulate implicit assumptions, which often revealed opportunities for boundary rearrangement necessary for true value based quality improvement	Organisation 1&2 MDT 1 - 17

* Reflexive notes derived from reflexive journal reports, and participatory observations
** Quotes derived from reflexive conversations, group interviews, and reflective debriefing sessions
MDT = multidisciplinary team



Chapter 4

The perspectives of healthcare professionals and managers on patient involvement in care pathway development: a discourse analysis

Published as:
Visser M, 't Hart N, de Mul M, Weggelaar-Jansen AM. The perspectives of healthcare professionals and managers on patient involvement in care pathway development: a discourse analysis. Health Expect. 2024;27(3):e14101. doi:10.1111/hex.14101

4.1 Abstract

Background The World Health Organization advocates patient and public involvement as an ethical imperative, due to the value of the lived experience of patients. A deeper understanding of the shared meanings and underlying beliefs of healthcare professionals and managers for and against including patients in care pathway development is needed.

Objective To explore the considerations of healthcare professionals and managers on the involvement of patients and public in care pathway development.

Methods In a medical rehabilitation centre we conducted a single case study that was part of a two-year action research programme on blended care pathway development. Following 14 semi-structured interviews with healthcare professionals and managers, we analysed their discourses on the value of patient involvement as well as the potential threats and opportunities.

Results We identified four discourses. Patient as expert frames involvement as relevant, as adding new perspectives and as required to fully understand the patient's needs. Skills & representation is based on the construct that obtaining valuable insights from patients requires certain skills and competences. Self-protection focusses on personal, interprofessional objections to patient involvement. Professional knows best reveals expertise-related reasons for avoiding or postponing involvement.

Conclusion These discourses explain why patient and public involvement in care pathway development is sometimes postponed, limited in scope and level of participation, and/or avoided. The following strategies might minimise the paralysing effect of these discourses: strengthen the capabilities of all stakeholders involved; use a mix of complementary techniques to gain involvement in distinct phases of care pathway development; and create/facilitate a safe environment. Put together, these strategies would foster the ongoing, reciprocal learning that could enhance patient involvement.

Patient or public contribution This study belonged to an action research programme on blended care pathway development (developing an integrated, coordinated patient care plan that combines remote, digital telehealth applications, self-management tools and face-to-face care). Multidisciplinary teams took a quality collaborative approach to quality improvement (considering patients as stakeholders) to develop 11 blended care pathways. Although professionals and managers were instructed to invite patients onto their teams and to attend care pathway design workshops, few teams (3/11) actually did. Unravelling why this happened will help improve patient and public involvement in care pathway development.

Keywords Patient involvement, co-creation, co-design, care pathway, discourse analysis, qualitative research.

4.2 Introduction

Patient and public involvement in healthcare quality improvement is widely recognised as important and necessary, in both academia and daily practice as patients have the necessary expertise, given their lived experience of care services [1–4]. The World Health Organization advocates for the meaningful involvement of patients and informal caregivers through co-creation, considering patient and public involvement an ethical imperative based on such principles as dignity, respect, equity, and inclusivity [2,5,6]. The literature reports greater acceptance of patients' views and experiences as valuable input to quality improvement, alongside the expertise of healthcare professionals [6–9]. Patient and public involvement is strategically relevant and a frequently stated goal of healthcare organisations [6,10,11]. However, it has proven challenging to create fruitful partnerships between healthcare professionals and patients [5,9,12,13].

Although patient and public involvement comprises a broad research field, focused mainly on shared decision-making [e.g.,14–16], quality improvement activities [e.g.,11,17,18] and eHealth co-design [e.g.,19–22] few studies focus particularly on patient and public involvement in care pathway development [23–27]. However, patient and public involvement in care pathway development offers a unique opportunity to reach a deeper understanding of the patients experiences and needs as valuable input in quality improvement [9,12,23,28]. patient and public involvement can be incorporated throughout care pathway development,[5] such as the design, implementation and evaluation phases [7]. Even though proven challenging[28] by inviting patients to become engaged members of the multidisciplinary care pathway development team, a partnership between healthcare professionals and patients can be established [5,7,28,29]. However, the literature points to the lack of a framework for effective strategies for patients' involvement in pathway development teams [6,7,9,23]. Additionally, the well-known care pathway development methods by Lodewijckx et al. [30] and Vanhaecht et al. [31] do not address creating partnership between healthcare professionals and patients.

4.2.1 Research objective and aim

Taking a quality collaborative approach that considers patients stakeholders in the care pathway development process, 11 multidisciplinary teams involved in an action research programme developed blended care pathways. Our study was inspired by observing that only 3 of the 11 teams, despite being part of the methodology, actually invited patients or their representatives to join the pathway design sessions. Given their crucial role in enabling patient and public involvement, and considering the scarcity of relevant literature, our aim was to explore the beliefs and considerations of healthcare professionals and managers working on care pathway development to obtain helpful insights that may improve patient and public involvement in this process.

4.2.2 Theoretical background on obstacles patient involvement

Several studies report a limited uptake of patient and public involvement in healthcare and criticise current efforts [5,12,13,29]. According to Ocloo & Matthews[13] patient and public involvement is tokenistic when patients are not taken seriously. Various studies have evaluated three categories of obstacles to patient and public involvement in quality improvement. The first is project management issues, such as conflicting interests and uncertainty on how to incorporate the patients' input in decisions [15–19,26,27,29,32] lack of clarity on the role and expectations of patients [6,7,13,19,23,26,29,33] and managerial issues (e.g., time and costs required [6,11,13,16–19,27,29,32,34–36] resource availability to support the process [13,24,26,29,34,37, 38]). The second covers skills and knowledge as a preconditions for patient and public involvement, such as limited knowledge and co-creating skills [5,6,11,13,16,18,19,23,24,26,29,33,36,37,39,40] and concerns about representativity [6,13,15,17,23,27,29,40–43]. The third category relates to social and personal issues, such as unequal relationships and power disparities [5,6,11,13,14,18,19,25–27,29,32,34–36,44,45]. Other social and personal issues concern the negative beliefs or attitudes

of both professionals and patients towards patient and public involvement [5,6,13,19,24,29,33,34], resistance of healthcare professionals to patient and public involvement [5,13,19,29,33,34], patients' health status or health-related constraints [13,19,29,32–34,36] and dealing with emotions [17,29,38]. In sum, the literature reports many patient and public involvement obstacles in quality improvement efforts, several of which relate to the opinions and belief systems of healthcare professionals and managers. However, the literature on patient and public involvement in care pathway development is limited [23–27].

4.3 Material & methods

This single-case study was conducted as a sub-study of a two-year action research programme on blended care pathway development in a Dutch medical rehabilitation centre (~800 employees, 16,000 patients and 13 locations) during which 11 multidisciplinary teams developed blended care pathways. Two researchers, one of whom was not involved in the action research, collected data from members of the multidisciplinary teams. Each team set up a leadership triangle comprising a coordinator (rehabilitation practitioner, e.g., physical therapist, speech therapist, social worker), medical leader (rehabilitation physician) and manager. Criterion sampling was used to gain insights from different perspectives [46]. Our sample included 11 leadership triangles containing four coordinators, five medical leaders and five managers (N=14). Respondents were recruited by an e-mail explaining the aim of the study and the data protocol. All respondents agreed to participate.

We employed discourse analysis for this qualitative study. Following Gee & Handford [47 p.1] we define discourse analysis as "the study of language in use, the meanings we give language and the actions we carry out when we use language in specific contexts". This approach allowed us to identify communication patterns and gain insight into how the used language shapes the views of patient and public involvement and subsequent actions of professionals and managers working on care pathway development.

One researcher, uninvolved in the action research programme (NtH), collected data in June 2022 and May 2023 from different pathway development respondents in audio-recorded, semi-structured interviews using a predefined topic guide (see Appendices 4.8.1 and 4.8.2). The interviews lasted between 15 and 45 minutes and took place either online via Microsoft Teams or in person on location. The interviews were transcribed verbatim and analysed thematically according to the methodology described by Braun and Clarke [48]. Two independent researchers (MV, NtH) familiarised themselves with the transcripts and then conducted an inductive coding process using ATLAS.ti 23. The open coding process was followed by grouping sets of related codes to reveal wider patterns (see Appendix 4.8.3). This process identified recurring language of interest, which led the whole research team to iteratively identify four discourses.

Ethical approval, including a check on GDPR compliance and Good Medical Practice compliance was obtained from the Erasmus University Ethical Review Committee (ETH2122-0333). Informed consent was obtained prior to data collection. After the interviews were transcribed and pseudonymised, the transcripts were e-mailed to the respondents who were given the opportunity to withdraw from the study.

4.4 Results

Our analysis identified four discourses that revealed the patient and public involvement belief systems and considerations of healthcare professionals and managers in the pathway design sessions: 1) patient as expert, 2) skills & representation, 3) self-protection and 4) professional knows best.

4.4.1 Patient as expert discourse

The patient as expert discourse assumes that patient and public involvement is needed to understand what patients value due to their lived experience. It highlights their unique insights, which the professionals may lack. In this line of reasoning, excluding patients from the development process could result in a pathway less tailored to the patient's values.

> *"Patients have a completely different view on the matter. They're on the other side of the table." Medical leader (C)*

> *"It was very nice to get input from another perspective, because it creates different dynamics and, I think, results in a different care pathway." Medical leader (M)*

Respondents emphasise the importance of inviting patients to participate and of taking their opinions seriously. This can only be achieved when patients are granted an equal voice, as the next quote illustrates.

> *"If I were to involve [patients], it would be as equals. […] Perhaps sometimes with even a more decisive say than therapists because they've experienced it themselves. I'd give them a decent say." Manager (P)*

This discourse regarded the extent of patient influence as relevant, emphasising that although their voices should be taken seriously not all of their suggestions should be automatically adopted. Respondents pointed out that in the team's decision-making process, the patient's opinion is as important as the professionals opinion. Respondents also mentioned the importance of balancing the opinions because they were aware of organisational constraints, such as finance and capacity, that could prevent the realisation of patients' preferences.

> *"The individual patient's perception is really important, for sure. But that doesn't mean that we can fulfil their every wish. There is a bigger picture. It must be financially viable and achievable in terms of capacity." Coordinator (K)*

Respondents pointed out that inviting patients to join the care pathway development team could raise the false expectation that, for example, their opinion would be or should be favoured. Thus, it requires a delicate balance between managing patient expectations of the outcome of their involvement and taking their input seriously.

> *"We practitioners have to deal with those limitations… and, well, patients have to deal with them too. If they say, 'We think [the duration of a hospital stay] is too short, we'd like it to be three times longer', then – sorry – that's simply impossible. There are boundaries." Medical leader (B)*

4.4.2 Skills & representation discourse

The skills & representation discourse is based on the construct that if patients are going to make a valuable contribution to care pathway development, they will need certain skills and competences. This line of reasoning demands carefully selecting which patients will be invited to join the multidisciplinary team, thus limiting involvement to certain qualified patients.

> *"I don't think everyone is suited to participate in such a project. You have to have some, yes what is it, qualities, background, communication skills, and so on." Coordinator (D)*

Respondents felt that there should not be any language barriers to full participation on the multidisciplinary team, that is patients should be able to speak Dutch, and they should be able to abstract their own experience. Several respondents linked the required competences and ability to abstract to a threshold in educational level.

> *"When you start working together on a project, of course it's helpful if someone can look beyond their own problems and not just talk from their own viewpoint, but say in this case, from the perspective of anyone with a spinal cord injury." Coordinator (D)*

> *"…to put it very bluntly, [inviting] the higher educated, native-Dutch-speaking patients who can provide a bit more information and can also think more on both the abstract and general levels." Medical leader (H)*

In medical rehabilitation settings healthcare professionals work with vulnerable patients. When respondents were considering whether a particular patient could be involved in developing the care pathway, they were concerned with the degree of strain and stress that patient could handle. Respondents tentatively expressed their concern about patients with conditions such as ALS (Amyotrophic lateral sclerosis) or MS (Multiple Sclerosis), or those affected cognitively and weighed the benefits of patient and public involvement against the risk of overdemanding the patient.

> *"Our target group has cerebral disorders and they have to be able cope with [patient and public involvement]. So I think that would be an obstacle because you have to assess which patient can handle [being involved]." Coordinator (A)*

Reflecting on the required competences and educational level of patients, respondents know how carefully they're selecting the 'right' patients and how this creates a bias. They spontaneously raised the question of representativity, as the target population of a care pathway is more heterogeneous:

> *"On the one hand, you prefer people who are capable of thinking along, taking part in a group setting and providing input. On the other hand, they have to represent their entire target group." (Medical leader M)*

> *"If we only invite the highly educated patients… well, that's a very specific selection." Medical leader (M)*

4.4.3 Self-protection discourse

The self-protection discourse focusses on personal, interprofessional objections to patient and public involvement in care pathway development. Respondents said that they avoided or postponed involving patients because they (or their colleagues) fear criticism, feel vulnerable and feel pushed outside their comfort zone, which might lead them to be less than frank and forthright in discussions. Patient participation in care pathway development demands a certain personal receptivity, trust, and a willingness to show vulnerability from every healthcare professional involved.

> *"I think it can be scary at times because you're putting yourself in a vulnerable position. You're giving the patient room to express their opinion about how things could be done differently. Often, it's a case […] of focusing on negative things, whereas it's nice to pay attention to the patient's positive experiences too. […] Well, that [negative comment] feels like an attack and not everyone fancies that. So that's a barrier." Medical leader (C)*

Respondents who were open to patient and public involvement stated that having a patient present is undesirable whenever healthcare professionals have a difference of opinion, especially in the developmental phase when, for example, variations in current care approaches need to be harmonised and emotional outbursts can be expected.

> *"Well, in this stage, when healthcare professionals are almost at each other's throats, it's not useful to involve a patient. […] The professionals would feel inhibited and it's certainly not easy to get everyone to agree. […] So yes, this is not a good time to involve patients." Medical leader (B)*

4.4.4 Professional knows best discourse

The professional knows best discourse focusses on avoiding or postponing patient and public involvement in care pathway development because, in the professional's opinion they do not need the patient's 'expertise' (on their own experience). Some respondents felt that some professionals have a know-it-all attitude, thinking they know best what patients need in the care pathway.

> *"Well, the biggest threshold is […] the healthcare professionals' ego. Thinking that you know it all so well, so why should you change anything? That's the biggest pitfall." Medical leader (C)*

As this quote shows, because of their routine contact with patients and the feedback they get from patients during treatment sessions, healthcare professionals feel they already know and understand the patient perspective. This point of view questions the added value of patient and public involvement in care pathway development.

> *"As a team, we think we're doing quite well. Not because it's our own point of view but because of the feedback from patients." Medical leader (D)*

In addition, some respondents feel that patients are not in a position to contribute when a multidisciplinary team is working on implementing evidence-based medicine/nursing or solving financial issues. These respondents implicitly link the added value of patient and public involvement to service and communication-related topics, rather than to the content or logistics of the patient's care.

> *"I find this hard, because when I look back on the process of developing our care pathway modules, I don't see much added value in [patient and public involvement]. I imagine that patients would question their added value if the conversation is [only] about certain treatment plans and treatment frequencies. I wouldn't have known when to involve them." Coordinator (A)*

In this view, it is not necessary to involve patients in the design phase of care pathway development. The best moment to involve them is when the pathway is ready.

> *"Once you're in the implementation and evaluation phase, [patient and public involvement] seems fine to me. [Then] in several locations you select patients with a broad perspective and ask them things like: 'What do you think of this or that?', 'How do you rate the choices we made?' and 'What do you think we could do differently?'. Yeah, so after the implementation phase and actually in the evaluation phase." Medical leader (B)*

Consequently, when patients are invited to participate later on in the development process, their involvement is framed differently. For example, they are regarded more as advisers or consultants than as partners in the care pathway development process.

> *"Well, we're not going to invite patients all the time but we are going to ask them now and then how they feel about this [the proposed care pathway] and what they think of it." Manager (R)*

4.5 Discussion

4.5.1 Comparison with literature

This study provides a deeper understanding of healthcare professionals' and managers' discourses on patient and public involvement in developing care pathways. We identified four discourses (Table 4.1) on patient involvement and show how these views affected patient and public involvement. The four discourses align with the literature on patient and public involvement obstacles patient and public involvement in several ways.

Table 4.1: Four discourses on patient involvement in care pathway development

Discourse	1) Patient as expert	2) Skills and representation	3) Self-protection	4) Professional knows best
Position of professional/ manager on patient and public involvement partnership	Patient and public involvement is essential to take patients' values into account.	Patient and public involvement has limited value as patients lack skills or do not represent the group.	Patient and public involvement puts the professional in a vulnerable position.	Patient and public involvement is not an addition to professionals' expertise.
Aspects of the belief system	Patients bring unique insights. Patients and professionals contribute equally to decision-making. Taking patients seriously is not the same as granting all their wishes.	To be valuable, patient and public involvement requires skills, a broad outlook, certain education and health status. Patient selection criteria result in debatable representativity.	Professionals must discuss some sensitive topics among themselves first. Patient and public involvement means vulnerability and receiving criticism which disturbs the relationship between patient and professional.	Professionals know best what is needed. Patient and public involvement is only suited to specific components of the pathway. Patient and public involvement is only useful after the design phase of care pathway development.
Resulting patient and public involvement action/inaction	Patient and public involvement is initiated naturally with high level of participation, and clear boundaries.	Patient and public involvement is avoided, postponed, or limited in level of participation and/or scope.	Patient and public involvement is avoided or postponed.	Patient and public involvement is avoided, postponed, or limited in level of participation and/or scope.

Firstly, the skills & representation discourse turns patient and public involvement into a problem because, on the one hand, according to the respondents, patients involved in care pathway development are supposed to need certain skills/competences to contribute to a fruitful, equal discussion. On the other hand, in their opinion, patients should represent the 'average' patient (who often lacks these skills) to provide more than anecdotal input. The respondents find these two requirements contradictory, as they exclude people lacking certain skills, and suggest that patient and public involvement has limited value when they are included. This aligns with other research on patient and public involvement barriers [e.g., 6,13,23,29] While patient representation and representativeness are entangled in the discourse of professionals and managers in our study, it is important to distinct patient representation in the project team from representativity of the target population in care pathway development [49], as each has its own strategies to overcome patient and public involvement barriers.

Representation in the care pathway development team of all stakeholders involved in the care process

(including patients) is paramount from a participatory project management perspective to ensure the availability of a variety of perspectives [28,50]. Although common in participatory design methods (such as human-centred and experience based design), in the care pathway development methods this isn't common yet [30,31,50,51]. Regarding representation the respondents argue in this discourse that patients need certain skills and competences when participating in a care pathway development team. Cox et al. [5] support the idea that successful patient and public involvement partnership requires capable knowledge, skills and attitudes in all stakeholders, including patients. However, it is a misconception to place the responsibility of representativeness on the patient representative in the care pathway development team because, paradoxically, using advanced selection criteria immediately reduces representativity and complicates the recruitment and selection of potential participants. Scholars such as Maguire et al. [40] and Scholz et al. [41,42] argue that the requirement based on representativeness may even have the opposite effect, leading to disempowerment of patient representatives and delegitimisation of their involvement. However, to develop a care pathway tailored to the target population's needs and values diverse input of a variety of patients benefits the developmental process. This need for care pathway representativity can also be addressed with a combination of complementary techniques to gain patient and public involvement in all phases of the care pathway development process: focus groups, shadowing, interviews, using patient-reported experience data, and surveys [9,28,52]. This 'triangulation' of patient perspectives will reduce the unrealistic expectation of professionals and managers in the skills & representation discourse that the patient involved in care pathway development has to be 'the' patient representative.

Secondly, our study addresses the issue of unequal relationships and power dynamics [e.g., 6,14,25,35,53]. Discourses 2–4 are built, albeit implicitly, on the premise of a desirable distance between the healthcare professional and patient. In the professional knows best discourse, respondents assume that they know what patients need, based on their daily patient encounters and professional expertise. However, their interpretation of patient/public needs may be subject to personal bias [6,14,25,35,53]. According to Ocloo & Matthews [13], critical selection of participants, as the skills & representation discourse reveals, is in itself a manifestation of power imbalance. Additionally, respondents argue in the self-protection discourse that healthcare professionals may need to discuss sensitive topics amongst themselves first. They may need to shield patients from differences of opinion or shield their own vulnerability as professionals susceptible to criticism from patients or public. This also points to a power imbalance. In contrast, some scholars argue that involving patients in care pathway development is a way to address the power dynamics. Ocloo et al. [35] argue that although "power dynamics act as contextual constraints limiting patient experience improvements at every level of the system" [35 p.11], it is a capability that requires development or the application of specific methodological approaches such as experience-based co-design and co-production.

Thirdly, we see that discourses 2–4 reflect timing and participation level issues justifying postponement, restricted scope or participation and even rejection of patient and public involvement. Respondents mentioned the importance of excluding patients whenever professionals needed the time to align or resolve conflicts. Implicitly, these discourses reveal the assumption that patient and public involvement is less useful in the design phase and more useful in the experimentation, implementation and evaluation phases, a notion that links to the obstacles concerning the patients role described in literature [6,7,13,19,23,26,29,33]. Consequently, the level of patient and public involvement lowers from partnership or collaboration to the level of consultation, as outlined in the framework for patient and public involvement by Carman et al. [33] and the IAP2 public participation spectrum [54,55]. Furthermore, lowering the participation level and shifting patient and public involvement to begin after the design phase risks limiting patient and public involvement to 'safe' topics (not disputed professionally), such as service aspects, patient information and communication strategies, or simply to tokenism[5,9,12,13]. While these are real risks, various strategies exist to engage patients and the public at all stages, so this situation can be improved. We elaborate on this in the implications for practice.

4.5.2 Patient involvement rationale

The utilitarian rationale for patient and public involvement views the use of patients' experience as a tool to improve the value and effectiveness of healthcare services [2,52,56]. This is in line with the reasoning of the respondents in the patient as expert discourse that frames patient and public involvement as benefiting from the valuable input of the patient's lived experience and fresh perspective. The patients experiential knowledge complements expert knowledge [2,7,13,16,23,52,57] resulting in a pathway crafted onto what patients value. It is widely acknowledged that patients have a crucial role in healthcare improvement, based on their personal lived experience [1–4].

There is, however, another justification for patient and public involvement, which dominates policy documents: the empowerment rationale. This states that patients have a rightful role "to be involved in decisions that affect them and their lives […] and that this process will empower them." [52 p.124]. The empowerment rationale emphasises the importance of equity and patient empowerment [2,35,52]. Moreover, it frames meaningful patient and public involvement as an 'ethical imperative' that embraces the principles of respect, equality and inclusivity [2,5,6]. Strikingly, empowerment played a minor role in the patient as expert discourse. Both the literature and the World Health Organization emphasise adherence to the empowerment rationale as the foundation of equal contribution by patients and the basis of co-creation in partnership. This implies that patients are important stakeholders in all care pathway development phases: from the initial design phase (understanding what change is needed), through the phases of experimentation and implementation in mundane practices, up to evaluation and readjustment. However, according to Farr [25] establishing an equal partnership is not guaranteed as it requires constant critical reflection and dialogue on the dominating practices and empowering processes that occur in the care pathway development team. We hope the insights derived from the four discourses can contribute to this critical reflection and foster a dialogue on the assumptions to (not) include patients in the entire care pathway development process.

As the utilitarian rationale for patient and public involvement appears to be dominant in our study, the results align with Draper and Rifkin's [52] findings on person-centred health systems. One explanation for this dominance might be that research and policy documents describe patient and public involvement from a more ideological point of view, whereas our respondents expressed a more pragmatic view. Morgan[56] has also described this difference between the utilitarian pragmatists and the empowerment activists. Nevertheless, according to the World Health Organization [2], involvement initiated by those in power (induced participation), such as patient and public involvement in care pathway development, can empower and support patient autonomy as induced participation can strengthen the capabilities [5] of both individuals and communities. Further research could address the objective of gaining a better understanding of the difference in rationales for patient and public involvement between healthcare professionals, research and policy documents, between the pragmatists who favour utilitarian models and the activists who prefer empowerment models [56].

4.5.3 Implications for practice

Our analysis of the discourses shed valuable light on why patient and public involvement in all phases of care pathway development is not easy to accomplish, as other scholars have also outlined [e.g., 5,12,13]. In order to establish valuable patient and public involvement, healthcare organisations should consider the impact of the discourses on patient and public involvement practice when multidisciplinary teams are developing care pathways. The negative effects described in discourses 2–4 can be minimised with the following research-based strategies.

Successful partnerships regard patient and public involvement as a mutual and continuous learning process based on the principles of equality and power sharing [5]. We agree with Cox et al. [5] that this requires stakeholders to also have capability: the ability to use these competences in unpredictable situations and in interaction with different stakeholders. The learning process can develop the necessary competences and simultaneously grow into shared power [5,35], but it requires time,

and the patience and dedication of all stakeholders. Not only the patient needs to learn but the professional as well. This emphasises the need for organisations to implement various approaches to stimulate the learning process [5,58]. Bombard et al. [6] mention such strategies as training sessions to clarify roles and develop skills. Also, when viewed like this, the selection criteria mentioned in the skills & representation discourse are turned into learning goals. Representativity is enhanced by the participation of patients from different backgrounds. As discussed above, representativity can also be addressed with a combination of complementary techniques to gain patient and public involvement in all phases of the care pathway development process: focus groups, shadowing, interviews, using patient-reported experience data, and surveys [9,28,52].

Developing a framework for patient and public involvement in all phases in care pathway development would be beneficial in supporting organisations to involve patients in all care pathway development phases, from partnership to consultation level. This framework could build on existing care pathway development methods [30,31], research on participatory methodologies in co-creation of technology [e.g., 59] or in research [e.g., 60]. However, it is important to consider the applicability, implementability, and practicality of this framework, since care pathway development processes are complex and time-consuming. Each organisation has its own unique context, constraints and challenges. Moreover, the patient and public involvement discourses demonstrate individual (and collective) belief systems, which in principle are not easy to change. Both the self-protection and the professional knows best discourses avoid patient and public involvement. However, instead of avoiding involving patients, more emphasis on creating a safe environment and equality is needed for multidisciplinary teams to discuss every care pathway development topic in the presence of patients.

In their capability framework for successful partnerships in quality improvement Cox et al. [5] address the domain 'relationships and communication', which includes the capabilities 'working and learning as a team with strong conflict resolution' and 'collaborating and communicating' [5]. These are especially at stake when professionals must find consensus on topics that lead to differences of opinion. Although we agree with Chambers [61 p.18] that "conflict can be seen as an essential and creative factor in change for the better", and it is best to anticipate conflict in order to be productive in patient and public involvement activities [56] such a safe environment should be created and facilitated through dedicated activities. Bombard et al. [6] offer strategies to facilitate this, such as democratic dialogues, exercises on values and beliefs, and training sessions to increase sensitivity and reduce power imbalance. Again, it is clear that project teams should allocate sufficient time to develop trusting relationships.

4.5.4 Study strengths and limitations

A strength of our study is that the researcher collecting the data was unknown in the organisation and uninvolved in the care pathway development project. This ensured a safe space for respondents to give their honest opinions and prevented the researcher bias associated with 'going native' in action research [62]. To enhance credibility, two independent researchers strived for investigator triangulation [63,64] by coding the data in an iterative process involving reading and re-reading the transcripts.

A few limitations need to be addressed. The transferability of our findings depends on context similarity [46]. As this was a single-case study in one rehabilitation centre, we recommend repeating our study in other healthcare organisations not just to confirm our findings but also to collect data at various points to study change over time in a continued discourse analysis. The strategy chosen for criterion sampling might have led to selection bias. However, we minimised this effect by including both stakeholders who have experienced patient and public involvement in their care pathway development process and those who have not. Also, saturation might not have been reached because the criterion sample was maximised by the available number of leadership triangles and participation was voluntary. Hence, we suggest further research on patient and public involvement discourses. Because we focused on the perspective of professionals and managers, it would be interesting if future research contrasted the professional/manager perspective with the patient/public perspective in the same care pathway development initiative.



4.6 Conclusion

The four discourses we identified (Table 4.1) showing the belief systems and considerations of healthcare professionals and managers on patient and public involvement in the pathway design sessions shed valuable light on why patient and public involvement gets postponed, restricted or avoided. As respondents may adopt more than one discourse, this gives us a multilayered perspective that allows us to conclude that establishing a patient and public involvement partnership may be regarded as a continuous, mutual learning process. The selection criteria and concerns about patient representation may be addressed in all care pathway development phases to meet the challenge of enhancing equality by moving patient and public involvement beyond the consultation level only. Another challenge relates to the vulnerability of professionals and their perceived power imbalance in this process. We suggest strategies that may help practitioners and managers overcome these challenges: provide training to strengthen stakeholders' capabilities and encourage prolonged interaction; combine complementary techniques to increase patient and public involvement in different phases of the care pathway development phases; create a safe environment where differing opinions and even conflict can be anticipated and used effectively. Taken together, these strategies should foster the ongoing, reciprocal learning that will help realise the goal of healthcare organisations to use valuable patient and public involvement input for health service quality improvement.

4.7 References

[1] World Health Organization. Framework on integrated, people-centred health services: report by the Secretariat. Geneva: World Health Organization; 2016. Document No.: A69/39. Available from: https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf

[2] World Health Organization. WHO framework for meaningful engagement of people living with noncommunicable diseases, and mental health and neurological conditions. Geneva: World Health Organization; 2023. Available from: https://www.who.int/publications/i/item/9789240073074

[3] World Health Organization. WHO global strategy on people-centred and integrated health services: interim report. Geneva: World Health Organization; 2015. Available from: https://www.afro.who.int/sites/default/files/2017-07/who-global-strategy-on-pcihs-main-document_final.pdf

[4] World Health Organization. Continuity and coordination of care: a practice brief to support implementation of the WHO Framework on integrated people-centred health services. Geneva: World Health Organization; 2018. Available from: https://www.who.int/publications/i/item/9789241514033

[5] Cox R, Molineux M, Kendall M, Tanner B, Miller E. Co-produced capability framework for successful patient and staff partnerships in healthcare quality improvement: results of a scoping review. BMJ Qual Saf 2022;31(2):134–146. doi:10.1136/bmjqs-2020-012729

[6] Bombard Y, Baker GR, Orlando E, Fancott C, Bhatia P, Casalino S, et al. Engaging patients to improve quality of care: a systematic review. Implement Sci 2018;13(1):98. doi:10.1186/s13012-018-0784-z

[7] Wind A, Van der Linden C, Hartman E, Siesling S, Van Harten W. Patient involvement in clinical pathway development, implementation and evaluation – A scoping review of international literature. Patient Educ Couns. 2022;105(6):1441–1448. doi:10.1016/j.pec.2021.10.007

[8] Grocott MPW. Pathway redesign: putting patients ahead of professionals. Clin Med (Lond) 2019;19(6):468–472. doi:10.7861/clinmed.2019-0292

[9] Gualandi R, Masella C, Viglione D, Tartaglini D. Exploring the hospital patient journey: What does the patient experience? PLoS ONE 2019;14(12):e0224899. doi:10.1371/journal.pone.0224899

[10] Faber MJ, Grande S, Wollersheim H, Hermens R, Elwyn G. Narrowing the gap between organisational demands and the quest for patient involvement: The case for coordinated care pathways. Int J Care Coord 2014;17(1-2):72–78. doi:10.1177/2053435414540616

[11] Wiig S, Storm M, Aase K, Gjestsen MT, Solheim M, Harthug S, et al. Investigating the use of patient involvement and patient experience in quality improvement in Norway: rhetoric or reality? BMC Health Serv Res 2013;13(1):206. doi:10.1186/1472-6963-13-206

[12] Sheard L, Peacock R, Marsh C, Lawton R. What's the problem with patient experience feedback? A macro and micro understanding, based on findings from a three‐site UK qualitative study. Health Expect 2019;22(1):46–53. doi:10.1111/hex.12829

[13] Ocloo J, Matthews R. From tokenism to empowerment: progressing patient and public involvement in healthcare improvement. BMJ Qual Saf 2016;25(8):626–632. doi:10.1136/bmjqs-2015-004839

[14] Woelders S, Abma T. Participatory action research to enhance the collective involvement of residents in elderly care: About power, dialogue and understanding. Action Res 2019;17(4):528–548. doi:10.1177/1476750319837330

[15] Heerings M, Van de Bovenkamp H, Cardol M, Bal R. Ask us! Adjusting experience-based codesign to be responsive to people with intellectual disabilities, serious mental illness or older persons receiving support with independent living. Health Expect 2022;25(5):2246–2254. doi:10.1111/hex.13436

[16] Kemper S, Kupper F, Kamga SK, Brabers A, Jong Jd, Bongers M, et al. Public engagement in decision-making regarding the management of the COVID-19 epidemic: Views and expectations of the 'publics'. Health Expect 2022;25(6):2807–2817. doi:10.1111/hex.13583

[17] Wiig S, Rutz S, Boyd A, Churruca K, Kleefstra S, Haraldseid-Driftland C, et al. What methods are used to promote patient and family involvement in healthcare regulation? A multiple case study across four countries. BMC Health Serv Res 2020;20(1):616. doi:10.1186/s12913-020-05471-4

[18] Elbers S, Van Gessel C, Renes RJ, Van der Lugt R, Wittink H, Hermsen S. Innovation in pain rehabilitation using co-design methods during the development of a relapse prevention intervention: case study. J. Med. Internet Res 2021;23(1):e18462. doi:10.2196/18462

[19] Jacob C, Bourke S, Heuss S. From testers to cocreators—the value of and approaches to successful patient engagement in the development of ehealth solutions: qualitative expert interview study. JMIR Hum Factors 2022;9(4):e41481. doi:10.2196/41481

[20] Bradway M, Morris RL, Giordanengo A, Årsand E. How mhealth can facilitate collaboration in diabetes care: qualitative analysis of co-design workshops. BMC Health Serv Res 2020;20(1):1104. doi:10.1186/s12913-020-05955-3

[21] Wannheden C, Revenäs Å. How people with Parkinson's disease and health care professionals wish to partner in care using ehealth: co-design study. J. Med. Internet Res 2020;22(9):e19195. doi:10.2196/19195

[22] Vandekerckhove P, De Mul M, Bramer WM, De

Bont AA. Generative participatory design methodology to develop electronic health interventions: systematic literature review. JMIR 2020;22(4):e13780. doi:10.2196/13780
[23] Armstrong N, Herbert G, Aveling E, Dixon‐Woods M, Martin G. Optimizing patient involvement in quality improvement. Health Expect 2013;16(3):e36–e47. doi:10.1111/hex.12039
[24] Amann J, Brach M, Rubinelli S. How healthcare professionals experience patient participation in designing healthcare services and products. A qualitative study in the field of spinal cord injury in Switzerland. Patient Educ Couns 2018;101(8):1452–1459. doi:10.1016/j.pec.2018.03.011
[25] Farr M. Power dynamics and collaborative mechanisms in co-production and co-design processes. Crit Soc Policy 2018;38(4):623–644. doi:10.1177/0261018317747444
[26] Lindblom S, Flink M, Elf M, Laska AC, von Koch L, Ytterberg C. The manifestation of participation within a co‐design process involving patients, significant others and health‐care professionals. Health Expect 2021;24(3):905–916. doi:10.1111/hex.13233
[27] Olsson ABS, Haaland-Øverby M, Stenberg U, Slettebø T, Strøm A. Primary healthcare professionals' experience with patient participation in healthcare service development: a qualitative study. PEC innovation 2022;1:100068. doi:10.1016/j.pecinn.2022.100068
[28] Gartner J, Abasse KS, Bergeron F, Landa P, Lemaire C, Côté A. Definition and conceptualization of the patient-centered care pathway, a proposed integrative framework for consensus: a concept analysis and systematic review. BMC Health Serv Res 2022;22(1):558. doi:10.1186/s12913-022-07960-0
[29] Ocloo J, Garfield S, Franklin BD, Dawson S. Exploring the theory, barriers and enablers for patient and public involvement across health, social care and patient safety: a systematic review of reviews. Health Res. Policy Syst 2021;19(1):8. doi:10.1186/s12961-020-00644-3
[30] Lodewijckx C, Decramer M, Sermeus W, Panella M, Deneckere S, Vanhaecht K. Eight-step method to build the clinical content of an evidence-based care pathway: the case for COPD exacerbation. Trials 2012;13(1):229. doi:10.1186/1745-6215-13-229
[31] Vanhaecht K, Van Gerven E, Deneckere S, Lodewijckx C, Janssen I, Van Zelm R, et al. The 7-phase method to design, implement and evaluate care pathways. Int J Pers Cent Med. 2012;2(3):341. doi:10.5750/ijpcm.v2i3.247
[32] Heerings M, Van de Bovenkamp H, Cardol M, Bal R. Ethical dilemmas of participation of service users with serious mental illness: a thematic synthesis. Issues Ment Health Nurs 2020;41(4):283–295. doi:10.1080/01612840.2019.1667459
[33] Carman KL, Dardess P, Maurer M, Sofaer S, Adams K, Bechtel C, et al. Patient and family engagement: a framework for understanding the elements and developing interventions and policies. Health Aff 2013;32(2):223–231. doi:10.1377/hlthaff.2012.1133
[34] Ramos M, Bowen S, Wright PC, Ferreira MGG, Forcellini FA. Experience based co-design in healthcare services: an analysis of projects barriers and enablers. Design for Health 2020;4(3):276–295. doi:10.1080/24735132.2020.1837508
[35] Ocloo J, Goodrich J, Tanaka H, Birchall-Searle J, Dawson D, Farr M. The importance of power, context and agency in improving patient experience through a patient and family centred care approach. Health Res Policy Syst 2020;18(1):10. doi:10.1186/s12961-019-0487-1
[36] Jørgensen K, Rendtorff JD. Patient participation in mental health care – perspectives of healthcare professionals: an integrative review. Scand J Caring Sci 2018;32(2):490–501. doi:10.1111/scs.12531
[37] Coulter A, Locock L, Ziebland S, Calabrese J. Collecting data on patient experience is not enough. BMJ 2014;348:g2225. doi:10.1136/bmj.g2225
[38] Zøylner IA, Kirkegaard P, Christiansen PM, Lomborg K. Patient involvement in the development of the Danish surgical breast cancer patient pathway – An action research project. Action Research 2023;21(3):284–309. doi:10.1177/1476750320960819
[39] Pohontsch NJ, Herzberg H, Joos S, Welti F, Scherer M, Blozik E. The professional perspective on patient involvement in the development of quality indicators: a qualitative analysis using the example of chronic heart failure in the German health care setting. Patient Prefer Adherence 2015;9:151–159. doi:10.2147/PPA.S74064
[40] Maguire K, Britten N. "How can anybody be representative for those kind of people?" Forms of patient representation in health research, and why it is always contestable. Soc Sci Med 2017;183:62–69. doi:10.1016/j.socscimed.2017.04.049
[41] Scholz B, Stewart SJ, Bocking J, Happell B. Rhetoric of representation: the disempowerment and empowerment of consumer leaders. Health Promot Int 2019;34(1):166–174. doi:10.1093/heapro/dax070
[42] Scholz B, Kirk L, Warner T, O'Brien L, Kecskes Z, Mitchell I. From a single voice to diversity: reframing 'representation' in patient engagement. Qual Health Res 2024:34(11):1007-1018. doi:10.1177/10497323231221674
[43] Hult A, Lundgren E, Jangland E. Patient representatives: crucial members of health‐care working groups facing an uncertain role and conflicting expectations. A qualitative study. Health Expect 2021;24(4):1197–1206. doi:10.1111/hex.13249
[44] Angel S, Frederiksen KN. Challenges in achieving

patient participation: a review of how patient participation is addressed in empirical studies. Int J Nurs Stud 2015;52(9):1525–1538. doi:10.1016/j.ijnurstu.2015.04.008
[45] Robert G, Cornwell J, Locock L, Purushotham A, Sturmey G, Gager M. Patients and staff as codesigners of healthcare services. BMJ 2015;350:g7714. doi:10.1136/bmj.g7714
[46] Schreier M. Sampling and generalization. In: Flick U, editor. The SAGE handbook of qualitative data collection. 1st ed. London: SAGE Publications Ltd; 2018. Chapter 6. doi:10.4135/9781526416070.n6
[47] Gee JP, Handford M. The Routledge handbook of discourse analysis. London: Routledge; 2012.
[48] Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol 2006;3(2):77–101. doi:10.1191/1478088706qp063oa
[49] Coulter A. Involving patients: representation or representativeness? Health Expect 2002;5(1):1. doi:10.1046/j.1369-6513.2002.00174.x
[50] Carayon P, Wooldridge A, Hoonakker P, Hundt AS, Kelly MM. SEIPS 3.0: Human-centered design of the patient journey for patient safety. Appl Ergon 2020;84:103033. doi:10.1016/j.apergo.2019.103033
[51] Gartner J, Côté A. Optimization of care pathways through technological, clinical, organizational and social innovations: a qualitative study. Health Serv Insights 2023;16:1-8. doi:10.1177/11786329231211096
[52] Draper AK, Rifkin SB. Community participation in health systems development. In: Nolte E, Merkur S, Anell A, editors. Achieving Person-Centred Health Systems. Evidence, Strategies and Challenges Cambridge, United Kingdom: Cambridge University Press; 2020. p. 115–143.
[53] Albert A, Islam S, Haklay M, McEachan RRC. Nothing about us without us: a co‐production strategy for communities, researchers and stakeholders to identify ways of improving health and reducing inequalities. Health Expect 2023;26(2):836–846. doi:10.1111/hex.13709
[54] International Association for Public Participation. IAP2's Public Participation Spectrum [Internet]. [place unknown]: International Association for Public Participation; [cited 2023 Sep 18]. Available from: https://iap2.org.au/resources/spectrum/
[55] Davis A, Andrew J. From rationalism to critical pragmatism: revisiting Arnstein's ladder of public participation in co-creation and consultation. In: Proceedings of the state of Australian cities (SOAC) national conference; 2017 Nov 28–30; Adelaide, Australia. 2018.
[56] Morgan LM. Community participation in health: perpetual allure, persistent challenge. Health Policy Plan 2001;16(3):221–230. doi:10.1093/heapol/16.3.221
[57] Moser A, Melchior I, Veenstra M, Stoffers E, Derks E, Jie KS. Improving the experience of older people with colorectal and breast cancer in patient-centred cancer care pathways using experience-based co-design. Health Expect 2021;24(2):478–490. doi:10.1111/hex.13189
[58] Jeppesen KH, Frederiksen K, Joergensen MJ, Beedholm K. Leadership assumptions on implementation of patient involvement methods. BMC Health Serv Res 2021;21(1):505. doi:10.1186/s12913-021-06497-y
[59] Smits D, Van Meeteren K, Klem M, Alsem M, Ketelaar M. Designing a tool to support patient and public involvement in research projects: the Involvement Matrix. Res Involv Engagem 2020;6(1):30. doi:10.1186/s40900-020-00188-4
[60] Leask CF, Sandlund M, Skelton DA, Altenburg TM, Cardon G, Chinapaw MJM, et al. Framework, principles and recommendations for utilising participatory methodologies in the co-creation and evaluation of public health interventions. Res Involv Engagem 2019;5(1):2. doi:10.1186/s40900-018-0136-9
[61] Chambers R. Foreword.. In: Guijt I, Kaul Shah M, editors. The myth of community: Gender Issues in Participatory Developmen. London: Intermediate Technology Publications; 1998. p. xviii–xx..
[62] Tresch J. On going native: Thomas Kuhn and anthropological method. Philos Soc Sci 2001;31(3):302–322. doi:10.1177/004839310103100302
[63] Mortelmans D. Handboek kwalitatieve onderzoeksmethoden. 3rd ed. Leuven: Acco; 2020.
[64] Green J, Thorogood N. Qualitative methods for health research. 4th edition ed. Los Angeles: SAGE; 2018.

4.8 Appendices

4.8.1 Topic list (English translation)

	Topics	Subtopics
What	Care pathway	Patient group Goal and objective Process Evaluation
	Patient participation	Definition
Why	Value of patient involvement	Experiential knowledge Improving quality Legitimacy Normative argument Patient-centered
How	Ways of involving patients	Focus groups/interviews/Surveys/Participation in meetings One time/Multiple times/Continuous involvement Patients/Patient representative Development/Implementation/Evaluation/Follow-up
	Level of involvement	Consultation/Involvement/Partnership Patient-characteristics Care pathway characteristics Shared power/Power is with the patient/Power is with the professionals
	Barriers	Power imbalance Knowledge imbalance Lack of clarity on expectations Lack of information Attitude of professionals Recourse and time constraints Inadequate design strategy
	Overcoming barriers	Training Informing Expectations management Stimulating reflexivity

4.8.2 Topic list (Dutch translation)

	Topics	Sub topics
Wat	Zorgpad	Patiëntengroep / doelgroep Doel Proces Evaluatie
	Patiënt participatie	Definitie
Waarom	Waarde van patient participatie	Ervaringsgerichte kennis Kwaliteit verbeteren Legitimiteit Normatief argument Patiëntgericht
Hoe	Manieren om patiënten te betrekken	Focus groepen/interviews/vragenlijsten/Participatie in bijeenkomsten eenmalig / meerdere keren /Continue Patiënten /Patiëntvertegenwoordigers Ontwikkeling/Implementatie/Evaluatie/Follow-up
	Niveau van participatie	Consultatie/Betrekken/Partnerschap Patiënteigenschappen Zorgpad eigenschappen Gedeelde macht / Macht ligt bij de patiënt / Power ligt bij de professionals
	Barrières	Macht ongelijkheid Kennis ongelijkheid Onduidelijkheid over verwachtingen Gebrek aan informatie Houding van professionals Beperkingen in capaciteit en tijd Inadequate ontwerp strategie
	Barrières overwinnen	Training Informeren Verwachtingsmanagement Stimuleren van reflexiviteit

4.8.3 Code groups and codes

Document Group	Codes (Dutch)	Codes (English)
D1: **Patient as expert**	1. Ander perspectief 1. De wil is er 2. Gelijkwaardige stem 3. Ruimte geven - niet in beton 4. Verwachtingsmanagement & kaders	1. Alternative perspective 1. Willingness/Commitment 2. Equal voice 3. Give space – not set in stone 4. Expectations management & limitations
D2: **Skills &** **Representation**	1. Profiel - Behandelrelatie 1. Profiel - Brede blik – overstijgend 1. Profiel - Kritisch durven zijn, iets brengen 1. Profiel - Langer uit revalidatie 1. Profiel - Patiëntvereniging 1. Profiel - Positief profiel 1. Profiel - Relatie hebben 1. Profiel - Vaardigheden en opleidingsniveau 1. Profiel - Voorbij 1 ervaring 1. Profiel - Zit niet in systeem 1. Profiel - Zorg kennen	1. Profile - Treatment relationship 1. Profile - Broad, transcending perspective 1. Profile - Being critical, to contribute something 1. Profile - Rehabilitation in the past 1. Profile - Patient association 1. Profile - Positive profile 1. Profile - Having a relationship 1. Profile - Skills and level of education 1. Profile - Beyond a single experience 1. Profile - Not in the system 1. Profile - Familiar with health system
	2. Belasting patiënt 2. Cognitie	2. Patient burden 2. Cognition
	3. Is één mening 3. Representativiteit 3. Selectief kiezen patiënten	3. Having only one opinion 3. Representativeness 3. Selective choice of patients
D3: **Self-protection**	1. Gêne - onderling gedoe 2. Angst voor kritiek 3. Kwetsbaarheid door transparantie 4. Uit je comfortzone 5. Regie loslaten	1. Discomfort - interpersonal issues 2. Fear of criticism 3. Being transparent results in vulnerability 4. Stepping out of your comfort zone 5. Let go of control
D4: **Professional knows best**	1. Meerwaarde twijfel 1. Zelf beter weten - we doen het goed 2. Onderwerp niet geschikt 3. Expertise - zelf bespreken	1. Doubting the added value 1. Knowing better oneself - we're doing right 2. Subject not suitable 3. Expertise – discussing it ourselves



Chapter 5

Navigating value complexity in care pathway development: a qualitative case study

Published as:
Visser M, De Mul M, Ahaus K, Weggelaar-Jansen AM. Navigating value complexity in care pathway development: a qualitative case study. BMJ Open. 2025;15(8):e098157. doi:10.1136/bmjopen-2024-098157

5.1 Abstract

Objectives Care pathways are widely used to standardise and improve healthcare delivery. However, care pathway development is often shaped by value (or normative) complexity. This study empirically explores how value complexity unfolds in a care pathway development programme.

Design A qualitative single-case study was conducted as part of a two-year action research programme. The study followed a 'research-follow-action' strategy, in which action and learning occurred during the programme phase, followed by retrospective analysis using Greenhalgh et al.'s 'rules of thumb' as a reflective lens.

Setting A Dutch specialised rehabilitation hospital (16 sites, 800 employees approximately, ~15,000 patients annually). In three care pathway development cycles, eleven multidisciplinary teams were guided in care pathway development in a quality collaborative approach.

Participants 26 respondents participated in 44 reflective conversations; 19 respondents completed reflective questionnaires; and 169 participatory observation reports were included. Participants were purposively sampled and included representatives from the leadership triad (rehabilitation physicians, managers, and healthcare professionals) and members of senior management involved in care pathway development.

Results Two overarching themes were identified: goal (mis)alignment and prolonged decision-making processes negatively impacted motivation and impeded care pathway development. Goal alignment between stakeholders was hindered by shifting organisational priorities, creating tensions between improving care quality and ensuring financial viability. Decision-making was challenged by role uncertainty and the complexities of multidisciplinary collaboration in care pathway development teams. Reflective dialogues, small-scale experimentation, and financial modelling supported teams in navigating these tensions to varying degrees.

Conclusions This study illustrates how value complexity unfolds in care pathway development and underscores the importance of ongoing stakeholder management, reflectivity, formative evaluation, and dialogue. Greenhalgh et al.'s rules of thumb provided interpretive value in exploring these complexities but require a solid theoretical understanding and an awareness of the rules' interrelationships. A complexity-informed approach integrating ongoing reflection and adaptability can enrich care pathway development methods, enabling healthcare professionals and action researchers to engage constructively with value complexity in complex change processes. Further research is needed to develop and implement practical strategies for enhancing stakeholder engagement and decision-making in diverse healthcare settings.

Keywords Care pathways, value complexity, normative complexity, interprofessional relations, health services research, qualitative research.

5.2 Introduction

Care pathways are widely used to standardise and improve care quality and safety [1–4]. They integrate evidence-based knowledge into routine practices, improving health outcomes and efficiency, fostering innovation in care delivery, and ensuring continuity of care [1,2,4]. The definition and purpose of care pathways has been subject to debate in recent decades. In 2007, Vanhaecht [5 p.137] defined a care pathway as 'a complex intervention for the mutual decision-making and organisation of care processes for a well-defined group of patients during a well-defined period'. Vanhaecht et al. [2] later conceptualised care pathways as a concept for patient-focused care, encompassing three dimensions: (1) the model (e.g., a chain, hub or web model, depending on the level of care predictability and professional consensus), (2) the process (i.e., methodology for developing and implementing well-organised care to improve quality and efficiency), and (3) the product (e.g., a quality document or process flow diagram). Against this background, this study explores how care pathway development unfolds in practice, with particular attention to tensions that emerge as stakeholders navigate competing goals, values, and interests.

There is growing recognition that care pathways are complex managerial interventions, shaped by internal and external contextual factors in healthcare organisations. These include social dynamics such as power relations, interests, leadership, and motivation [1,6,7]. The European Pathway Association framework [6] highlights the impact of internal and external contexts on care pathway effectiveness, suggesting that context significantly influences care pathway development and care pathway outcomes. While the widely adopted seven-phase method by Vanhaecht et al. [8] and the eight-step method by Lodewijckx et al. [9] for care pathway development have proved valuable in the past 25 years, scholars increasingly advocated for a more systemic, holistic approach. Such an approach integrates patient experience, professional collaboration, contextual factors, and organisational dynamics [1]. In addition, care pathway development pursues multiple goals simultaneously, enhancing patient experience, integrating evidence-based practices, and improving efficiency through standardisation and process optimisation, with the ultimate aim of improving team and patient outcomes [1,4,10]. These goals are assumed to be complementary and mutually reinforcing [1,4,10–13]. However, how these goals are prioritised and balanced in practice remains underexplored.

This recognition of contextual and goal-related complexity in care pathway development aligns with a growing body of research promoting the application of complexity thinking to healthcare (quality) improvement. Complexity is defined as 'a dynamic and constantly emerging set of processes and objects that not only interact with each other but come to be defined by those interactions' [14 p.42]. This perspective challenges the prevailing linear thinking and emphasises the need to embrace unpredictability in improving health services [15–17]. Scholars conceptualise healthcare organisations as complex adaptive systems, characterised by non-linear dynamics, distributed agency, and context-sensitive learning [15,18].

Contributing to this complexity is the presence of multiple, often conflicting values – such as autonomy, care quality, and efficiency, which actors must navigate in quality improvement efforts [19–24]. Greenhalgh et al. [16] capture this complexity with the concept of value complexity (or normative complexity [19], defined as 'the complexity arising from differences in people's worldviews, interests, and values, leading to mistrust, misunderstanding, and conflict among stakeholders' [16 p.648]. In line with other scholars [19,21,23,24], this definition acknowledges that value is not fixed or predefined but emergent and context-dependent, shaped through ongoing interactions, reflective deliberation among professionals, patients, and managers. To support moral reasoning and reflection on value complexity, Greenhalgh et al. [16] propose ten rules of thumb (see Table 5.1), derived from diverse research traditions. These rules aren't intended as prescriptive checklists but as flexible, context-sensitive starting points for engaging with value complexity in empirical research. The rules encourage users to critically reflect on themes as power dynamics, the use of numbers and visual representations, and uncertainty within complex moral landscapes.

Value complexity is relevant in care pathway development, where diverse perspectives must be negotiated and integrated, a challenge that our study seeks to address. In doing so, this study responds to Greenhalgh et al.'s[16] call for further reflection and empirical study of their rules of thumb, using them as a reflective lens in a care pathway development programme. The research question guiding this study was: *"How does value complexity unfold in a care pathway development programme?"*

Table 5.1: Ten rules of thumb on value complexity

Rule of thumb	Description
1. Partnership Process Is Mission Critical	Complex projects require trust-based partnerships with psychological safety for all. Focus should be on collective action rather than just deliverables as outputs.
2. Be Alert to Power Dynamics	Power sharing in partnerships must consider subtle dynamics. Critical analysis can help reveal imbalances and ensure all voices are heard without reducing them to 'empowered' categories.
3. Engage with Conflict Positively	Conflict in value-complex projects is inevitable and can lead to deeper understanding. Conflict should be embraced rather than avoided to enhance collaboration and innovation.
4. Examine Language Carefully	Language shapes how issues are perceived and framed using the views of different actors. Understanding the rhetorical purpose and underlying assumptions and values can reveal different perspectives in partnerships.
5. Identify Hidden Value Judgments in Technology	Technologies often embed human judgments and values. Digital tools, for example, may marginalise certain users or perspectives. It is important to critique the social assumptions built into technologies.
6. Question Numbers and Metrics	The numbers and metrics used to define progress may reflect specific biases. Partnerships should question the origins and purposes of these measures to uncover hidden agendas or interests and the consequences of their use.
7. Encourage Frame Awareness	Different groups may see the world differently based on their institutional frames. Raising awareness of these frames helps build mutual understanding and cooperation despite differences.
8. Contemplate Uncertainty	Uncertainty is inherent in real-world projects. Addressing it requires human qualities like humility, flexibility, and courage, recognising that our understanding of complex issues is often limited.
9. Use Deliberation for Collective Action	Scientific evidence alone will not determine action. Deliberation, which considers local constraints, values, and priorities, helps guide real-world decisions. This process requires curiosity, and respect for differing views.
10. Creative Action Cannot be Scripted	Generalised knowledge and standardised interventions are insufficient to address real-world challenges. Action must be adaptive, involving experimentation (tinkering), and continuous data collection and analysis to find solutions.

5.3 Methods

5.3.1 Study settings and design

This study was a sub-study of a two-year action research programme on care pathway development, conducted in a Dutch specialised rehabilitation hospital (16 sites, ~800 employees, ~15,000 patients annually). The programme was initiated by the centre's Executive Board and funded through a national action research grant scheme (ZonMw project number 05160062010008). A steering committee of senior management and medical leaders provided strategic oversight and alignment.

The action research programme aimed to support multidisciplinary teams in developing care pathways that improved care quality, efficiency, and innovation, including the integration of blended care (i.e., the combination of face-to-face care with web-based digital interventions) [25–28]. In three care pathway development cycles, a total of eleven multidisciplinary teams were guided by an embedded research team in a quality collaborative approach, involving knowledge transfer, workshops and guided teamwork [29]. Each multidisciplinary team was chaired by a leadership triad: a medical leader (rehabilitation physiatrist), a middle manager, and a care pathway project leader (healthcare professional, e.g., physiotherapist, speech therapist, or social worker).

The research team consisted of three members, and participated in the action research programme both as researchers and facilitators. The lead researcher coordinated the programme, coached the care pathway teams, and organised the collaborative meetings. The research team facilitated expert-led knowledge exchange, interactive exercises, and team-based learning throughout the collaborative meetings.

This paper reports a qualitative single-case study within this broader action research programme, following an interpretivist paradigm [30–32]. The sub-study followed a 'research-follow-action' strategy, in which action and learning occurred during the care pathway programme phase, while systematic analysis took place retrospectively [33]. This approach allowed the research team to stay close to practice during facilitation, while maintaining interpretive distance in the analytical phase. Figure 5.1 visualises the structure of the action research programme, including the three care pathway development cycles, the timing of data collection activities and action research stakeholder meetings (see Figure 5.1).

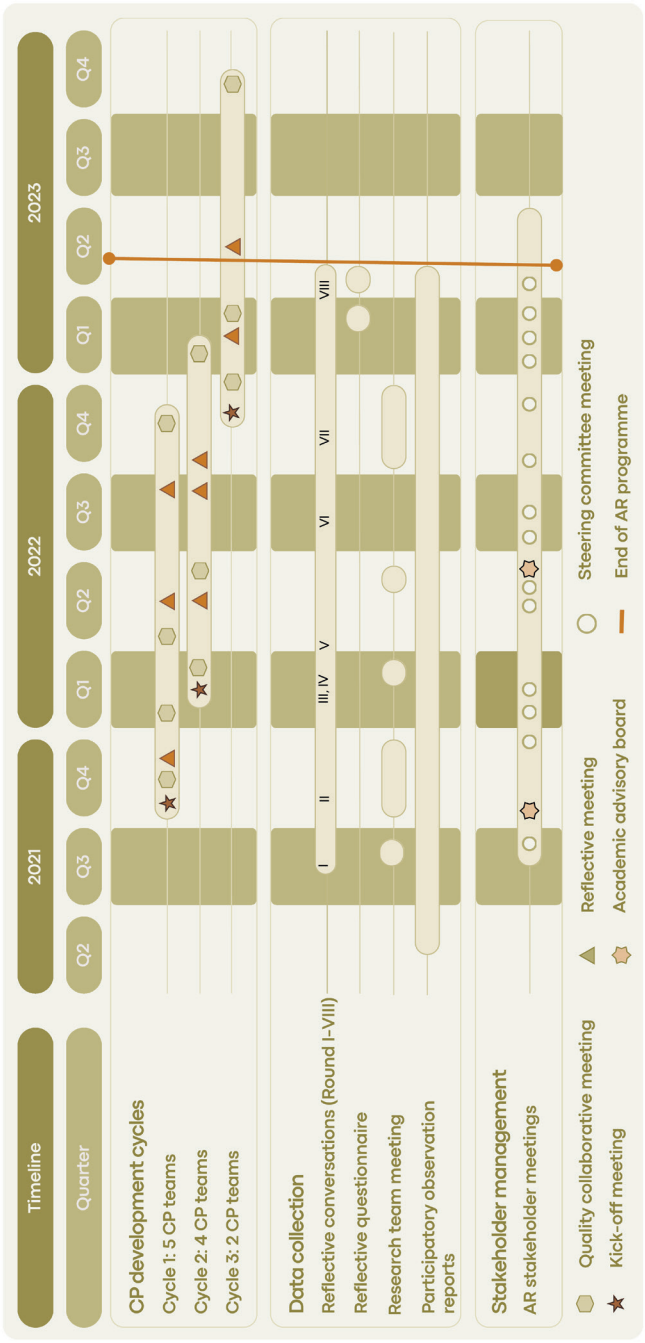


Figure 5.1: Action research programme timeline. This timeline illustrates the longitudinal set-up of the action research programme and data collection rounds. Data analysis was conducted retrospectively, following a research-follow-action strategy.

5.3.2 Data collection and participants

A multi-method data collection strategy was employed throughout the action research programme: A) 169 participatory observation reports documented by the lead researcher, providing in-depth descriptions of complex situations in care pathway development; B) a total of 44 reflective conversations conducted in eight rounds (Rounds I–VIII) by the lead researcher to deepen insights; C) 2 reflective questionnaires created in Microsoft Forms and distributed by email to gather additional perspectives, and D) 21 reflective research team meetings. An overview of the timing of the data collection is shown in Figure 5.1.

Participants for the reflective conversations and questionnaires were selected through criterion sampling [34]. A total of 56 professionals and managers were invited by email, of whom 44 accepted (79% participation rate; see Table 5.2). These 44 reflective conversations were held with 26 unique participants, including representatives from all three roles in the leadership triad (N=21) as well as members of senior management (N=5). Each participant took part in one to four conversations, with an average length of 38 minutes. A conversation guide was used to support the reflective conversations, allowing for flexibility and open-ended dialogue (see Appendix 5.8.1). The first reflective questionnaire, distributed to leadership triad representatives (N=25), received 14 responses (56% response rate), while the second, sent to senior management (N=5), yielded five responses (100% response rate) (see Table 5.3). The questionnaires consisted of open-ended questions designed to elicit reflective input (see Appendix 5.8.2). Although participation and response rates varied, no systematic patterns of selective non-response were observed and the most important reason for not participating was "due to time constraints". The reflective conversations and the research team meetings were audio- and video-recorded using Microsoft Teams and transcribed verbatim. All data – including research team recordings, participatory observation reports, reflective conversation transcripts, and questionnaire responses – were securely stored following General Data Protection Regulation (GDPR) guidelines.

Table 5.2: Invitations and participation in reflective conversations

				Breakdown			
Reflective conversation rounds	Invitations total (N)	Participants (N)	Participation rate (%)	CP middle manager (N)	CP medical leader (N)	CP project leader (N)	Senior manager (N)
I	5	4	80%	4			
II	5	2	40%			2	
III	4	4	100%			4	
IV	11	11	100%	3	4	4	
V	13	8	62%	3	1	3	1
VI	9	7	78%			7	
VII	1	1	100%				1
VIII	8	7	88%	3			4
	56	44	79%	13	5	20	6
CP = care pathway							

Table 5.3: Invitations and response to reflective questionnaires

				Breakdown			
Reflective questionnaire	Invitations total (N)	Response (N)	Response rate (%)	CP middle manager (N)	CP medical leader (N)	CP project leader (N)	Senior manager (N)
Questionnaire leadership triangles	25	14	56%	2	4	8	
Questionnaire senior management	5	5	100%				5
	30	19	63%	2	4	8	5
CP = care pathway							

5.3.3 Data analysis

A thematic analysis was conducted retrospectively across all data gathered during the two-year action research programme. While the broader action research programme involved iterative learning cycles, the analysis followed a 'research-follow-action' strategy, in which action and learning occurred during the programme, followed by systematic interpretation and synthesis after its completion [33].

The thematic analysis was employed in accordance with Braun and Clarke's [35] six-phase methodology, blending inductive and deductive methods. In phase 1, the lead researcher familiarised herself with the participatory observation reports, identifying socially complex situations in care pathway development processes (e.g., conflict, diverging perspectives, or team demotivation) and the interventions deployed in response. These insights provided the foundation for generating the initial codes (phase 2). Next, the reflective conversations and questionnaires were inductively coded by the lead researcher using Atlas.ti 24. All codes were reviewed and discussed in the research team to reach interpretive consensus.

In phase 3, the codes were grouped into four candidate themes. Conceptual maps were created in Atlas.ti to visualise thematic interconnections (see Appendices 5.8.3 and 5.8.4). The maps show how codes clustered into broader categories, such as financial viability, representation, and consensus building, and how these related to each other. These visualisations facilitated the research team's reflective dialogue and iterative refinement of the thematic structure. This reflexivity extended beyond individual researcher's positioning to include reflection of how researcher perspectives shaped coding, theme development, and meaning attribution [36].

In phase 4, the research team consolidated the thematic structure. This process led to consensus on two overarching themes that reflected value complexity: goal alignment and decision-making in care pathway development. These were further analysed using value complexity as an interpretive lens [16]. Drawing on elements of Greenhalgh et al.'s [16] rules of thumb, they were not applied prescriptively but used to explore how tensions around values, goal alignment, and decision-making manifested in the data. This approach guided a reflective interpretation of the themes in relation to normative complexity. In phase 5, the inductive and deductive insights were balanced for theme definition and naming combining and contrasting the themes and interventions. Finally, in phase 6, the two themes and interventions were described in full and presented in a narrative format.

5.3.4 Research team and reflexivity

Reflexivity was an integral part of the methodological approach. Throughout the programme, the research team applied three-level reflexivity to critically examine their own assumptions and prevent 'going native' [32,36–40]. This included: (1) the lead researcher maintaining a weekly reflexive journal, which served as a structured log of participatory observations used for both analytical and reflective purposes capturing field-level complexity and supporting critical reflection on role tensions, researcher impact, and emergent value framings; (2) regular reflective meetings within the research team to critically interrogate their interpretations, power dynamics, and interactions with participants, and (3) two moments of academic reflection within an academic advisory board convened by the University. This board was chaired by a professor from an outsider stance, and included the research team and rotating guests from the studied organisation, and provided a space for critical dialogue and methodological reflection. These activities are represented in Figure 5.1.

5.3.5 Techniques to enhance trustworthiness

Techniques were applied to strengthen transparency, reliability and validity [31]. To enhance transparency, the researchers created an audit trail documenting the research process. Reflexivity was practiced throughout, enabling the research team to critically examine their own assumptions and to prevent 'going native' [38,39]. To strengthen reliability, detailed observations and conversation excerpts were provided to enable assessment of the transferability of the findings to other contexts and gaining a deeper understanding of the phenomena under study. The research team conducted inter-coder reliability checks to ensure consistency in the coding and interpretation of data, and refined the analysis through regular discussions, allowing diverse perspectives to shape the findings. Validity was enhanced by applying method triangulation, combining data from participatory observation reports, reflective conversations and questionnaires, as well as analysis triangulation combining inductive and deductive approaches to enhance depth and robustness in theme development [41,42]. The SRQR guideline led the writing process [43].

5.3.6 Patient and public involvement

Patients and members of the public were not involved in the design, or conduct, or reporting, or dissemination plans of this study. This decision reflects the study's focus on professionals' perspective and their engagement in reflective dialogues on goal alignment and decision-making. However, in the broader action research programme in which this sub-study was embedded, patients were actively involved as stakeholders in several care pathway development teams [44].

5.4 Results

The next section describes the overall approach of the care pathway development project. This is followed by an examination of value complexity in goal alignment and in decision-making and researchers' interventions to engage with these complexities.

5.4.1 Original goals and set-up

In the project's initiation phase, all stakeholders (senior management, board, and research team) agreed on a shared objective: employees would learn to develop care pathways with smarter, more efficient processes to innovate care delivery and create uniformity across locations. At this stage, care quality, process improvement, innovation (including blended care), and financial viability were valued equally. A learning perspective was embedded through a quality collaborative setting, in which multidisciplinary teams were trained and guided in care pathway development. Each care pathway team was steered by a leadership triad, responsible for overseeing the development process and monitoring progress. The organisation was expected to gradually reduce its reliance on the researchers for guidance and project management, ultimately taking over full responsibility for the process.

5.4.2 Value complexity in goal alignment

In our study, goal alignment refers to the process of ensuring that all stakeholders are aligned on shared objectives that balance care quality, financial viability, and innovation. Shifting organisational priorities due to key staff changes and the resulting unfamiliarity with the project's original goals, combined with a financial crisis in the first year, negatively affected goal alignment between senior management, care pathway leadership triangles, care pathway team members and the research team. After the project's preparation, introduction, and kick-off phases, organisational priorities shifted with an observable growth in managerial value for efficiency.

The first shift led management to increase pressure on the care pathway leadership triangles to develop financially viable care pathways. This increased the power of managers, which negatively affected goal alignment in the leadership triangle. Consequently, the design process changed gradually from one driven by blended care content, patient centredness and process improvement to one driven by the need for a positive financial return. Management coined a metaphor for the situation: 'How can you design a Rolls Royce when you only can afford a Lada?' From the management perspective, only a good financial result was of value. For the care pathway team, reaching consensus on a redesigned care pathway implied agreeing to big changes to daily practices in terms of care content, use and deployment of digital resources and logistics. However, all the hard work this entailed for the care pathway team was considered secondary to ensuring a positive financial outcome. Management perceived the original design, based on the care pathway team's vision of care, as leading to unrestrained, excessive and costly care provision. As management's views no longer aligned with team members', misunderstandings arose in leadership triangles and care pathway teams. This negatively affected the motivation to improve and innovate care processes for both patients and healthcare professionals. On the other hand, middle managers said that the opportunity to talk about balancing cost and care in the care pathway team was a significant benefit, as it reduced tension between management and care professionals and made the financial dilemmas easier to discuss.

'Especially in our situation, when it became evident that we weren't performing well financially, then yes, you must ensure that the care pathway will also yield benefits for [the organisation].' (Senior manager, Interview I_55)

'… about envisioning the content, the feeling I got now was [that we were] being reined in by financial constraints. Yeah, I think that cost us time. And frustration.' (Senior manager, Interview I_52)

In the second shift in response to the financial crisis, management focused on enhancing short-term care productivity to drive revenue generation. This emphasis on increased productivity influenced how management directed employees which, in turn, reduced the number of care pathways developed. Despite formal approval and funding through an external subsidy, management limited the hours employees could spend on the care pathway project. This negatively affected the commitment of care pathway team members, who felt caught between two assignments: developing and implementing care pathways and maintaining or increasing care productivity. This dual responsibility left them no time for project work which delayed the development process. As one care pathway project leader put it:

"You feel the consequence of reducing the frequency of our meetings. We planned to alternate between meetings and working weeks but that working time is gone. And now you feel like you're not on the moving train anymore. You keep stepping on and off the platform, trying to catch up" (care pathway project leader, I_40)

Team members at different levels echoed this tension. A coordinator described how shifting priorities eroded energy and a sense of shared commitment:

"Patient care took priority, and after a while there just wasn't much energy left. I really felt like I was standing alone." (care pathway project leader, I_41)

A medical leader reflected on how daily pressures overshadowed care pathway work and made participation difficult:

"It's incredibly busy, and there's a lot of pressure to fill the gaps, especially for patient-related tasks. There are so many things to juggle, and this [mid-May] was the first available moment since early April to work on this. It took a month and a half." (Medical leader, I_38)

As the excerpt below illustrates, the noticeable decrease in care pathway development affected project outcomes and progress.

'So, at first, everyone was quite enthusiastic about it. Like, okay, this is going to be a really great project. Then, as things progressed, [we] faced increasing pressure [to work] under the motto "all hands on deck" – I can't recall the exact words. Well, you felt a bit embarrassed when you wrote down your hours for this. And that affected everyone.' (Senior manager, Interview I_48)

In some care pathway teams the misaligned goals touched on a pre-existing reluctance to work with either care pathways or other innovations that challenge current practices and focus on the standardisation that interferes with professional autonomy. This reluctance causing the core misalignment noticeably affected the legitimacy of the project. As a result, some care pathway team members participated passively, and this sparked discussions about the organisational burden, feasibility and potential termination of the project. These effects then served as a catalyst in slowing down progress when the intrinsic motivation for developing the care pathway and adopting new working methods was already low.

To navigate value complexity related to goal alignment, the research team engaged care pathway teams in structured reflective dialogues that helped identify and address misalignments among stakeholders. These dialogues provided a platform for discussing the reduced motivation of care pathway teams, as well as the dilemmas and tensions the financial pressures created, giving stakeholders the space to explore key trade-offs. In these exchanges, stakeholders articulated their priorities and an expert-led training on the funding of specialised rehabilitation care was provided, fostering a shared understanding of the need to balance care quality, financial viability, and operational efficiency. By promoting mutual understanding and collaboration across disciplines, the teams could work on a more cohesive care pathway vision. Also, the dialogues provided coping strategies for challenging times, enabling team members to collaboratively explore solutions. Preparatory sessions with leadership triangles clarified mutual expectations, further reinforcing alignment on project goals. However, the impact of the interventions varied across teams. While some teams successfully reached consensus and developed a shared vision despite the challenges, others struggled to overcome tensions and misunderstandings, further impeding care pathway development progress.

5.4.3 Value complexity in decision-making

The significant delays observed in care pathway development (from design to experimentation to implementation) were partly due to slow decision-making. Decision-making involves the iterative process of making choices throughout care pathway development, particularly in designing and adapting care pathways to reconcile varying practices and incorporate new clinical insights. There were four key aspects influencing this decision-making.

First, introducing the new form of leadership triangle revealed role uncertainty and differences in expectations. Since the triangle's roles were new to the organisation, initial expectations regarding collaboration, role execution, and task distribution were unstated and unaligned. This served as a catalyst for confusion and uncertainty, which clouded decision-making. Additionally, the triangle members felt inexperienced in their new roles. They had to learn to trust their collaborative partnership.

> *'At first, it was a bit of a search, right? What and who and how? We did that together. What's the right method, who's responsible for what, how do we do it, and what can we expect? Lots of questions.' (Middle manager, Interview I_34)*

Second, the corporate culture followed the informal rule of pursuing consensus in decision-making among healthcare professionals. It was expected that care pathway team members had their colleagues' mandate to compromise and make decisions. This mandate, however, was not always explicit or pre-agreed upon. Care pathway teams placed great importance on extensive consultation and careful alignment with other colleagues not on the care pathway team. As a result, the influence of the respective constituencies impacted the team members' decision-making, leading to repeated discussions and re-evaluation of previously made choices in the attempt to reach consensus.

> *'Now we're back to the hot issues. I see us reaching a small consensus, speaking the same language. But then, in the team […] we often take one step forward and two steps back. Because [team members] consult their departments and think: Oh, no, this isn't right. […] And that's super hard.' (care pathway project leader, Interview I_43)*

We observed that a care pathway team's shared vision of care positively contributed to their decision-making and ability to reach consensus. However, in team discussions, the members did not always mention their differences in perspective and motivation. Making the implicit explicit requires such skills as open questioning techniques, guiding reflective dialogues and creating a safe setting which stimulates openness. During the quality collaborative meetings, an action researcher facilitated the

team dialogues. However, there was no professional dialogue guidance outside the meetings and the team's own ability to guide these dialogues varied. Thus, decision-making was complicated by repetitive discussions and reconsidered decisions.

Third, the assumption was that all the disciplines involved in the care process were represented in the multidisciplinary care pathway team. However, when a care pathway spans multiple locations, choices were made in order to maintain a manageable team size. This implied that a physiotherapist of location A was expected to represent the physiotherapists of locations B and C. When care pathway teams were gathering input and proposition support, not having all stakeholders represented complicated their decision-making and their communication and coordination with the various settings. care pathway team members considered this a time-consuming and challenging task, especially when a team member did not work in or did not feel connected to a particular department or location. We observed team members making judgements of each other's working methods as well as the pressure their respective constituencies exerted on them to preserve their preferred way of working. This negatively impacted the team, again delaying the decision-making process. However, teams that invested in building relationships outside the quality collaborative sessions experienced a positive response in their collaboration and decision-making process.

> *'There was a huge culture of criticising the leadership and colleagues from other locations. […] There's quite a bit of judgement on how you do it and how the other one does it.' (Senior manager, Interview I_48)*

> *'Plus, there's a bit of rivalry too. Yeah, that sounds a bit negative. You have to be careful… because then they think: oh, that location is doing well, we're doing it wrong.' (Middle manager, Interview I_54)*

> *'No, I think we got to know each other. I think that really made a difference because [care pathway X] is quite large with four separate locations… And now, because you also got to know them, just as people, as persons, how they think, their mindset, it was easier to work together. Yes, I think that really helped.' (care pathway project leader, Interview I_45)*

Fourth, the increased focus on designing financially viable care pathways sparked discussions on balancing care costs and care quality. Team members found it hard to understand the care-related consequences of financially driven choices. Unfamiliarity with the ambiguous funding structure and uncertainty about the influence of the care pathway team on the financial outcome prolonged discussions and misunderstandings, which delayed the care pathway design process. Some teams developed care pathways using evidence-based guidelines or national treatment frameworks. However, applying these recommendations sometimes implied a higher frequency or duration of therapy than was financially feasible under the existing reimbursement model. This discrepancy became apparent when applying the organisation's calculation model, designed to assess the balance between care provision and expected reimbursement. As a result, tensions arose between clinically optimal care and financial viability. In such cases, care pathway teams had to weigh complex medical, ethical, and organisational considerations, which made the decision-making process more challenging.

To navigate decision-making challenges, the research team introduced small-scale experimentation, allowing care pathway teams to test different pathway designs in practice. The care pathway teams found this approach helpful, appreciating the opportunity to learn from practical experience rather than hypothetical scenarios alone. Learning about each other's working methods also reduced judgemental attitudes towards local practices, promoting a more collaborative approach to care pathway design. This hands-on experience fostered a culture of practical learning, encouraging care pathway teams to engage in meaningful and respectful discussions and supporting them in making well-considered care pathway design choices. To further enhance decision-making capacity, the teams received a cost-revenue calculation model that facilitated balanced decision-making on cost and care quality. This approach helped care pathway teams integrate financial considerations into their pathway designs and built their confidence in iterative decision-making. However, the effectiveness of these interventions differed between teams. Some teams made effective use of the tools and techniques, leading to constructive discussions and well-informed decisions, while others encountered difficulties in overcoming internal dynamics and structural challenges, resulting in decision-making delays.

5.5 Discussion

This qualitative study explored value complexity in care pathway development processes, offering insights for practitioners (healthcare professionals, managers, care pathway project leaders) and (action) researchers involved in these complex processes. While the 'rules of thumb' by Greenhalgh et al. [16] have been cited in a limited number of peer-reviewed papers, this is, to our knowledge, the first empirical study using the rules in the context of care pathway development [22,45–48]

5.5.1 Key findings and implications

The study identified goal alignment and decision-making as complex, multi-layered processes in care pathway development. In our study, the original project goals focused on developing blended care pathways that balanced care quality, innovation, and financial viability, while standardising practices across multiple locations and integrating digital tools. However, shifting organisational priorities, such as an emerging financial crisis, disrupted this balance. Management's increased focus on financial outcomes over the patient-centred vision created tensions, hindering progress in both goal alignment and decision-making. While care pathway literature describes care pathway goals as complementary and assumes that goal alignment will naturally emerge over time to facilitate care pathway implementation, our findings show that this process is challenging [7,49]. While core values, such as patient-centred care, efficiency, and care-content improvement, remained constant, their prioritisation shifted throughout the care pathway development process, generating tension and hindering alignment at both management and care pathway team levels. Rather than being complementary or reinforcing each other, goals frequently competed, particularly under organisational pressure, leading to misunderstanding, tensions in collaboration, and value conflicts.

The complexities of goal alignment and decision-making underscore the inherent tensions in care pathway development, reflecting the broader organisational challenge of balancing competing demands for innovation and efficiency. In decision-making processes, teams have to deal with competing goals, and conflicting stakeholder interests [45]. While the current care pathway literature provides limited guidance on how to achieve alignment or expedite decision-making processes amid competing priorities, our study showed mixed outcomes. Some care pathway teams navigated these tensions effectively, integrating conflicting stakeholder priorities and professional perspectives to maintain the coherence of their care pathways, whereas others reached an impasse, halting progress. These challenges reflect organisational ambidexterity, which highlights the need to balance exploration (long-term innovation and risk-taking) and exploitation (short-term productivity and efficiency) [50–52]. In our study, exploitation became dominant during the financial crisis, as management prioritised immediate productivity gains over longer-term care innovations. This shift constrained care pathway teams' ability to explore innovative approaches, illustrating the practical challenges of achieving ambidexterity in healthcare.

Our study highlights the dynamic, competing nature of care pathway goals, emphasising the importance of periodic reassessment to support iterative goal alignment. Our findings align with the literature on adaptive evaluation in complex health improvement initiatives, which underlines the value of formative evaluation in navigating competing priorities [53–55]. Formative evaluation continuously creates real-time feedback loops, enabling early identification of challenges, proactive misalignment management, and sustained collaboration [53–55]. This aligns with complexity science insights, which stress flexibility, reflexivity, and adaptability in navigating multi-stakeholder initiatives in dynamic contexts [15–17]. Embedding formative evaluation in care pathway development strengthens the teams' adaptive decision-making and resilience in managing organisational pressures.

The key findings and their implications described above suggest that decision-making and goal alignment in care pathway development is not only a technical or procedural activity but also a moral process shaped by divergent values and interests. In some teams, shared moral ground was actively cultivated through dialogue and iterative experimentation, allowing actors to align sufficiently to constructively make decisions. In other teams, however, alignment on values and interests became constrained due to strategic positioning or lack of managerial authority. This was particularly evident when financial pressure increased, which impeded decision-making. Value convergence requires active facilitation, it cannot be assumed to emerge naturally. This aligns with normative complexity, which refers to the coexistence of conflicting but legitimate values, such as patient-centredness, efficiency, and professional autonomy. These conflicting values complicate or even obstruct efforts at value convergence [16,19,23]. Rather than seeking full alignment, decision-making in such contexts requires recognition of moral tensions and facilitation of dialogical spaces where diverse perspectives can be expressed, questioned, and negotiated. In this view, value conflicts are not problems to be resolved but realities to be surfaced and engaged with.

5.5.2 A reflexive use of Greenhalgh et al.'s rules of thumb in care pathway development

Greenhalgh et al.'s [16] rules of thumb (see Table 5.1) were used as a reflexive lens to interpret how value tensions emerged around goal alignment and decision-making in care pathway development. This interpretive stance supported exploration of the moral and relational dimensions of these processes in a context-sensitive manner, consistent with the intended purpose of the rules. While this approach provided valuable insights, it also revealed challenges in their application. Value complexity hindered consensus building and mandate acquisition when diverse stakeholder views were considered. In our study, partnerships were strained and power dynamics became prominent, especially under increased pressure and during tense discussions, particularly when stakeholders held conflicting views. For example, power dynamics between management and care pathway teams intensified during financial crises, aligning with the second rule regarding recognising power relations. Similarly, efforts to build connections, trust, and mutual understanding, as outlined in the first rule, were crucial for facilitating decision-making and effectively communicating with respective constituencies. However, these efforts were not always sufficient to overcome existing tensions.

Our study also highlights the influence of language and framing in goal realignment, consistent with the fourth and seventh rules. The 'Lada metaphor' used by management exemplified how framing could reinforce financial pressures, further complicating goal alignment. Teams that managed to establish partnerships and trust, central to the first rule, were better equipped to navigate these challenges and achieve consensus. Despite these efforts, achieving consensus and acquiring mandates remained difficult, particularly when divergent stakeholder priorities persisted.

While this study's findings support the utility of these rules, we concur with Greenhalgh et al. [16] that they lack predictive power. Translating the rules into a framework or checklist would detract from their purpose and the essence of complexity science and adding more rules would not be beneficial. Also, the rules are subject to multiple interpretations and require a strong theoretical knowledge base in social science and humanities (e.g., on power differentials, framing) to understand and differentiate between rules (e.g., between the fourth and seventh rules). Furthermore, the rules interact, as demonstrated by the interplay of power (second rule) and conflict (third rule) in partnerships (first rule). Despite these challenges, our findings underscore their usefulness for exploring value complexity in complex processes such as care pathway development.

Action researchers, who aim to bridge practice and science by applying scientific knowledge to practice and developing interventions to support desired change processes, are encouraged to use the rules of thumb as a reflexive lens in complex change processes. Grounded in rich theoretical insights, these rules provide guidance in ongoing problem analysis. This aligns with the concept of 'value exnovation' proposed by Wehrens et al. [23], which emphasises the action researchers' role in uncovering implicit, often conflicting values in healthcare practices. In our study, such exnovation became evident in the reflexive dialogues as these dialogues revealed implicit assumptions about what 'should' matter in care pathway development, particularly the tension between financial efficiency and patient-centred care. These moments of reflection helped teams to explore new strategies to balance competing priorities. Recent research by Oldenhof et al. [22] identifies three strategies for engaging with value complexity: working around it (e.g., through temporary fixes), working against it (by reinforcing dominant value logics), and working with value complexity, for example, through inclusive dialogue and reflexive spaces that surface tensions constructively. Our findings align with scholars who advocate for complexity-informed project approaches that embed incrementalism, reflexivity, and adaptive learning [15–17,59]. In this light , our study contributes to the enrichment of care pathway development methodologies enabling teams to navigate value complexity more effectively. It does so by: (1) demonstrating how ongoing reflexion and evaluation enhances adaptability and teams' learning capacity, and (2) emphasising the importance of deliberately selecting strategies that 'work with' value complexity, as proposed by Oldenhof et al. [22]. Future research is needed to explore how the rules of thumb can be used across diverse healthcare settings and to further develop practical strategies that support reflexivity, value exnovation, and 'working with' value complexity in complex change processes.

5.5.3 Strengths and limitations

To the best of our knowledge, this is the first empirical study on value complexity in care pathway development using Greenhalgh et al.'s [16] rules of thumb. This two-year longitudinal action research on care pathway development provides a robust method for understanding value complexity over time, because the natural embedding of action researchers in the organisation enhanced the credibility of the findings. The research team's ongoing reflexivity was another strength, as they critically examined their biases and assumptions to mitigate the risk of 'going native' [38,39]. The study also has certain limitations. As this is a single case study in one (multi-location) specialised rehabilitation hospital, transferability to other contexts may be constrained. Both the single-case nature and the specialised rehabilitation setting may have shaped the observed dynamics, as organisational culture is known to influence team functioning in such contexts [57,58]. To counter this effect, the researchers provide rich, detailed observations and interview excerpts to give other researchers the opportunity to assess the transferability of the findings [30,31]. Additionally, the strategy chosen for criterion sampling might have led to selection bias, especially as multiple interviews were conducted with the same respondents over time. This may have resulted in an overrepresentation of coordinators' perspectives, as they were often more consistently available for participation. We encourage further research on value complexity both in and beyond care pathway development in other (types of) healthcare organisations. Finally, although patients were involved in the action research programme, they were not included in the data collection or analysis of this sub-study. As patient experience is a key dimension of value in healthcare, future studies should explore how patients perceive and contribute to goal alignment and decision-making. Finally, while care pathway teams were encouraged to incorporate evidence-based care, our study did not examine how perceived differences in evidence strength across disciplines influenced care pathway development. Future research could explore how such disciplinary variations affect value negotiation and decision-making.





5.6 Conclusion

This study explored value complexity in care pathway development by using Greenhalgh et al.'s [16] rules of thumb. It illustrates the dynamic processes of goal alignment and decision-making that arise from conflicting interests, shifting priorities, and evolving organisational contexts, underscoring the importance of reflexivity, dialogue, and trust-building among stakeholders in effectively navigating these conflicting goals. The findings highlight that achieving and maintaining goal alignment is vital for successful care pathway development and requires ongoing management and formative evaluation. While the rules of thumb are valuable for understanding and addressing value complexity, Greenhalgh et al.'s [16] work builds on rich theory and so using the rules necessitates a solid theoretical foundation and an awareness of the interplay between the different rules.

This study advocates for a complexity-informed approach that enriches care pathway development methods with continuous reflection and adaptability, equipping healthcare professionals and researchers to respond effectively to complex challenges while promoting successful collaborative practices among diverse stakeholders. The findings demonstrate the added value of using the rules of thumb, providing action researchers with diagnostic, analytical, and reflective guidance to navigate the inherent challenges of care pathway development effectively.

We encourage further research on value complexity both in and beyond care pathway development in (other types of) healthcare organisations. This includes exploring how reflective approaches – such as Greenhalgh et al.'s rules of thumb – can be strengthened and translated into practical strategies to enhance reflexivity and dialogue among stakeholders to further support effective decision-making and goal alignment in care pathway development.

5.7 References

[1] Gartner J, Abasse KS, Bergeron F, Landa P, Lemaire C, Côté A. Definition and conceptualization of the patient-centered care pathway, a proposed integrative framework for consensus: a concept analysis and systematic review. BMC Health Serv Res 2022;22(1):558. doi:10.1186/s12913-022-07960-0

[2] Vanhaecht K, Panella M, Van Zelm R, Sermeus W. An overview on the history and concept of care pathways as complex interventions. Int J Care Pathw 2010;14(3):117–123. doi:10.1258/jicp.2010.010019

[3] Bergin RJ, Whitfield K, White V, Milne RL, Emery JD, Boltong A, et al. Optimal care pathways: A national policy to improve quality of cancer care and address inequalities in cancer outcomes. J Cancer Policy 2020;25:100245. doi:10.1016/j.jcpo.2020.100245

[4] De Bleser L, Depreitere R, De Waele K, Vanhaecht K, Vlayen J, Sermeus W. Defining pathways. J Nurs Manag 2006;14(7):553–563. doi:10.1111/j.1365-2934.2006.00702.x

[5] Vanhaecht K. The impact of clinical pathways on the organisation of care processes [dissertation]. Leuven: KU Leuven; 2007.

[6] Seys D, Panella M, Van Zelm R, Sermeus W, Aeyels D, Bruyneel L, et al. Care pathways are complex interventions in complex systems: New European Pathway Association framework. Int J Care Coord 2019;22(1):5–9. doi:10.1177/2053434519839195

[7] Gartner J, Côté A. Optimization of care pathways through technological, clinical, organizational and social innovations: a qualitative study. Health Serv Insights 2023;16:1-8. doi:10.1177/11786329231211096

[8] Vanhaecht K, Van Gerven E, Deneckere S, Lodewijckx C, Janssen I, Van Zelm R, et al. The 7-phase method to design, implement and evaluate care pathways. Int J Pers Cent Med. 2012;2(3):341-352. doi:10.5750/ijpcm.v2i3.247

[9] Lodewijckx C, Decramer M, Sermeus W, Panella M, Deneckere S, Vanhaecht K. Eight-step method to build the clinical content of an evidence-based care pathway: the case for COPD exacerbation. Trials 2012;13(1):229. doi:10.1186/1745-6215-13-229

[10] Seys D, Bruyneel L, Deneckere S, Kul S, Van der Veken L, Van Zelm R, et al. Better organized care via care pathways: a multicenter study. PloS One 2017;12(7):e0180398. doi:10.1371/journal.pone.0180398

[11] Deneckere S, Euwema M, Lodewijckx C, Panella M, Mutsvari T, Sermeus W, et al. Better interprofessional teamwork, higher level of organized care, and lower risk of burnout in acute health care teams using care pathways: a cluster randomized controlled trial. Med Care 2013;51(1):99–107. doi:10.1097/MLR.0b013e3182763312

[12] Rotter T, Kinsman L, James EL, Machotta A, Gothe H, Willis J, et al. Clinical pathways: effects on professional practice, patient outcomes, length of stay and hospital costs. Cochrane Database Syst Rev 2010(7):CD006632. doi:10.1002/14651858.cd006632.pub2

[13] Vanhaecht K, Sermeus W. The Leuven Clinical Pathway Compass. Int J Care Pathw 2003;7(1):2–7. doi:10.1177/147322970300700102

[14] Cohn S, Clinch M, Bunn C, Stronge P. Entangled complexity: why complex interventions are just not complicated enough. J Health Serv Res Policy 2013;18(1):40–43. doi:10.1258/jhsrp.2012.012036

[15] Plsek PE, Greenhalgh T. Complexity science: the challenge of complexity in health care. BMJ 2001;323(7313):625–628. doi:10.1136/bmj.323.7313.625

[16] Greenhalgh T, Engebretsen E, Bal R, Kjellström S. Toward a values‐informed approach to complexity in health care: hermeneutic review. Milbank Q 2023;101(3):646–674. doi:10.1111/1468-0009.12656

[17] Greenhalgh T, Papoutsi C. Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Med 2018;16(1):95. doi:10.1186/s12916-018-1089-4

[18] Sturmberg JP. "Returning to holism": an imperative for the twenty-first century. In: Sturmberg JP, editor. The value of systems and complexity sciences for healthcare. Cham: Springer International Publishing; 2016. p. 3–19.

[19] Cribb A, Entwistle V, Mitchell P. Talking it better: conversations and normative complexity in healthcare improvement. Med Humanit 2022;48(1):85–93. doi:10.1136/medhum-2020-012129

[20] Oldenhof L, Wehrens R, Bal R. Dealing with conflicting values in policy experiments: a new pragmatist approach. Adm Soc 2022;54(9):1736–1766. doi:10.1177/00953997211069326

[21] Oldenhof L, Postma J, Putters K. On justification work: how compromising enables public managers to deal with conflicting values. Public Adm Rev 2014;74(1):52–63. doi:10.1111/puar.12153

[22] Oldenhof L, Petit-Steeghs V, Wehrens R, Van Haperen S, Heerings M. Working with value complexity in healthcare. Qual Health Res 2025. doi:10.1177/10497323251330999

[23] Wehrens R, Oldenhof L, Heerings M, Petit-Steeghs V, Haperen Sv, Bal R, et al. Integrating system dynamics and action research: towards a consideration of normative complexity comment on "Insights gained from a re-analysis of five improvement cases in healthcare integrating system dynamics into action research". Int J Health Policy Manag 2023;12:7582. doi:10.34172/ijhpm.2023.7582

[24] Wolf A, Erichsen Andersson A, Wikström E, Bååthe

F. Untangling the perception of value in value-based healthcare – an interview study. Leadersh Health Serv 2024;37(5):130–141. doi:10.1.108/lhs-07-2023-0051
[25] Wentzel J, Van der Vaart R, Bohlmeijer ET, Van Gemert-Pijnen JEWC. Mixing online and face-to-face therapy: how to benefit from blended care in mental health care. JMIR Ment Health 2016;3(1):e9–. doi:10.2196/mental.4534
[26] Toonders SAJ, Poolman EY, Nieboer ME, Pisters MF, Veenhof C. Healthcare professionals' perspectives on a blended care program in primary care; a qualitative study. Internet Interv 2021;26:100440. doi:10.1016/j.invent.2021.100440
[27] Kip H, Wentzel J, Kelders SM. Shaping blended care: adapting an instrument to support therapists in using e-mental health. JMIR Ment Health 2020;7(11):e24245. doi:10.2196/24245
[28] Hohberg V, Fuchs R, Gerber M, Künzler D, Paganini S, Faude O. Blended care interventions to promote physical activity: a systematic review of randomized controlled trials. Sports Med Open 2022;8(1):100. doi:10.1186/s40798-022-00489-w
[29] Zamboni K, Baker U, Tyagi M, Schellenberg J, Hill Z, Hanson C. How and under what circumstances do quality improvement collaboratives lead to better outcomes? A systematic review. Implementation Sci 2020;15(1):27. doi:10.1186/s13012-020-0978-z
[30] Mortelmans D. Handboek kwalitatieve onderzoeksmethoden. 3rd ed. Leuven: Acco; 2020.
[31] Green J, Thorogood N. Qualitative methods for health research. 4th ed. Los Angeles: SAGE; 2018.
[32] Roberts K, Casey M, Coghlan D, Cornall C, Hudson C, Stokes D, et al. A scoping review protocol to map the evidence on the use of action research methodology by healthcare professionals and in healthcare team settings. HRB Open Res 2021;4:68. doi:10.12688/hrbopenres.13275.1
[33] Zandee DP, Coghlan D. Action research for impact in addressing the grand challenges. Strateg Organ 2025;23(1):147–161. doi:10.1177/14761270241270913
[34] Schreier M. Sampling and generalization. In: Flick U, editor. The SAGE handbook of qualitative data collection. 1st ed. London: SAGE Publications Ltd; 2018. Chapter 6. doi:10.4135/9781526416070.n6
[35] Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol 2006;3(2):77–101. doi:10.1191/1478088706qp063oa
[36] Braun V, Clarke V. Toward good practice in thematic analysis: avoiding common problems and be(com)ing a knowing researcher. Int J Transgend Health 2023;24(1):1–6. doi:10.1080/26895269.2022.2129597
[37] Coghlan D. Action research as the social science of change and changing. In: Szabla DB, Coghlan D, Pasmore W, Kim J, editors. Handbook of research methods in organizational change. Cheltenham, UK: Edward Elgar Publishing; 2023. p. 19–46.
[38] Tresch J. On Going Native: Thomas Kuhn and anthropological method. Philos Soc Sci 2001;31(3):302–322. doi:10.1177/004839310103100302
[39] Fuller D. Part of the action, or 'going native'? Learning to cope with the 'politics of integration'. Area 1999;31(3):221–227. doi:10.1111/j.1475-4762.1999.tb00086.x
[40] Bradbury H, Glenzer K, Apgar M, Embury DC, Friedman V, Kjellström S, et al. Action Research Journal's seven quality choice points for action-oriented research for transformations. Action Res 2020;18(1):3–6. doi:10.1177/1476750320904562
[41] Verhoeven PS. Thematische analyse : patronen vinden bij kwalitatief onderzoek. 2nd ed. Amsterdam: Boom; 2023.
[42] Van Lanen M. Inductief én deductief analyseren bij kwalitatief onderzoek: het geheel is meer dan de delen. KWALON 2010;15(1):36–42. doi:10.5117/2010.015.001.008
[43] O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. Acad Med 2014;89(9):1245–1251. doi:10.1097/ACM.0000000000000388
[44] Visser M, 't Hart N, Mul M, Weggelaar‐Jansen AM. The perspectives of healthcare professionals and managers on patient involvement in care pathway development: a discourse analysis. Health Expect 2024;27(3):e14101. doi:10.1111/hex.14101
[45] Engebretsen E, Greenhalgh T. Why are the Sustainable Development Goals failing? Overcoming the paradox of unimplementability. Lancet Glob Health 2024;12(7):e1084–e1085. doi:10.1016/S2214-109X(24)00179-7
[46] Joranger L. Healing and meaning making through storytelling and poetry. Hu Arenas 2023. doi:10.1007/s42087-023-00375-1
[47] Verhoeven A, Marres H, Loo E, Lalleman P. Board talk: How members of executive hospital boards influence the positioning of nursing in crisis through talk. Nurs Inq 2024;31(2):e12618. doi:10.1111/nin.12618
[48] Wehrens R, Wallenburg I, Oldenhof L. Sphere transgressions in health and social care: reflections on the role of the embedded social scientist. Inf Commun Soc 2024:1–16. doi:10.1080/1369118X.2024.2314546
[49] Van Zelm R, Coeckelberghs E, Sermeus W, Wolthuis A, Bruyneel L, Panella M, et al. A mixed methods multiple case study to evaluate the implementation of a care pathway for colorectal cancer surgery using extended normalization process theory. BMC Health Serv Res

2021;21(1):11. doi:10.1186/s12913-020-06011-w
[50] O'Reilly CA, Tushman ML. Organizational ambidexterity: past, present, and future. Acad Manag Perspect 2013;27(4):324–338. doi:10.5465/amp.2013.0025
[51] Ando F. An encounter with the Nadler–Tushman congruence model and organizational ambidexterity. Ann Bus Adm Sci 2023;22(6):91–105. doi:10.7880/abas.0231005a
[52] Kumkale . Organizational ambidexterity. In: Kumkale I, editor. Organizational mastery: the impact of strategic leadership and organizational ambidexterity on organizational agility. Singapore: Springer; 2022. p. 1–22.
[53] Stetler CB, Legro MW, Wallace CM, Bowman C, Guihan M, Hagedorn H, et al. The role of formative evaluation in implementation research and the QUERI Experience. J Gen Intern Med 2006;21(S2):S1–S8. doi:10.1111/j.1525-1497.2006.00355.x
[54] Øvretveit J, Leviton L, Parry G. Increasing the generalisability of improvement research with an improvement replication programme. BMJ Qual Saf 2011;20(Suppl 1):i87–i91. doi:10.1136/bmjqs.2010.046342
[55] Scott VC, Alia K, Scaccia J, Ramaswamy R, Saha S, Leviton L, et al. Formative evaluation and complex health improvement initiatives: a learning system to improve theory, implementation, support, and evaluation. Am J Eval 2020;41(1):89–106. doi:10.1177/1098214019868022
[56] Parsons W. From muddling through to muddling up - evidence based policy making and the modernisation of British government. Public Policy Adm 2002;17(3):43–60. doi:10.1177/095207670201700304
[57] Strasser DC, Smits SJ, Falconer JA, Herrin JS, Bowen SE. The influence of hospital culture on rehabilitation team functioning in VA hospitals. J Rehabil Res Dev 2002;39(1):115–125.
[58] Körner M, Wirtz MA, Bengel J, Göritz AS. Relationship of organizational culture, teamwork and job satisfaction in interprofessional teams. BMC Health Serv Res 2015;15(1):243. doi:10.1186/s12913-015-0888-y

5.8 Appendices

5.8.1 Conversation guide reflective conversations rounds I-VIII

5.8.1.1 Round I

Dutch version	English version
Motivatie en keuze voor het zorgpad 1. Wat gaf voor jou of jullie team de doorslag om voor dit zorgpad te kiezen? 2. Welke behoeften of kansen zagen jullie in deze doelgroep of dit zorgpad? 3. Wat hoop(te) je hiermee te bereiken, voor patiënten en/of de organisatie?	*Motivation and rationale for selecting the care pathway* 1. What prompted you or your team to choose this particular care pathway? 2. What needs or opportunities did you identify within this patient group or care process? 3. What did you hope to achieve, for patients and/or the organisation, by developing this pathway?
Samenwerking en teamvorming 4. Hoe is de samenstelling van het zorgpadteam tot stand gekomen? 5. Wie neemt binnen het team welke verantwoordelijkheden op zich (zorginhoud, bedrijfsvoering, projectleiding)? 6. Hoe kijk je aan tegen het betrekken van ervaringsdeskundigen of patiënten bij dit traject?	*Collaboration and team formation* 4. How was the care pathway team constituted? 5. How are responsibilities within the team distributed (e.g., clinical leadership, operational coordination, team facilitator)? 6. What are your thoughts on involving patient representatives or experiential experts in this process?
Randvoorwaarden voor implementatie en borging 7. Wat is er volgens jou nodig om het zorgpad goed te implementeren én structureel te borgen? 8. Wat zijn eerdere lessen of ervaringen met borging van zorgvernieuwing in jouw praktijk of organisatie? 9. Hoe kijk je aan tegen monitoring, evaluatie en eventuele bijstelling van het zorgpad?	*Conditions for implementation and sustainability* 7. In your view, what is needed to implement and sustain the care pathway effectively? 8. What lessons have you learned from previous experiences with embedding care innovation in practice? 9. How do you approach the monitoring, evaluation, and potential adjustment of care pathways over time?
Waarde en stuurinformatie 10. Hoe geef je invulling aan waardegedreven zorg binnen dit pad (kwaliteit, kosten, patiëntervaring)? 11. Wat zie jij als de rol van data, klinische uitkomstmaten, IT en financiën in dit traject?	*Value and data-driven management* 10. How do you apply value-based healthcare principles within this care pathway (e.g., outcomes, costs, patient experience)? 11. What role do data, clinical metrics, IT systems, and financial insights play in this trajectory?
Leiderschap en projectaanpak 12. Wat vraagt dit traject van jouw rol? 13. Wat is jouw leiderschapsstijl en hoe wil je je betrokkenheid vormgeven? 14. Hoe zie je de rol van een team facilitator, en welke competenties zijn daarvoor nodig?	*Leadership and project organisation* 12. What does this project require from you in your role? 13. How would you describe your leadership style and preferred level of involvement? 14. What is your understanding of the role of a team facilitator, and what qualities are important in fulfilling that role?
Zorg voor motivatie, draagvlak en brede implementatie 15. Hoe zorg je ervoor dat collega's mee blijven doen en gemotiveerd blijven? 16. Wat is er nodig om dit zorgpad breder gedragen en toegepast te krijgen in de praktijk?	*Sustaining motivation and broad uptake* 15. How do you ensure that colleagues remain engaged and motivated? 16. What do you think is needed to support wider adoption and consistent application of the care pathway in practice?

5.8.1.2 Round II

Dutch version	English version
Motivatie en keuze voor het zorgpad 1. Wat gaf voor jou of jullie team de doorslag om voor dit zorgpad te kiezen? 2. Welke behoeften of kansen zagen jullie in deze doelgroep of dit zorgpad? 3. Wat hoop(te) je hiermee te bereiken voor patiënten en/of de organisatie?	*Motivation and rationale for selecting the care pathway* 1. What prompted you or your team to choose this particular care pathway? 2. What needs or opportunities did you identify in this patient group or care process? 3. What did you hope to achieve for patients and/or the organisation?
Samenstelling en rolverdeling in het team 4. Hoe is de samenstelling van het zorgpadteam tot stand gekomen? 5. Hoe worden verantwoordelijkheden binnen het team verdeeld (zorginhoud, bedrijfsvoering, team facilitator)? 6. Wat zijn jouw overwegingen bij het betrekken van ervaringsdeskundigen of patiënten?	*Team composition and roles* 4. How was the care pathway team assembled? 5. How are responsibilities distributed within the team (clinical leadership, operational coordination, facilitator)? 6. What are your considerations around involving experiential experts or patient representatives?
Implementatie en borging 7. Wat is er volgens jou nodig om het zorgpad goed te implementeren én structureel te borgen? 8. Welke lessen heb je geleerd uit eerdere implementatie- of borgingspogingen? 9. Hoe kijk je aan tegen monitoring, evaluatie en eventuele bijstelling van zorgpaden?	*Implementation and sustainability* 7. What do you think is needed for effective implementation and long-term sustainability of the pathway? 8. What lessons have you learned from earlier attempts at implementing or embedding changes? 9. How do you approach monitoring, evaluation, and adjustment of care pathways?
Waarde en informatiegestuurd werken 10. Hoe geef je invulling aan waardegedreven zorg binnen dit pad (kwaliteit, kosten, patiëntervaring)? 11. Welke rol spelen data, klinimetrie, IT en financiën in dit traject?	*Value-based and data-informed working* 10. How do you apply value-based healthcare principles within this pathway (quality, costs, patient experience)? 11. What role do data, clinical metrics, IT and finance play in this process?
Rol en leiderschap 12. Wat vraagt dit traject van jou in jouw rol (bv. als manager, coördinator, professional)? 13. Hoe zou je jouw leiderschapsstijl omschrijven?	*Professional roles and leadership* 12. What does this project require from you in your professional role (e.g., as a manager, coordinator, or clinician)? 13. How would you describe your leadership style?
Betrokkenheid en motivatie 14. Hoe zorg je ervoor dat collega's betrokken blijven en gemotiveerd zijn? 15. Wat is er nodig om bredere toepassing en inbedding van het zorgpad te realiseren?	*Engagement and motivation* 14. How do you ensure continued engagement and motivation among colleagues? 15. What is needed to support wider adoption and embedding of the care pathway?
Autonomie versus standaardisatie 16. Hoe kijk je aan tegen de spanningen tussen autonomie van zorgprofessionals en standaardisatie via zorgpaden?	*Autonomy versus standardisation* 16. How do you view the tension between professional autonomy and standardisation through care pathways?

5.8.1.3 Round III

Dutch version	English version
1. Hoe heb je de startbijeenkomst ervaren, en wat heeft het je opgeleverd of juist niet? 2. Hoe kijk je aan tegen jouw rol als zorgpadteam projectleider en de samenwerking in de driehoek? 3. Wat valt je op in de dynamiek binnen het team of tussen locaties? 4. Welke voorwaarden zijn belangrijk om je rol goed te kunnen vervullen en voortgang te boeken? 5. Wat verwacht je van het vervolgtraject, en waar zie je kansen of knelpunten? 6. Hoe kijk je aan tegen de besluitvorming binnen het traject? 7. Wat is volgens jou de rol en meerwaarde van ervaringsdeskundigen in het ontwerpproces? 8. Waar zie je de meeste vernieuwing of impact voor de patiënt of het team? 9. Welke ondersteuning heb je nodig om je rol goed te vervullen?	1. How did you experience the kick-off session, and what did you gain out of it? 2. How do you view your role as team facilitator and the collaboration within the leadership triad team? 3. What stands out to you in the team dynamics or between different locations? 4. What conditions are essential to fulfil your role and make progress? 5. What are your expectations for the next phase, and where do you see opportunities or bottlenecks? 6. How do you view the decision-making process within this trajectory? 7. What do you see as the role and added value of involving service users in the design process? 8. Where do you expect the greatest innovation or impact for patients or the team? 9. What support do you need to effectively carry out your role?

5.8.1.4 Round IV

Dutch version	English version
Voorbereiding en verwachtingen 1. Welke verwachting had je voorafgaand aan de bijeenkomst? 2. Hoe heb je je voorbereid op de werkconferentie?	*Preparation and expectations* 1. What were your expectations beforehand? 2. How did you prepare for the work conference?
Groepsdynamiek en samenwerking 3. Hoe verliep de samenwerking in jouw groep? 4. Wat viel je op in de groepsdynamiek of onderlinge rollen?	*Group dynamics and collaboration* 3. How did the collaboration within your group go? 4. What stood out to you in the group dynamics or roles?
Werkvormen en procesopbouw 5. Hoe heb je het werken met de droom en fases ervaren? 6. Hoe werkte de mindmap- of brainstormsessie voor jullie groep?	*Interactive exercises and process structure* 5. How did you experience working with the shared vision and phases? 6. How did the mind map or brainstorming session benefit your group?
Opbrengsten en inzichten 7. Wat heb je geleerd of als waardevol ervaren tijdens de werkconferentie? 8. Waar zag je mogelijke vernieuwing of verandering ontstaan?	*Outcomes and insights* 7. What did you learn or find valuable during the work conference? 8. Where did you observe potential innovation or change emerging?
Vervolg en borging 9. Wat is er nodig om vervolgstappen te zetten in het team of traject? 10. Hoe zie jij het vervolg of de borging van dit proces voor je?	*Follow-up and sustainability* 9. What is needed to take the next steps within your team or project? 10. How do you envision the follow-up or embedding of this process?
Reflectie algemeen 11. Is er verder nog iets dat je wilt delen of kwijt wilt?	*General reflection* 11. Is there anything else you would like to share?

5.8.1.5 Round V

Dutch version	English version
Terugblik en leerervaringen 1. Hoe kijk je terug op de afgelopen maanden in het traject? 2. Wat heb je zien gebeuren in je team of organisatie? 3. Wat zijn volgens jou belangrijke leerpunten uit deze periode?	*Reflection and lessons learned* 1. How do you look back on the past months of the programme? 2. What developments have you seen within your team or organisation? 3. What do you see as key lessons learned?
Ervaring werkconferentie en inhoudelijke thema's 4. Hoe heb je de derde werkconferentie ervaren? 5. Wat vond je van de inhoudelijke thema's zoals sturen op waarde, indicatoren, teamdynamiek? 6. Welke onderdelen vond je inspirerend of juist lastig toepasbaar?	*Experience of the work conference and thematic content* 4. How did you experience the third work conference? 5. What was your impression of the thematic content such as value-based performance monitoring, indicators, and team dynamics? 6. Which elements did you find inspiring or difficult to apply?
Timing en fasering 7. Hoe kijk je aan tegen het moment waarop bepaalde onderwerpen zijn geïntroduceerd? 8. Had je sommige thema's liever op een ander moment besproken?	*Timing and sequencing* 7. How do you experience the timing of the introduction of certain topics 8. Would you have preferred to discuss some themes at a different moment during the development process?
Samenwerking en rollen 9. Hoe kijk je aan tegen de rolverdeling binnen jullie team en de samenwerking met de manager en medisch leider? 10. Wat is belangrijk in de samenwerking binnen de leiderschapsdriehoek? 11. Wat heb je geleerd over jouw rol als team facilitator?	*Collaboration and roles* 9. How do you view the division of roles in your team and the collaboration with the manager and medical leader? 10. What is important for collaboration within the leadership triad? 11. What have you learned about your role as a team facilitator?
Vervolg en behoefte aan ondersteuning 12. Wat is er nodig om de volgende stap te zetten met jullie zorgpad? 13. Wat helpt jou en het team om tot concrete output te komen? 14. Welke ondersteuning of structuur zou helpend zijn?	*Next steps and support needs* 12. What is needed to take the next step with your care pathway? 13. What helps you and the team to produce concrete output? 14. What kind of support or structure would be helpful?

5.8.1.6 Round VI

Dutch version	English version
Terugblik en geleerde lessen 1. Hoe kijk je terug op het traject tot nu toe? 2. Wat zijn volgens jou belangrijke lessen of inzichten uit deze periode? 3. Wat heeft voor jullie goed gewerkt, en wat niet? 4. Welke invloed had de groepsdynamiek of samenwerking tussen locaties?	*Reflection and lessons learned* 1. How do you evaluate the programme so far? 2. What are key lessons or insights from this period? 3. What worked well for your team, and what did not? 4. What role did group dynamics or collaboration across locations play?
Ervaring met bijeenkomsten en inhoudelijke thema's 5. Wat vond je van de inhoud en timing van de bijeenkomsten? 6. Wat heb je gehad aan onderdelen zoals indicatoren, samen beslissen of blended care? 7. Welke elementen vond je moeilijk toepasbaar?	*Experience with meetings and thematic content* 5. What was your impression of the content and timing of the meetings? 6. What did you gain from elements such as indicators, shared decision-making, or blended care? 7. Which components were hard to apply in practice?
Ontwikkeling zorgpad en implementatie 8. Wat is er veranderd in het zorgpad en waarom? 9. Hoe is het implementatieproces verlopen en waar loop je tegenaan? 10. Waar zie je inhoudelijke winst of meerwaarde?	*Care pathway development and implementation* 8. What changes were made in the care pathway and why? 9. How has the implementation process gone and what challenges have you faced? 10. Where do you see added value or improvement in the new approach?
Persoonlijke rol en ondersteuning 11. Hoe ervaar je jouw rol als zorgpadteam projectleider of teamlid? 12. Wat heb je nodig om deze rol goed te vervullen? 13. Hoe heb je de begeleiding of coaching vanuit het project ervaren?	*Personal role and support* 11. How do you experience your role as a team lead or participant? 12. What do you need to fulfil this role effectively? 13. How have you experienced the coaching or support from the project team?
Vooruitblik en vervolgstappen 14. Wat is er nodig om komende periode stappen te zetten? 15. Wat hoop je dat de volgende bijeenkomst oplevert? 16. Hoe kunnen we de voortgang borgen of verbeteren?	*Looking ahead and next steps* 14. What is needed to make progress in the coming months? 15. What do you hope the next session will bring? 16. How can progress be safeguarded or strengthened?

5.8.1.7 Round VII

Dutch version	English version
Dynamiek en betrokkenheid 1. Hoe kijk je terug op de voorbereiding, aanwezigheid en betrokkenheid van de leiderschapsdriehoeken? 2. Wat valt je op in de manier waarop managers hun rol vervullen binnen het zorgpadtraject? 3. Wat zijn mogelijke oorzaken voor afhaken of beperkte betrokkenheid?	*Team dynamics and engagement* 1. How do you reflect on the preparation, attendance, and engagement of the leadership triad(s)? 2. What do you observe in the way managers fulfil their role within the care pathway programme? 3. What might explain limited engagement or withdrawal?
Tijdsbesteding en realistische planning 4. Hoe kijk je aan tegen de afgesproken tijdsinvestering (bijv. 2 uur/week voor 6 teamleden)? 5. Wat blijkt in de praktijk haalbaar en wat niet? 6. Hoe kunnen we teams helpen om ritme en voortgang te behouden?	*Time investment and realistic planning* 4. How do you view the agreed time commitment (e.g., 2 hours/week for 6 team members)? 5. What proves feasible in practice, and what not? 6. How can we support teams in maintaining momentum and a steady rhythm?
Draagvlak en organisatiekeuzes 7. Hoe ervaren teams de ruimte die ze formeel hebben gekregen vanuit de organisatie? 8. Welke signalen spreken elkaar tegen (bijv. formele goedkeuring vs. gevoelde ruimte)? 9. Wat is er nodig om dit traject structureel te borgen binnen de organisatie?	*Support and organisational alignment* 7. How do teams experience the organisational space formally given to them? 8. What signals appear contradictory (e.g., formal approval vs. experienced constraints)? 9. What is needed to embed this programme structurally within the organisation?
Alternatieve werkwijzen 10. Welke werkwijzen (bijv. langere sessies met minder frequentie) zouden efficiënter kunnen zijn? 11. Hoe kunnen teams eigen keuzes maken in hun werkritme binnen de kaders van het programma?	*Alternative working methods* 10. What alternative working methods (e.g., longer sessions less frequently) might be more effective? 11. How can teams shape their own work rhythm within the programme framework?

5.8.1.8 Round VIII

Dutch version	English version
Terugblik en verwachtingen 1. Hoe kijk je terug op de start en je verwachtingen bij aanvang van het project? 2. Welke verwachtingen had je bij de samenwerking met het projectteam?	*Reflections and expectations* 1. How do you evaluate on the project's start and your expectations at the time? 2. What were your expectations regarding collaboration with the project team?
Verandering en fasering 3. Zie je bepaalde fases of periodes terug in hoe het project zich ontwikkelde? 4. Wat veranderde er in jouw rol of betrokkenheid door de tijd heen?	*Change and phases* 3. Do you recognise certain phases or stages in how the project evolved? 4. What changed in your role or level of engagement over time?
Leerervaringen en verrassing 5. Werd je tijdens het traject verrast - positief of negatief? 6. Wat heb je zelf geleerd of zien veranderen bij anderen?	*Learning experiences and surprises* 5. Were you surprised during the project - in a positive or negative way? 6. What did you learn yourself, or observe changing in others?
Rollen en samenwerking 7. Hoe kijk je aan tegen de rolverdeling tussen managers, coördinatoren en therapeuten? 8. Wat is er nodig voor goede samenwerking binnen en tussen teams?	*Roles and collaboration* 7. How do you evaluate the division of roles between managers, coordinators, and therapists? 8. What is needed for effective collaboration within and across teams?

5.8.1.8 Round VIII

Dutch version	English version
Herkenbare patronen binnen de organisatie 9. Wat zag je gebeuren dat je zou typeren als typisch voor deze organisatie? 10. Wat gebeurde er juist dat daarvan afweek?	*Recurring organisational patterns* 9. What did you observe that felt typical for this organisation? 10. What stood out as different from the usual practice?
Krachten en belemmeringen 11. Wat heeft het project versterkt of juist vertraagd? 12. Welke factoren maakten het lastig om voortgang te boeken?	*Enablers and barriers* 11. What helped to accelerate or hinder the project? 12. Which factors made it difficult to maintain progress?
Impact van uitspraken of frames 13. Welke uitspraken of overtuigingen zijn bepalend geweest voor de koers van het project? 14. Welke frames hebben het proces ondersteund of juist tegengewerkt?	*Impact of statements or frames* 13. Which statements or beliefs shaped the course of the project? 14. What frames supported or hindered the process?

5.8.2 Questions reflective questionnaires

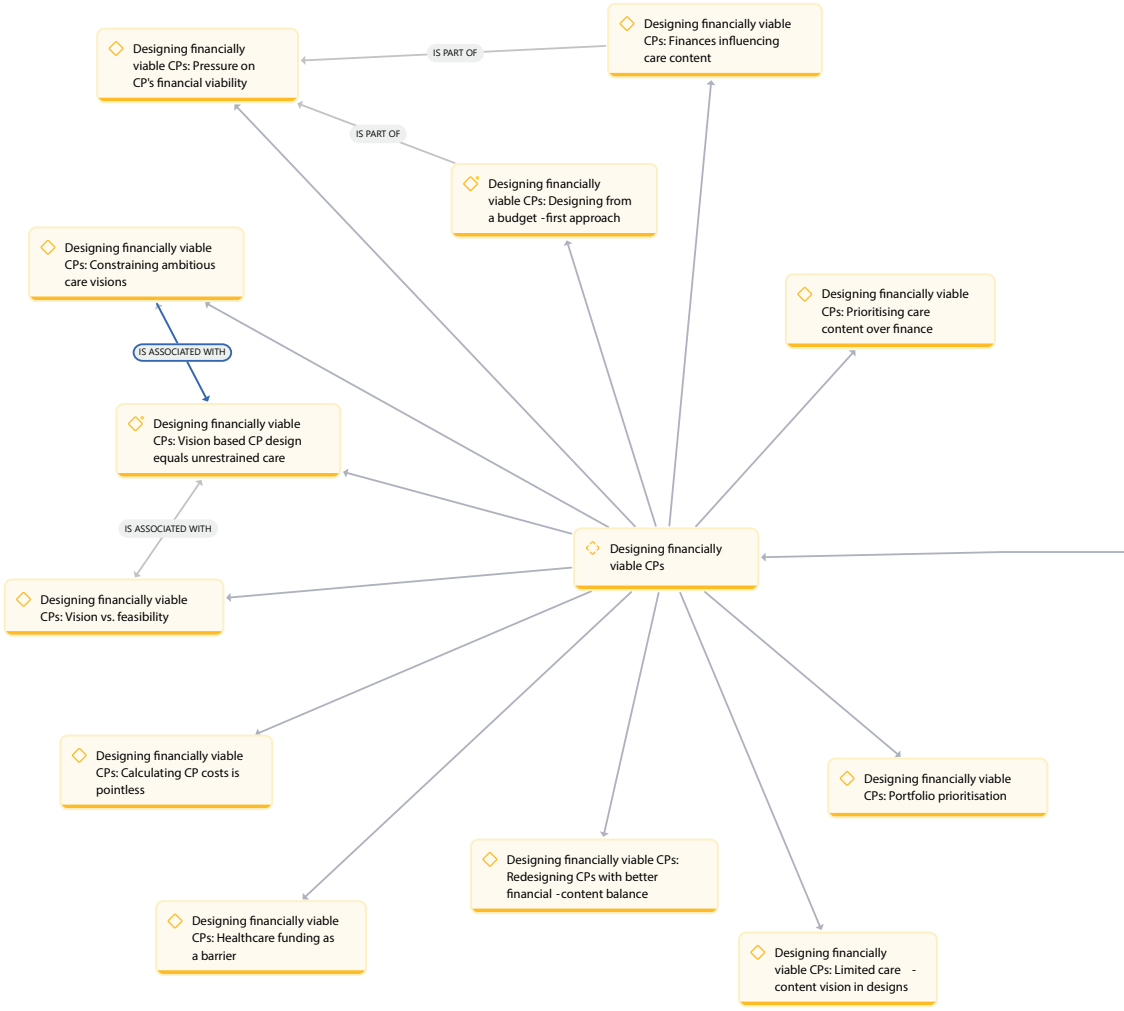
RO_06 20230328

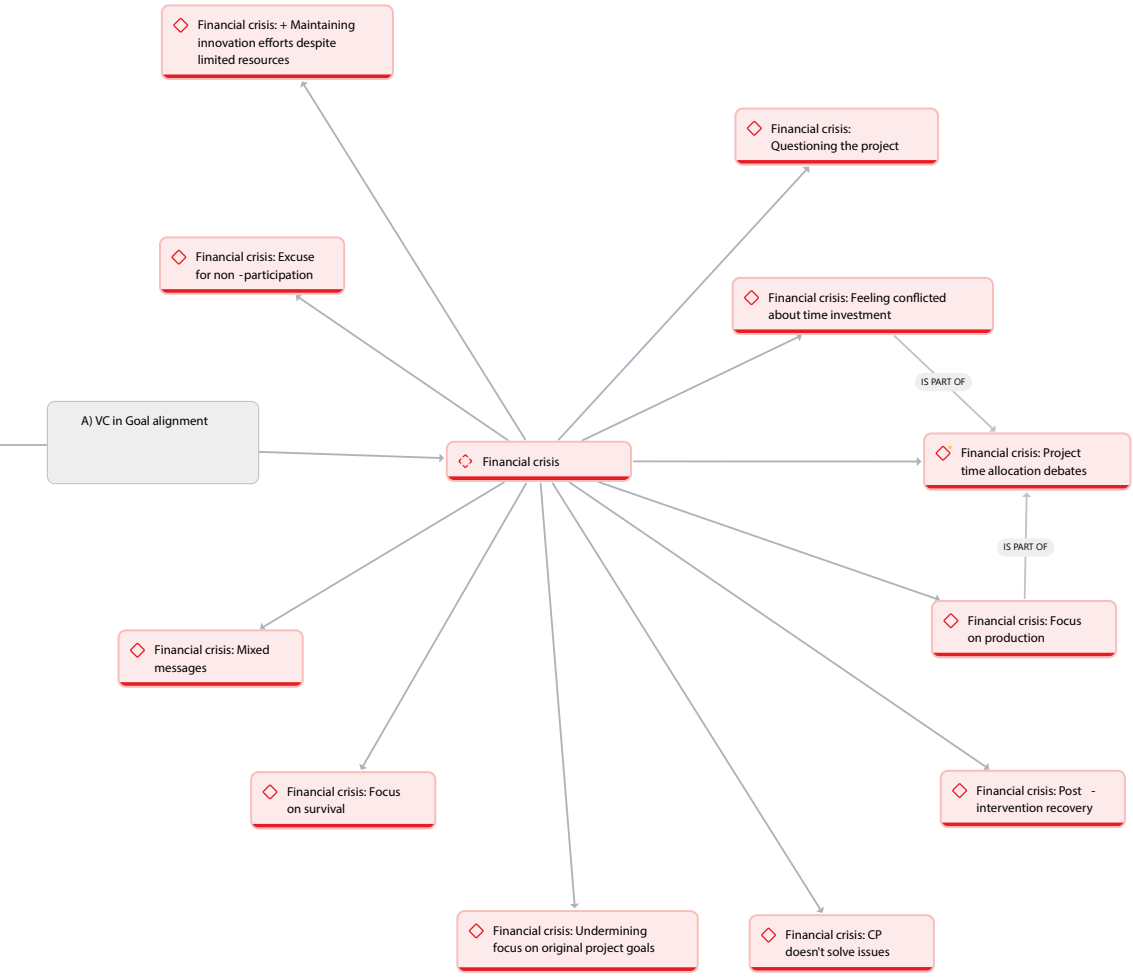
Dutch version	English version
1. Wat heb je / hebben jullie nodig om de doorontwikkeling van het zorgpad gaande te houden? 2. Wat is naar jouw idee nodig om als persoon en als team de motivatie te houden hiervoor? 3. Wat heeft in het verleden naar jouw idee goed of juist niet goed gewerkt als het gaat om het doorzetten van de beweging die in gang is gezet? 4. Kun je een voorbeeld noemen van een verandering of project dat is afgemaakt? En hoe is dat toen aangepakt? Wat maakte dat het werkte? 5. Is er nog iets dat je zou willen meegeven aan de groep van 28 maart?	1. What do you (or your team) need to sustain the ongoing development of the care pathway? 2. In your view, what is needed to maintain motivation, both individually and collectively, to continue this work? 3. Reflecting on the process; what has facilitated or hindered the sustained momentum of the initiated changes? 4. Can you give an example of a successfully completed change or project How was it approached, and what factors or actors contributed to its success? 5. Is there anything you would like to share with the group meeting on 28 March?

RO_04B_20230417

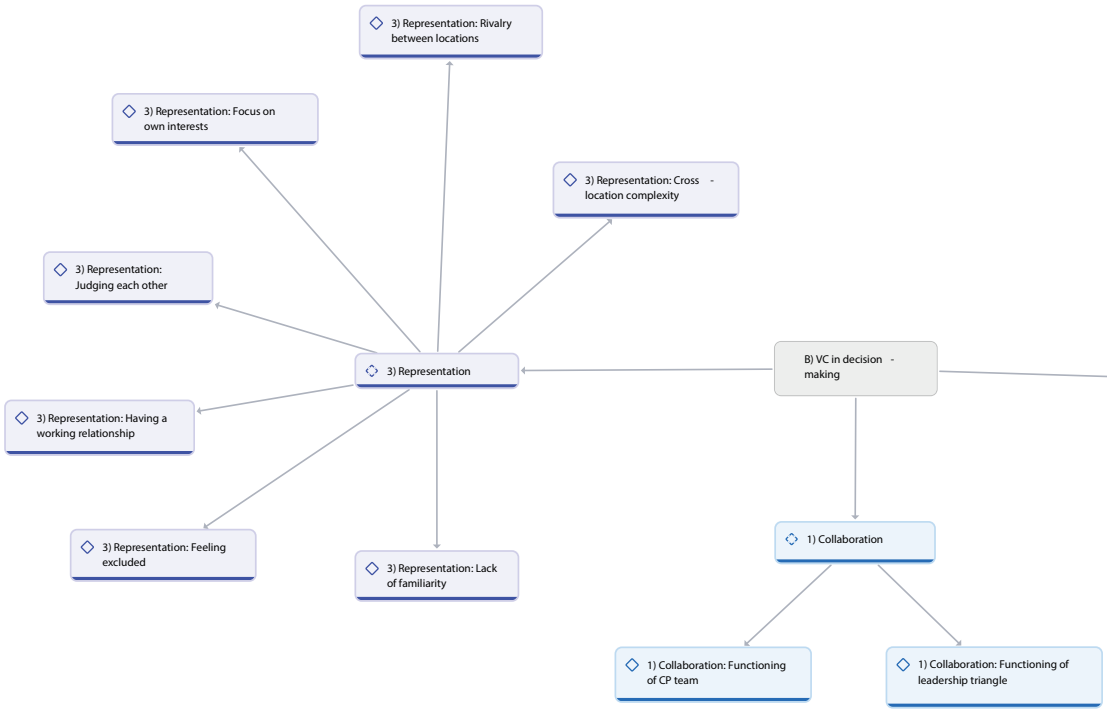
Dutch version	English version
1. Hoe kijk jij terug op het project van afgelopen twee jaar en hoe de opdracht is opgepakt? 2. Hoe kijk jij terug op de samenwerking met de universiteit? 3. Hoe heb jij de inzet van MV als projectleider en actieonderzoeker ervaren? 4. Wat ik verder nog kwijt wil, is...	1. Looking back, how do you reflect on the project over the past two years and the way the assignment was taken up? 2. How do you evaluate the collaboration with the university? 3. How did you experience MV's role as project leader and action researcher? 4. Is there anything else you would like to add or share?

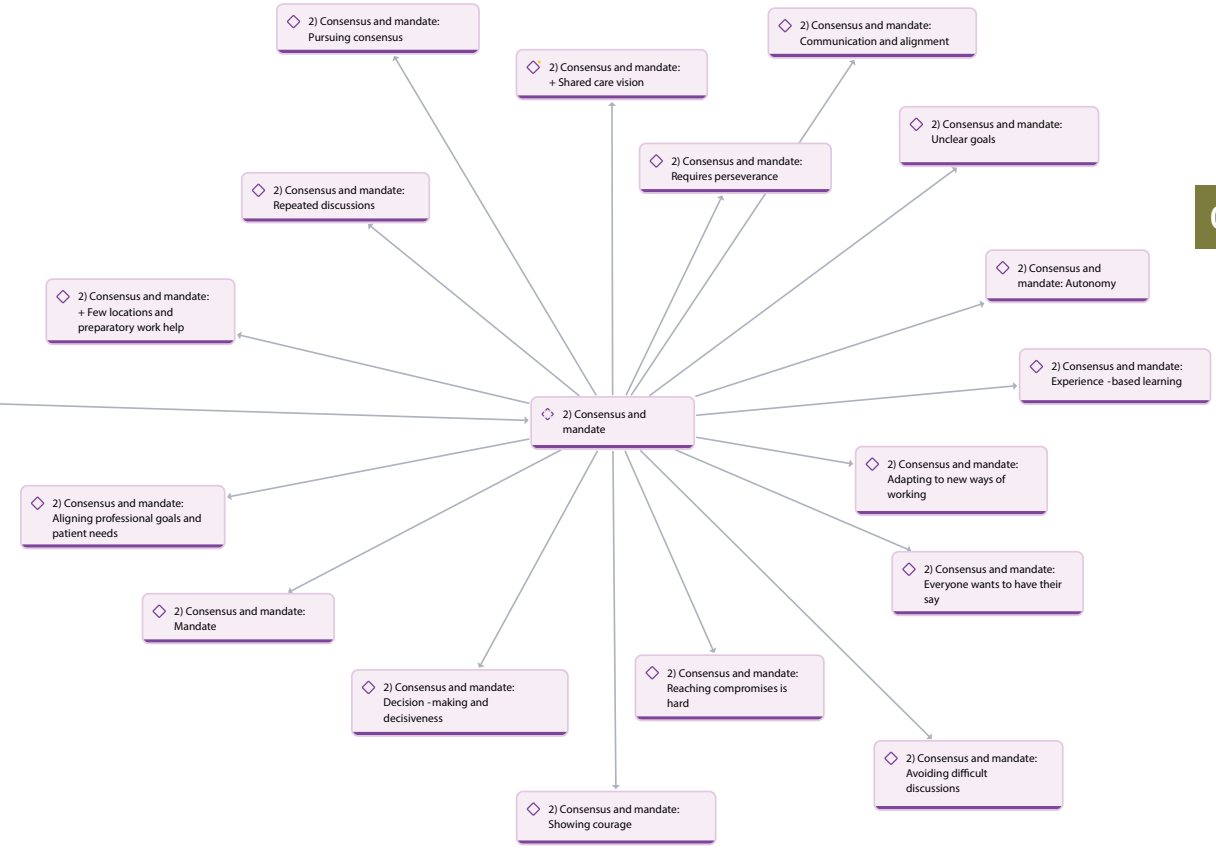
5.8.3 Code network goal alignment




Financial crisis: + Maintaining innovation efforts despite limited resources
Financial crisis: Questioning the project
Financial crisis: Excuse for non -participation
Financial crisis: Feeling conflicted about time investment
IS PART OF
A) VC in Goal alignment
Financial crisis
Financial crisis: Project time allocation debates
IS PART OF
Financial crisis: Focus on production
Financial crisis: Mixed messages
Financial crisis: Focus on survival
Financial crisis: Post - intervention recovery
Financial crisis: Undermining focus on original project goals
Financial crisis: CP doesn't solve issues

5.8.4 Code network decision-making




2) Consensus and mandate: Pursuing consensus
2) Consensus and mandate: + Shared care vision
2) Consensus and mandate: Communication and alignment
2) Consensus and mandate: Unclear goals
2) Consensus and mandate: Requires perseverance
2) Consensus and mandate: Repeated discussions
2) Consensus and mandate: Autonomy
2) Consensus and mandate: + Few locations and preparatory work help
2) Consensus and mandate: Experience -based learning
2) Consensus and mandate
2) Consensus and mandate: Adapting to new ways of working
2) Consensus and mandate: Aligning professional goals and patient needs
2) Consensus and mandate: Everyone wants to have their say
2) Consensus and mandate: Mandate
2) Consensus and mandate: Decision -making and decisiveness
2) Consensus and mandate: Reaching compromises is hard
2) Consensus and mandate: Avoiding difficult discussions
2) Consensus and mandate: Showing courage



Chapter 6

General discussion

6.1 Introduction

Healthcare organisations increasingly use care pathway development as a strategy for value-based quality improvement, aiming to improve patient outcomes while managing growing pressures related to rising care demand, workforce shortages and financial sustainability [1–13]. However, care pathway development takes place in dynamic organisational contexts characterised by ongoing change, uncertainty and interdependencies across professional, organisational and system levels [14–17]. Although care pathways are widely implemented, empirical insight into how actors navigate this complexity in everyday development practice remains limited.

This General Discussion synthesises the dissertation findings and considers their implications for care pathway development, value-based quality improvement and action research. Building on a complexity-informed perspective that underpins the dissertation, this chapter moves beyond the individual empirical studies to develop an understanding of how different layers of complexity in a dynamic organisational context shape the process of care pathway development. This synthesis provides the basis for addressing the central research question:

> **How can the complexity of care pathway development in dynamic organisational context be understood and navigated?**

Building on the four layers of complexity introduced in the General Introduction, the discussion integrates insights from the empirical chapters to develop an understanding of how actors engage with and navigate complexity in care pathway development. The four heuristic layers of complexity capture: the *structural layer*, concerning complexity arising from programme-level structures that guide care pathway development; the *interactional layer*, concerning complexity arising from boundary dynamics and multidisciplinary collaboration; the *interpretive layer*, concerning complexity arising from the language, narratives and interpretive frames through which actors construct meaning in development; and the *normative layer*, concerning complexity arising from coexisting and competing values that shape decisions and priorities (see Table 6.1).

Table 6.1: The four heuristic layers of complexity in care pathway development

Layer	Concerns complexity arising from
Structural	programme-level coordination and organisational conditions
Interactional	boundary dynamics and multidisciplinary collaboration
Interpretive	language, narratives and interpretive frames shaping how actors construct meaning
Normative	coexisting and competing values that shape decisions and priorities

Section 6.2 provides a cross-chapter synthesis of the main findings along the four complexity layers. Section 6.3 then develops a complexity-informed approach to care pathway development, examining how complexity is constitutive of development, how reflective and adaptive cycles enable actors to engage with it, how such ways of working can be organised in practice, and what this implies for practitioners and future research. Section 6.4 offers methodological reflections and Section 6.5 concludes the chapter.

6.2 Main findings

Across the empirical studies embedded in the overarching action research, care pathway development appeared as a process characterised by ongoing adjustment in response to emerging issues, shifting priorities and contextual dynamics. The four heuristic layers of complexity introduced in the General Introduction provided a lens for synthesising and making visible how the structural, interactional, interpretive and normative layers of complexity jointly shaped care pathway development in the conducted research. Taken together, the findings show that care pathway development cannot be managed as a linear activity but requires the ongoing navigation of what this dissertation identifies as four interacting layers of complexity.

6.2.1 Structural layer of complexity – programme complexity

The structural layer of complexity captures how care pathway development is shaped by ongoing adjustments to the design of the care pathway development programme and the organisational and facilitative structures that support teams in developing their pathways, such as programme coordination and governance mechanisms, collaborative meeting structures and expert support. In the empirical context of this dissertation, care pathway development involved the coordinated organisation of multiple pathway trajectories (i.e., several teams developing different pathways in parallel) through shared programme principles, meeting structures, support roles and governance arrangements (e.g., decision-making authority, accountability mechanisms and escalation routes). These programme structures were continuously adjusted in response to organisational dynamics, team differences and emerging insights during the development process.

This programme-level manifestation of the structural layer is most explicitly examined in Chapter 2. The analysis showed that programme complexity arose from the need to continuously align a principle-based programme design with the realities of everyday care pathway development work in a dynamic organisational context. These alignment tensions became visible in several programme challenges, such as aligning teams' progress and scope with the programme structure, balancing innovation with manageable change, working with limited organisational readiness for hybrid care, advancing outcome monitoring amidst dependency on expert support, developing distributed leadership and capabilities, and navigating the hybrid character of a programme that combines design-oriented and learning-oriented elements. Together, these challenges illustrated how programme structures provided direction and coherence while simultaneously requiring continuous adjustment in response to contextual change.

Programme complexity can also be traced, more indirectly, in two other chapters. It can be traced in Chapter 3, where it surfaced through the role of programme design choices in influencing boundary work dynamics within multidisciplinary teams. Decisions regarding team composition, the organisation of structured, collaborative meetings and the deployment of advisors (i.e., internal or contracted improvement facilitators, who manage the programme, structure meetings, support collaboration and create reflective spaces) functioned as programme-level interventions that enabled collaboration and supported progress.

Additionally, programme complexity can be traced in Chapter 5, where value tensions triggered adjustments in the design and direction of the care pathway development programme. Value tensions concerning care quality, feasibility, affordability and ownership, led programme actors to revise ambitions, re-prioritise activities or deliberately scale back certain elements of the programme. The findings therefore showed how programme complexity emerged through the ongoing need to realign the care pathway development programme with competing values in the organisational context.

In sum, these findings on the structural layer of complexity show that programme complexity arises from the need to continuously align programme-level design, governance arrangements and facilitative support structures with organisational dynamics, team differences and emerging insights during care pathway development. This structural layer therefore illustrates how programme structures simultaneously provide direction and coherence while requiring ongoing adaptation in dynamic organisational contexts.

6.2.2 Interactional layer of complexity – boundary complexity

The interactional layer of complexity captures how value-based quality improvement is shaped by ongoing boundary work between professional groups and diverse roles, influencing who participates, how decisions are made and how collaboration unfolds in practice. The empirical analysis revealed that as multidisciplinary teams engaged in care pathway development, professionals enacted boundary work in response to shifting collaboration demands and organisational conditions.

This layer is examined most explicitly in Chapter 3, focusing on how competitive, collaborative and configurative boundary work co-occurred and interacted in multidisciplinary teams. The findings showed that these three forms of boundary work rarely operated in isolation. Instead, their dynamic interplay influenced whether collaboration supported or hindered progress in value-based quality improvement. In particular, configurative boundary work, often enacted by advisors, created enabling structures and reflective spaces but also introduced dependency risks that could weaken sustainability and internal ownership of value-based quality improvement over time. These dynamics illustrated how interactional complexity emerged through the shifting boundary practices that shaped collaboration in multidisciplinary improvement teams.

Beyond this primary focus, interactional complexity also became visible in two other chapters. In Chapter 4, it surfaced through the discursive framing of patient and public involvement in care pathway development. Different discourses shaped how boundaries between professional expertise and experiential knowledge were drawn. Discourses that framed patients as equal partners in multidisciplinary collaboration softened boundaries and supported collaborative forms of boundary work. In these cases, experiential and professional knowledge were positioned as complementary, enabling patients to participate as legitimate contributors. In contrast, discourses emphasising professional expertise or required skills reinforced boundaries between professionals and patients, reflecting competitive boundary work. These discursive framings influenced how boundary work unfolded in multidisciplinary teams and shaped whether boundaries between professionals and patients were reinforced or softened in value-based quality improvement. These discursive boundary practices demonstrated how language shaped the interactional dynamics through which professionals negotiated the role of patients in value-based quality improvement.

Interactional complexity is further illustrated in Chapter 5, which showed that when tensions arose between values such as care quality, financial feasibility, efficiency and professional autonomy, professionals responded through boundary practices that either supported or hindered collaboration. In some situations, professionals retreated into their primary care roles and prioritised direct patient care over collective improvement work, reflecting competitive boundary work. At the same time, teams mobilised collaborative boundary work practices, such as reflective dialogue and relational investments across disciplines and locations, to make value conflicts manageable. In these situations, boundaries were deliberately bridged or renegotiated, illustrating how collaborative boundary work functioned as a practical response to value complexity in care pathway development and how interactional complexity unfolded in everyday multidisciplinary collaboration.

In sum, these findings show that boundary complexity arises through the boundary work that professionals enact as they renegotiate roles, expertise and responsibilities in multidisciplinary care pathway development. The interactional layer therefore highlights how the practices through which professionals create, maintain, bridge or renegotiate boundaries shape participation, decision-making and collaboration in value-based quality improvement.

6.2.3 Interpretive layer of complexity – discursive complexity

The interpretive layer of complexity takes the form of discursive complexity in this dissertation, capturing how care pathway development is shaped by processes of meaning-making through language, framing and interpretation. This layer is most explicitly examined in Chapter 4, focusing on four discourses through which healthcare professionals and managers made sense of patient and public involvement in care pathway development. These discourses can be summarised as follows: the patient-as-expert discourse, which positioned experiential knowledge as essential to pathway development; the skills-and-representation discourse, which emphasised required capabilities and representativeness as preconditions for meaningful involvement; the self-protection discourse, which highlighted professionals' perceived vulnerability and discomfort in exposing internal processes; and the professional-knows-best discourse, which prioritised professional judgement over patient partnership. Together, these discourses coexisted and at times competed, shaping whether, when and how patient and public involvement became feasible in practice and enabling and constraining actors' room for manoeuvre in relation to patient and public involvement in care pathway development.

Discursive complexity also became visible beyond the specific context of patient and public involvement. Chapter 5 shows how value tensions in care pathway development were articulated and negotiated through language. Rather than being named explicitly as normative conflicts, tensions between care quality, innovation and financial feasibility were expressed through metaphors and process-oriented framings, such as the contrast between a 'Rolls Royce' ambition and a 'Lada' budget, or references to limited time, energy or momentum. These forms of framing, by using specific language, made value tensions discussable without explicitly suggesting value conflicts.

In sum, these findings show that discursive complexity arises from the coexistence of multiple, sometimes competing, ways of interpreting key aspects of care pathway development, such as patient involvement, expertise and value priorities. The interpretive layer therefore highlights how language, framing and metaphor shape how actors understand improvement processes, make value tensions discussable and negotiate the possibilities for action in care pathway development.

6.2.4 Normative layer of complexity – value complexity

The normative layer of complexity, referred to as value complexity, captures how care pathway development is shaped by the coexistence of multiple, sometimes competing values that influence goal alignment and decision-making. Consequently, care pathway development is inherently value-sensitive. In practice, this means that teams continuously navigated tensions between different conceptions of care quality, innovation, efficiency and financial viability, as well as differing views on professional responsibility and autonomy. These tensions emerged not only from professional and individual perspectives but were also shaped by shifting organisational priorities and pressures operating both within teams and across organisational levels.

The normative complexity layer is most directly examined in Chapter 5, which shows how value complexity unfolded in a care pathway development programme through challenges in goal alignment and prolonged decision-making. The analysis showed how shifting organisational priorities, particularly increasing financial pressure, foregrounded some values while pushing others into the background. Tensions between care quality, innovation and financial viability shaped care pathway development trajectories, influencing decisions about ambitions, timelines, scope and resource allocation. Rather than being addressed as explicit value conflicts, these tensions were often managed through pragmatic considerations that led to adjustments. Chapter 5 further showed how teams scaled back ambitions, postponed decisions or slowed down development as value tensions intensified. Using Greenhalgh et al.'s rules of thumb as a reflective lens, the analysis showed how deliberation, small-scale experimentation and financial modelling enabled teams to move forward and make decisions despite persistent uncertainty and recurring value tensions.

In Chapter 4, normative assumptions can be traced in discourses on patient and public involvement. These discourses carried implicit judgements about what counted as desirable, responsible and feasible involvement, for example in relation to equality, professional self-protection, representativeness and professional authority over whether and how patients should be involved in care pathway development. Rather than being discussed as value conflicts, these assumptions shaped decisions about the timing, form and scope of patient and public involvement in care pathway development.

In Chapter 3, value complexity can also be traced indirectly through boundary work practices. Competitive boundary work reflected implicit value hierarchies in which direct patient care or professional autonomy was prioritised over collective improvement work. At the same time, collaborative and configurative boundary work showed how dialogical spaces and relational arrangements enabled teams to engage with value tensions without explicitly naming them as such. In this way, boundary work influenced how value tensions were translated into concrete collaboration patterns and development choices.

In Chapter 2, value complexity is least explicit but can be traced in the structural challenges where programme choices were intertwined with implicit normative judgements. These included decisions about how much uncertainty was acceptable, when ambitions needed to be scaled back, how assumptions about hybrid care were questioned, and how financial and outcome metrics were interpreted in relation to care quality within programme structures that guided and adjusted care pathway development over time.

In sum, value complexity becomes visible across the empirical chapters through the ways actors negotiate competing values in discourses, collaboration practices and programme decisions. This normative layer highlights how care pathway development involves ongoing navigation of legitimate but competing value priorities.

Taken together, the empirical chapters show that the four layers of complexity shaped care pathway development across programme and team levels, not only at specific moments. This insight underpins the complexity-informed approach to care pathway development presented in the next section.

6.3 Complexity-informed care pathway development: conceptual and practical considerations

Building on the empirical synthesis presented in Section 6.2, this section proposes a complexity-informed approach to care pathway development. Whereas Section 6.2 examined where and how the structural, interactional, interpretive and normative layers of complexity manifested across the empirical chapters, the present section shifts focus to the conceptual and practical implications of recognising complexity as inherent to care pathway development. It does so by examining what this recognition requires in terms of how care pathway development is understood and organised in practice. The argument underlying the proposed complexity-informed approach is developed in four steps. Section 6.3.1 elaborates why complexity is constitutive of care pathway development, thereby providing the conceptual foundation. Section 6.3.2 then explains how actors engage with complexity through recurring reflective and adaptive cycles, identified in this dissertation as the core mechanism through which development unfolds. Section 6.3.3 synthesises this conceptual argument into an integrated complexity-informed approach. Section 6.3.4 examines how such cyclical ways of working can be organised in practice, with attention to action research and action learning as enabling infrastructures. Finally, section 6.3.5 outlines the practical implications of this complexity-informed approach to care pathway development and identifies directions for future research.

6.3.1 The constitutive role of complexity in care pathway development

The findings presented in Section 6.2 show that care pathway development is inherently shaped by complexity. Structural, interactional, interpretive and normative layers of complexity emerge simultaneously, interact continuously, and shape development across programme and team levels. As a result, sustained progress depended not only on following predefined steps but also on reflective and adaptive practices that enabled actors to render the four layers of complexity workable in everyday care pathway development.

This finding resonates with complexity-informed theories of organisational change, which describe development processes as unfolding in what is sometimes referred to as the 'messy middle': periods characterised by interpretation, negotiation and recalibration rather than linear progression from intention to outcome [18–20]. The messy middle was visible across the empirical chapters, where periods of ambiguity, reconsideration and adjustment repeatedly preceded further development.

Especially in the messy middle, interpretive and normative complexity became visible in how teams navigated divergent assumptions, meanings and values. Rather than disappearing through consensus, these tensions were temporarily stabilised through framing, dialogue and reflective sensemaking, creating sufficient shared orientation to continue development without resolving the underlying differences. This aligns with Drori et al. [21], who show that rhetorical practices can mobilise collective action not by producing full agreement but by enabling workable, provisional alignments that allow actors to move forward despite remaining differences. Similar stabilising practices were visible in the interactional dynamics of multidisciplinary collaboration: both the collaborative boundary work enacted by multidisciplinary team members (e.g., using inclusive language and softening boundaries to enable collaboration) and the configurative boundary work performed by advisors (e.g., reframing challenges or structuring reflection) created spaces in which divergent perspectives could be negotiated in practice (Chapter 3). From this perspective, stabilisation of divergent interpretations and values should be understood not as a final resolution but as a provisional achievement that allows development to continue amid uncertainty. Such provisional stabilisation does not eliminate underlying tensions. Instead, surfacing implicit value tensions through reflective dialogue supported progress (Chapter 5), consistent with Oldenhof et al. [22] and Wehrens et al. [23], who emphasise that value tensions should be made explicit and actively engaged with rather than prematurely resolved.

Taken together, these empirical observations point to care pathway development as a dynamic, adaptive and relational process. This process unfolds within a specific organisational culture, which plausibly shapes, directly or indirectly, all four layers of complexity. For instance, exemplary leadership behaviour and cultural norms may influence how programme structures are adjusted and sustained over time (structural), how professionals collaborate and negotiate boundaries (interactional), how underlying beliefs and assumptions shape which interpretive frames prevail (interpretive) and how competing values are prioritised (normative). This understanding of care pathway development as a dynamic, adaptive and relational process aligns closely with insights from complexity thinking in healthcare improvement. Complexity thinking has received sustained attention and, since the early 2000s, it has increasingly informed healthcare improvement research [24–26]. A large body of literature commonly conceptualises healthcare organisations as complex adaptive systems [15,27–29]. Preiser et al.'s organising principles of complex adaptive systems [30] highlight that such systems are relational in nature, characterised by adaptive capacities, dynamic patterns of behaviour and contextual embeddedness. These principles mirror the empirical picture in this dissertation, where care pathway development repeatedly required programme adjustments in response to contextual dynamics at both organisational and team levels. From this perspective, improvement processes in complex healthcare systems cannot be understood as linear implementation of predefined solutions. Instead, they evolve through interactions between contextual conditions, social practices and emergent learning processes.

Despite this growing attention to complexity in health services research, scholars have noted a persistent gap between conceptual engagement with complexity and its practical operationalisation in improvement practice [24,25,31–33]. Reviews by Thompson et al. [32] and Rusoja et al. [31] show that the absence of a shared conceptual core contributes to inconsistent applications of complexity concepts and limited guidance on how complexity can be addressed in practice. According to Papoutsi et al. [33], efforts to pin down complexity conceptually or methodologically risk overlooking how researchers actually use complexity: they work with multiple meanings and use it as a flexible and reflective lens rather than a fixed theoretical framework. This observation resonates with the empirical findings in Chapter 3, where advisors and researchers engaged in configurative boundary work by structuring reflection, reframing challenges and facilitating dialogue within multidisciplinary teams. Through these practices, complexity was rendered workable in everyday care pathway development.

This gap is also evident in the field of care pathway development. The well-known care pathway development methods [34–37] provide a valuable structure and guidance for the design, implementation, and evaluation of care pathways. These methods emerged in an era of rationalisation and standardisation in which development was predominantly conceptualised as a phased, rational process centred on predefined objectives, planned interventions and measurable outcomes, as discussed in Chapter 1.

Over time, these methods have increasingly attempted to incorporate feedback, learning and context sensitivity. The recently developed Learning Care Pathways framework represents an explicit attempt to incorporate these insights, acknowledging complexity, feedback and learning, and offering structured guidance for care pathway development and scaling [38]. While such phased representations remain useful shared reference points, a complexity-informed perspective highlights that they risk oversimplifying dynamic development processes [15,17,27,28]. Even though these methods increasingly recognise the need for learning and adaptation, they continue to focus primarily on specifying what should be done, leaving the iterative alignment, negotiation and reflective adjustment work that sustains development under conditions of uncertainty largely implicit.

In contrast, the complexity-informed approach to care pathway development developed in this dissertation explicates how care pathway development unfolds under conditions of complexity: not only what should be done but how actors navigate structural, interactional, interpretive and normative

complexity over time through reflective and adaptive practices. In doing so, it responds directly to the gap identified above: by grounding the engagement with complexity in systematic empirical analysis across four interacting layers, this dissertation moves from conceptual recognition of complexity towards an operationalised complexity-informed approach to care pathway development. By showing how actors navigate these layers through reflective and adaptive practices, this approach bridges the gap between conceptual engagement with complexity and its operationalisation in healthcare improvement.

Taken together, these insights indicate that complexity is not incidental to care pathway development but constitutive of how development unfolds in practice. This means that it is not an external condition that complicates an otherwise manageable process but is inherent to development itself, shaping it from within. Complexity is therefore something that must be actively engaged with rather than eliminated. As care pathway development functions as a mechanism through which healthcare organisations pursue value-based quality improvement, this also shapes the conditions under which value-based quality improvement ambitions can be realised in practice. The following section examines how actors can navigate complexity in practice through recurring reflective and adaptive cycles.

6.3.2 Engaging with complexity through reflective and adaptive cycles

If complexity is constitutive of care pathway development, as argued in Section 6.3.1, the central question becomes how development work engages with this complexity as it unfolds. Within the complexity-informed approach to care pathway development proposed in this dissertation, this engagement takes the form of recurring reflective and adaptive cycles. Reflective cycles support sensemaking by examining how assumptions, framings and value judgements shape development in relation to structural, interactional, interpretive and normative complexity, while adaptive cycles translate these insights into concrete adjustments to development directions.

6.3.2.1 Reflective cycles: supporting dialogue and sensemaking

Reflective cycles focus on collective sensemaking by making structural, interactional, interpretive and normative complexity visible and discussable as development unfolds. Rather than aiming to resolve tensions, they surface the assumptions, framings and value judgements that shape development choices.

Across the empirical chapters, this dissertation shows that reflection should be positioned not as a separate evaluative stage but as an ongoing part of everyday development work (Chapters 2, 4, 5). This continuous positioning of reflection as part of the development approach aligns with perspectives that conceptualise reflection as inquiry into underlying assumptions rather than evaluation of outcomes alone, particularly under conditions of uncertainty and interdependence [39–41]. It also resonates with developmental evaluation, which treats evaluation as an integral part of ongoing development, supporting actors in navigating complexity while the object of development itself is still taking shape [42–48]. This stands in contrast to summative evaluation, which centres on retrospective assessment against predefined objectives and formative evaluation which aims to optimise a predefined intervention [49–52].

However, positioning reflection as central to care pathway development does not imply that predefined indicators or performance metrics, such as those emphasised in the Leuven Clinical Compass [53], become irrelevant. Rather, it raises the question of how such forms of steering information can be used within a reflective approach. Instead of serving as fixed benchmarks for success, indicators may function as inputs for reflection, supporting dialogue, interpretation and ongoing adjustment of development efforts under conditions of complexity. At the same time, it is worth recognising that such indicators may serve different purposes and reach different audiences within the same development programme. Rather than being the exclusive domain of management,

steering information can equally support multidisciplinary teams responsible for care pathway development in making value tensions explicit and discussable, opening space for the kind of dialogue and sensemaking that reflective cycles aim to facilitate.

In reflective cycles, actors make their underlying assumptions, routines and ways of interpreting situations explicit and open for dialogue. This process is not self-evident but requires deliberate facilitation, appropriate methods and the development of reflective competencies among participants [39,40,54]. This reflective work does not yet require changing these assumptions but creates the conditions for further inquiry and reconsideration [39–41,55]. In this conceptualisation, the four layers of complexity can be understood as reflective lenses for sensemaking during care pathway development. Rather than prescribing actions or solutions, these lenses provide orientation for reflection on how different forms of complexity shape development as it unfolds. Using complexity layers as reflective lenses aligns with literature on learning, sensemaking and reflectivity, which emphasises the importance of structuring reflection without reducing complexity to linear problem-solving [41,54,56–62].

Building on the use of the four layers as reflective lenses, reflective questioning supports collective sensemaking by helping actors engage with experiences generated during care pathway development, including the experimentation and adjustments through which these experiences emerge. In this study, reflective questioning supported teams in revisiting persistent challenges, such as role ambiguity, feasibility constraints and competing priorities, by examining the assumptions and expectations underlying these issues, rather than attempting to resolve them immediately. The four layers provide a shared orientation for dialogue to make sense of emerging situations, surface assumptions and value tensions, and orient subsequent action without prescribing solutions. To support the operationalisation of this form of reflective sensemaking in practice, Table 6.2 offers example reflective questions aligned with the four layers of complexity. These questions were not empirically tested during the action research but are proposed as orientation for reflective dialogue in care pathway development practice and invite further empirical exploration.

Reflection that does not translate into adjustments in development approaches risks remaining descriptive rather than consequential. As such, reflective cycles should not be understood as an end in themselves but as a necessary condition for adaptive cycles through which development is recalibrated.

6.3.2.2 Adaptive cycles: translating reflection into adaptive action

Within a complexity-informed approach, adaptive cycles conceptualise the translation of reflective insights into deliberate adjustments in development directions over time. The empirical analysis revealed how programme actors translated insights from reflective dialogue into concrete adjustments to programme design, collaboration practices and coordination arrangements, including revising the sequencing and content of collaborative meetings, adjusting facilitation and coaching approaches, modifying team composition, and clarifying leadership roles and mandates. This understanding aligns with action research and systems thinking perspectives, which emphasise change as iterative adjustment to context rather than as the execution of predefined implementation steps [63,64]. Table 6.2 offers example adaptations across the four complexity layers, drawing on but not limited to the empirical context of this dissertation, and proposed as orientation for practice inviting further empirical exploration.

At programme level, these adjustments involve revisiting and, when needed, adjusting the underlying assumptions and initial programme design choices surfaced during reflective cycles, thereby opening up the possibility to reconsider the priorities and directions that shape development [39–41,55]. This means that adaptation goes beyond fine-tuning actions and can include rethinking assumptions, priorities and value-related choices that shape how care pathway development is organised and supported. In this way, adaptive cycles both adjust development approaches and create new conditions for further reflection, thereby sustaining progress over time [62,65].

6.3.2.3 Learning: the interplay of reflection and adaptation in engaging with complexity

In complexity-informed care pathway development, the interplay between reflective and adaptive cycles constitutes the core mechanism through which complexity is engaged with in practice. As interconnected and mutually reinforcing processes, they operate in tandem: reflective cycles support sensemaking by surfacing assumptions, framings and value tensions as development unfolds, while adaptive cycles translate these insights into deliberate adjustments that, in turn, create new conditions for further reflection. Learning emerges through this iterative movement: each cycle of reflection informs adaptive adjustment, and each adjustment creates new conditions for further reflection. This iterative movement helps explain why particular tensions around roles, priorities and values did not disappear but were repeatedly revisited across the empirical chapters, and how engagement with these tensions supported sustained progress over time. This pattern was visible throughout the action research: recurring tensions around programme design, boundary dynamics, patient involvement and value priorities were not resolved but repeatedly surfaced and provisionally stabilised through successive cycles of reflection and adaptation.

The interplay between reflective and adaptive cycles enabled double-loop learning [39,40,55], which occurs when actors move beyond adjusting actions within existing frames to examining and revising the underlying assumptions and governing principles that shape their behaviour. The interplay between reflective and adaptive cycles made this possible: reflective cycles surfaced the assumptions, framings and value judgements shaping development, while adaptive cycles created conditions in which these could be reconsidered and revised. This was visible, for instance, when teams moved beyond adjusting the scope or pace of care pathway development to reconsidering whether their ambitions were financially viable at all, prompted by value tensions around care quality and affordability (Chapter 5), or when advisors used reframing and reflective questioning to help teams shift from asking who was responsible for recurring problems towards asking what could be learned from them (Chapter 3). Whether this extended to deutero learning, reflecting on and organising how actors engage in learning processes themselves [55], warrants further empirical exploration.

Figure 6.1 visualises this mechanism as a continuous back-and-forth between two interconnected cycles, with “Learning” positioned in the connective space between them rather than within either cycle separately. This positioning reflects the understanding that learning emerges through the ongoing movement between the cycles: reflective insights feed into adaptive adjustments, and these adjustments in turn open up new possibilities for further reflection. In doing so, this interplay and the learning it generates form the heart of the complexity-informed approach to care pathway development developed in this dissertation. How this dynamic unfolds in care pathway development and value-based quality improvement more broadly remains an important avenue for future research.

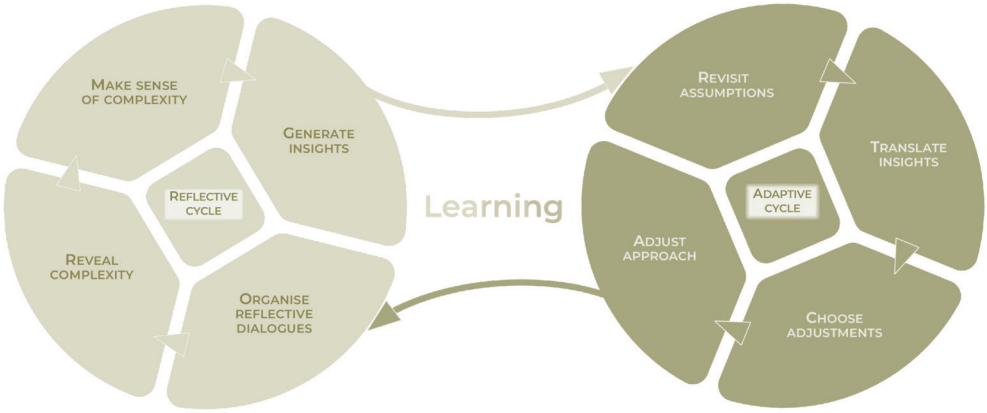


Figure 6.1: Interplay between reflective and adaptive cycles in complexity-informed care pathway development

6.3.3 Conceptual synthesis: the complexity-informed approach to care pathway development

The conceptual argument developed across Sections 6.3.1 and 6.3.2 can now be synthesised. Figure 6.2 visualises the complexity-informed approach to care pathway development as a whole. At its centre sits the care pathway development programme, visualised as a broadly phased, method-independent development process. This representation reflects the empirical finding that development does not follow a fixed sequence but unfolds through ongoing reconsideration and adjustment. No specific development steps are depicted, because the empirical studies showed that care pathway development cannot be adequately captured as a sequence of predefined phases: what teams needed to attend to, and how they needed to proceed, shifted continuously in response to emerging conditions.

Table 6.2: Reflective questions and adaptation examples per complexity layer

Complexity layer	Focus of reflection	Illustrative reflective questions	Adaptation examples
Structural	Examining how programme structures, pacing and support interact with organisational dynamics and team-level differences.	How is the current programme structure enabling or constraining teams' progress at this stage? Where do we see misalignment between planned development or improvement phases and what unfolds in practice? Which programme design choices (e.g., team composition, facilitation, external support) are influencing collaboration, ownership over time? Which dependencies (support, expertise, capacity) shape progress, and how manageable are these? Which structural tensions (e.g., between quality ambitions, feasibility, affordability or ownership) are driving programme adjustments, and are these trade-offs being made explicit? If not, how can they be addressed?	Adjusting pacing, sequencing or scope of the programme in response to for example uneven team readiness or organisational constraints. Temporarily reducing facilitation and support to strengthen ownership or temporarily increasing support during critical transitions. Revising timelines or milestones when unfolding work diverges from planned phases and teams' actual development progress.
Interactional	Exploring how roles, boundaries and interaction patterns shape participation, collaboration and decision-making.	Who is actively involved in discussions and decisions, and who is less visible? Where does collaboration depend on specific individuals, roles or actions, and does this create vulnerabilities or dependencies? What supports or hinders collaboration across roles or disciplines at this moment?	Reconfiguring team composition or meeting formats to rebalance participation and support collaboration and decision-making. Introducing or withdrawing facilitative roles to address interactional tensions. Creating alternative interaction spaces (small working groups, reflective dialogues) when plenary collaboration becomes constrained. Integrating the deliberate redistribution of agenda-setting and chairing roles (e.g., rotating facilitation or assigning co-chairs from different professional backgrounds) into meetings and collaborative exercises to actively bring a wider range of perspectives into the conversation.

Complexity layer	Focus of reflection	Illustrative reflective questions	Adaptation examples
Interpretive	Examining how framing, language and assumptions shape shared understanding and what becomes discussable and open for action.	Which assumptions about expertise, responsibility or feasibility are implicit in how this issue is discussed and the language we are using? How is the issue currently framed, and what does this framing make easier or harder to do? Which metaphors or narratives shape how progress, problems of priorities are interpreted? What alternative framings could be explored to create new space for action or dialogue?	Revising programme or care pathway goals when dominant narratives (e.g., linear progress, efficiency) limit what how teams interpret progress or failure. Introducing alternative metaphors or narratives to reframe stagnation of progress. Revising communication strategies by reframing key messages and introducing alternative perspectives (e.g., external speakers or experiential examples) to counter narrow or misleading interpretations.
Normative	Exploring how coexisting values (e.g., care quality, feasibility, affordability, autonomy) shape decisions and tensions.	Which values are guiding decisions at this moment, and which receive less attention? What value tensions (care quality – feasibility - affordability - autonomy) influence current choices? How are these tensions negotiated in practice and by whom? How are implicit trade-offs made and with what benefits or disadvantages for whom? How are these tensions managed in practice (e.g., postponing, scaling back, slowing development)?	Adjusting ambition, scope or success criteria in response to shifting organisational priorities. Slowing or pausing the programme to create space for value deliberation. Recalibrating priorities when tensions persist and progress risks stagnation. Clarifying at which level (team, programme, organisational) value-laden decisions should be made to avoid diffuse responsibility and ensure that value judgements are addressed at an appropriate level.

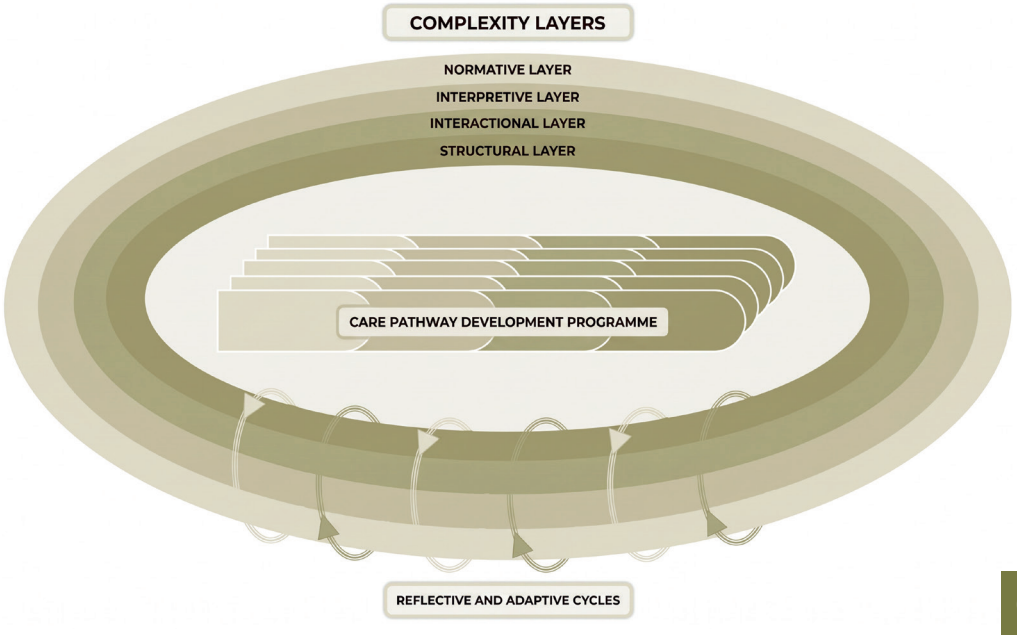


Figure 6.2: Complexity-informed approach to care pathway development

Surrounding this process are the four interacting layers of complexity introduced in Chapter 1 as a heuristic structure for organising the empirical insights of this dissertation. The structural layer captures how programme-level coordination, e.g., governance arrangements, team support structures and facilitative roles, required continuous adjustment as teams developed pathways in parallel. The interactional layer captures the boundary dynamics between professional groups and roles that shaped collaboration in multidisciplinary improvement work. The interpretive layer captures how divergent framings of concepts such as patient involvement shaped what actors saw as legitimate, feasible or desirable. The normative layer captures how competing values, e.g., care quality, efficiency, financial sustainability and professional autonomy, influenced goal alignment and decision-making throughout development. Their positioning as concentric rings around the development process reflects the central claim that these layers are constitutive of care pathway development: they are not incidental obstacles that complicate an otherwise straightforward process but are inherent to how development unfolds, shaping it from within, continuously and simultaneously. They cannot be resolved or eliminated: they can only be engaged with. Their relative salience varies; not all four will be equally prominent at every moment but all remain potentially relevant throughout.

The reflective and adaptive cycles, visualised as recurring loops running through all four layers, represent the mechanism through which actors engage with this complexity as development unfolds. These cycles operate at two interconnected levels: at programme level, they inform adjustments to governance arrangements, facilitative structures and programme design; at trajectory level, they inform adjustments to the work of individual care pathway teams as their pathways take shape. It is through this dual operation that reflective and adaptive cycles simultaneously shape the conditions under which development takes place and the development work itself, thereby sustaining learning across the programme as a whole. These cycles do not target individual layers in sequence. Rather, they operate across all four simultaneously, with the focus of reflection and adaptation shifting as different layers become salient. In each case, adaptive cycles translate the insights generated through reflection into adjustments, to programme structures, collaboration practices or development directions, creating new conditions for further reflection. It is through this ongoing interplay,

surfacing assumptions, translating insights into adjustments, and creating new conditions for further reflection, that learning is sustained and development progresses over time.

The following section builds on this conceptual foundation by shifting the focus from conceptualisation to practical and organisational application, examining how reflective, adaptive and complexity-informed ways of working can be structured and sustained in everyday care pathway development practice.

6.3.4 Enabling reflective and adaptive cycles: action research and action learning

Engaging with complexity in care pathway development has implications for how development work is organised in practice. Building on the complexity-informed approach to care pathway development in Section 6.3.3, this section focuses on how reflective and adaptive cycles can be organised and supported in practice. A related question concerns the organisational conditions under which such cycles can be sustained. Although empirical applications of complexity science in healthcare are increasing, these studies often rely on complexity primarily as a conceptual framing [24,25]. Churruca et al. [24] demonstrate that the literature is gradually moving towards more concrete understanding of complexity in healthcare, yet practice-oriented application remains relatively scarce. Similarly, Carroll et al. [25] argue that complexity-informed research in healthcare provides limited guidance on how complexity can be translated into actionable approaches for designing, implementing and evaluating improvement efforts. This section examines how action research and action learning can provide the enabling infrastructure for such cycles in practice.

This need for practice-oriented guidance is particularly pronounced when improvement initiatives grow in size, ambition and political contestation. Greenhalgh and Papoutsi [29] argue that as these increase, linear replication tends to struggle. They distinguish two complementary lenses to help explain why: ecological perspectives, which view change as an adaptive, emergent and interdependent process rather than as blueprint replication; and social practice perspectives, which foreground the social mechanisms, routines, professional beliefs and organisational forces that shape what people actually do in change processes. On this basis, they argue that the larger, more ambitious and more politically contested a change effort becomes, the more these perspectives should supplement, or replace, mechanical implementation logics. Similarly, Long [66] demonstrates how a pragmatic complexity approach requires redefining implementation success away from predefined outcomes and process fidelity to continual learning, adaptation and emergence. These insights resonate with the empirical studies in this dissertation, where development did not unfold through linear implementation of predefined models but through ongoing adjustment to contextual dynamics across structural, interactional, interpretive and normative complexity. These are precisely the conditions under which action research and action learning are most relevant.

Care pathway development takes place in dynamic organisational contexts characterised by uncertainty and interdependence, rendering predefined plans insufficient [15,27–29]. In such contexts, approaches are needed that enable learning, adjustment and responsiveness as development unfolds. Action research [58,61,67–69] and action learning [70–74] address this by organising development work as iterative processes of reflection and adjustment in response to emerging situations. Pragmatist traditions support this orientation by emphasising learning from action and responsiveness to context [66]. Building on this literature, this dissertation shows that organising reflective and adaptive cycles requires deliberately structuring opportunities for collective sensemaking and adjustment throughout the development process, rather than treating reflection as an ad hoc or evaluative activity. The empirical studies illustrate this in concrete terms: reflective meetings were organised at multiple moments throughout the care pathway development programme, creating recurring opportunities for teams and advisors to collectively examine emerging challenges, recalibrate priorities and adjust their development approach. This moves beyond existing care pathway development methods by showing not only that reflection needs to be structurally embedded but also what it needs to engage with, namely the four interacting layers of complexity that this dissertation identifies as constitutive of care pathway development.

From this perspective, organising reflective and adaptive cycles in practice involves creating conditions that support ongoing sensemaking and learning during care pathway development processes. Dialogue-based reflection has been described in the literature as a key mechanism through which actors collectively interpret situations, negotiate tensions and recalibrate priorities over time [39,54,58,62,71]. Across the empirical studies in this dissertation, such dialogue-based reflection functioned not merely as a supportive activity but as a structuring mechanism that made what this dissertation identifies as different layers of complexity explicit and discussable at specific moments in the development process. While action research and action learning provide the organisational infrastructure for this, this dissertation contributes a theoretically grounded account of what actors engage with when they reflect. It identifies the structural, interactional, interpretive and normative layers of complexity that actors engage with in practice, and around which reflective and adaptive cycles can be directed. This gives practitioners who wish to organise complexity-informed care pathway development a more specific orientation for reflection than the general action research literature provides.

Reflective and adaptive cycles are therefore not only iterative but also purposive: they require explicit development programme choices regarding when, how and with whom reflection is organised, and how insights are translated into subsequent action. Operationalising this complexity-informed approach requires care pathway development programmes that explicitly allow overlap, adjustment and learning during development. In this dissertation, cyclical development work refers to repeated cycles of collective reflection, the integration of scientific and experiential knowledge and the adjustment of the care pathway development approach over time. Figure 6.2 synthesises these insights by bringing together phased care pathway development, cyclical development work and layered complexity.

In the empirical studies underlying this dissertation, **action research** functioned as an enabling infrastructure for organising such cyclical ways of working. By explicitly connecting cycles of planning, action and reflection, action research creates conditions under which reflection, learning and adaptation can be embedded in everyday development practice, and legitimises programme adjustment and refinement as integral to development work [58,68,69]. This was evident empirically in facilitated dialogue sessions and reflective exercises, through which assumptions about care delivery, feasibility, professional roles and value priorities were repeatedly examined and renegotiated. Action research thereby supported the kind of ongoing reflective and adaptive development work that this dissertation conceptualises as a complexity-informed approach, enabling sustained adjustment rather than aiming for resolution.

However, action research is not always feasible or desirable. While action research aims to support change and learning in practice, it is fundamentally a form of scientific research that also pursues scientific knowledge generation [58,59,75–77]. As such, action research is subject to explicit quality criteria, including systematic data collection, formal data analysis and sustained reflexivity aimed at preventing 'going native' [61,67,78]. In addition, scientific knowledge is deliberately combined with experiential, practice-based knowledge to inform reflective analysis and subsequent cycles of action and learning [58,59,76,79].

These requirements place specific demands on the action researcher, including methodological and analytical expertise, extensive time investment, and the capacity to operate at the interface between research and practice. In addition, ensuring research quality typically requires ongoing scientific supervision by an experienced research team. Together, these requirements imply the need for sustained academic–practice collaboration as a supporting infrastructure for action research. However, such collaboration cannot be assumed to be available across all healthcare settings.

Establishing and sustaining such partnerships between universities, universities of applied sciences and healthcare organisations in the Netherlands requires dedicated infrastructures, which is not self-evident [80,81]. Research on knowledge translation and implementation further highlights persistent challenges in bridging research, policy and practice, pointing to the context-dependent nature of such collaborations [82]. Financial constraints may limit the funding of long-term research partnerships, and the time pressure under which organisations are often required to deliver change may be difficult to reconcile with the duration and intensity of rigorous action research. As a result, access to sustained academic–practice collaborations may vary across organisational contexts and cannot be assumed across all settings.

This raises an important practical question: how can reflective and adaptive ways of working be organised when scientific action research is not attainable? The principles of reflection, learning and adaptation central to the complexity-informed approach developed in this dissertation are not exclusive to scientific action research. They can also be enacted through **action learning** [70,72]: a practice-oriented approach that centres on collective questioning, reflection and cyclical adjustment in response to concrete challenges, without the scientific requirements associated with formal action research [61,67,70,72]. Unlike action research, action learning does not aim primarily at scientific knowledge generation; instead, its purpose is continuous improvement through action and collective learning [71,72,83]. As such, it functions as a lighter methodological infrastructure that preserves the core reflective-adaptive interplay [73,74]. This approach is therefore particularly relevant for care pathway development teams operating in contexts where sustained academic–practice collaboration is not available, as it allows the principles of reflection, learning and adaptation to be embedded in development practice without requiring a formal research infrastructure.

Taken together, working with reflective and adaptive cycles requires deliberate organisational choices about how development work is structured and supported. For practitioners seeking to operationalise a complexity-informed approach, this specifically includes (1) explicitly designing moments of collective reflection, (2) legitimising adaptation as part of programme governance, and (3) enabling the integration of scientific and experiential knowledge in ongoing decision-making. Further research may examine how different organisational contexts, resource conditions and governance arrangements enable or constrain the feasibility and sustainability of such reflective-adaptive ways of working.

Having outlined how complexity is constitutive of care pathway development and how it can be engaged with through recurring reflective and adaptive cycles, the following section examines what this complexity-informed approach implies for care pathway development practice across different levels.

6.3.5 Practical implications and directions for future research

Building on the conceptual approach and its translation into improvement practice, this section examines the implications of a complexity-informed approach to care pathway development. Specifically, it considers how these implications play out across different actors and levels of practice, and outlines directions for future research at each level.

6.3.5.1 Team level: care pathway development as reflective and dialogical practice

At team level, engaging with complexity implies that care pathway development becomes a reflective and dialogical practice embedded in everyday work. Multidisciplinary teams are positioned as active participants in collective sensemaking, interpreting emerging situations, negotiating boundaries and navigating value tensions as care pathway development unfolds. From this perspective, reflection becomes an integral developmental activity rather than a separate evaluative step. It enables team members to recognise and work with interactional, interpretive and normative complexity and to sustain progress through workable, provisional alignments rather than through tension resolution or

stable consensus. Such provisional alignments allow teams to move forward while keeping tensions open for reconsideration as circumstances evolve. Whether teams can sustain this reflective and dialogical practice depends, however, not only on team-level capacities but also on the programme conditions within which they operate. This dimension is addressed below. Further research could examine under what conditions multidisciplinary teams develop the capacity for reflective and dialogical practice in care pathway development, including what facilitation, team composition and organisational support enable this, and how this capacity relates to experienced progress, ownership and learning across different improvement contexts.

6.3.5.2 Programme level: organising conditions for reflective and adaptive cycles

At programme level, care pathway development is understood as the coordinated organisation of multiple pathway development trajectories through shared structures, principles, support roles and governance arrangements, such as decision-making authority, accountability structures and escalation mechanisms. It is at this level that the structural layer of complexity becomes most visible: the parallel development of multiple care pathways within a shared programme structure generates coordination demands that shape what is possible at team level. From this perspective, the complexity-informed approach challenges linear and control-oriented methods to care pathway development. Rather than steering teams along predefined trajectories, programmes need to create conditions that explicitly legitimise reflection and adaptation, even when this requires revisiting earlier decisions or temporarily slowing down progress [43,45,48]. Programme managers and advisors are therefore positioned not as owners of content or outcomes but as facilitators of reflective and adaptive cycles that help revisit assumptions, recalibrate priorities and adapt development approaches in response to emerging insights, both at programme- and team-level. Further research could examine what programme conditions, in terms of programme design, facilitation arrangements and decision-making structures, enable the complexity-informed approach to be sustained within organisational contexts that are predominantly governed by traditional accountability logics, fixed planning cycles and milestone-based governance. Such research might explore how the tension between iterative, emergence-oriented development work and organisational expectations of predefined timelines and measurable progress can be navigated in practice, and what forms of organisational legitimation are needed to protect the space for reflection and adaptation over time.

6.3.5.3 Organisational level: strategic orientation towards learning and adaptivity

At organisational level, engaging with complexity shifts care pathway development from being treated as a one-off project or standardised intervention to being understood as a strategic commitment to adaptive, learning-oriented improvement. This requires recognising uncertainty and the different layers of complexity as inherent features of improvement work, rather than as deviations from planned processes. Organisations therefore need improvement strategies and infrastructures that legitimise reflection, allow for adjustment over time and support sustained learning, without assuming predictability or fixed outcomes. A reflective and adaptive approach is thus not merely a methodological choice but a strategic one that shapes how organisations pursue improvement. Future research could investigate how organisations translate a strategic commitment to reflective-adaptive improvement into governance structures and performance management arrangements that legitimise this approach over time, particularly in contexts where existing accountability systems primarily reward short-term measurable outcomes, and whether such a strategic orientation contributes to more sustainable quality improvement over time.

6.3.5.4 Policy and funding level: creating enabling conditions for complexity-informed development

At the level of policy and funding, broader institutional arrangements form the contextual conditions that enable or constrain complexity-informed care pathway development. Development approaches grounded in action research or action learning typically require sustained engagement over time [58,59,75–78] and, as the overarching action research of this dissertation also illustrates, often involve multiple cycles of reflection and adaptation before meaningful progress can be achieved. However, many healthcare organisations operate under conditions of financial constraint, limited professional and support staff capacity and ongoing change pressure, which creates a sense of urgency that may favour short-term action and rapid implementation over reflective and learning-oriented improvement. This tension was also visible in the empirical context of this dissertation, where ambitions for improvement had to be balanced against limited time and capacity.

From this perspective, funding arrangements that facilitate long-term collaboration between healthcare organisations and universities or universities of applied sciences, and that reduce administrative and financial barriers to such partnerships, may help create conditions in which reflective and adaptive improvement approaches can be sustained. Policy design cannot eliminate complexity, but it can create enabling conditions. Time, continuity of academic-practice collaboration and relational stability are crucial for productive engagement with complexity in care pathway development and value-based quality improvement in general. Examples include multi-year funding arrangements, flexible deliverables, and embedded research roles that support sustained collaboration between care organisations and academic institutions. Future research could examine how policy and funding arrangements can stimulate the long-term academic-practice partnerships that make complexity-informed improvement through action research more feasible in practice, including what structural, financial and relational conditions support the initiation and sustainability of such partnerships across different healthcare contexts.

6.4 Methodological reflections: balancing in action research

This dissertation adopted action research as an overarching research methodology to study and support care pathway development in a complex organisational context. Action research was chosen because it enables the close integration of practice-based change, collective learning and scientific knowledge generation over time [58,59,68,69,75–77]. This alignment proved particularly relevant given the dynamic, uncertain and value-sensitive nature of care pathway development examined in this dissertation. In line with action research quality frameworks, this study attended to context, relationships, process and outcomes as interrelated dimensions shaping both knowledge generation and practice-based change [56,59,69,77].

In practice, this required continuous balancing between different roles and priorities. This section reflects on four concrete balancing challenges in this study: (1) balancing action and research, (2) balancing embeddedness and analytical distance, (3) balancing methodological rigour and practical relevance, and (4) balancing facilitation and research in the dual role of the lead researcher as both action researcher and programme lead within the care pathway development programme.

6.4.1 Balancing action and research over time

Across the dissertation, a research-follows-action strategy was adopted [59]. Action and learning during the care pathway development programme took precedence, while systematic analysis was conducted subsequently to identify broader patterns and generate scientific insight. At dissertation level, conceptual development followed sustained engagement with empirical material across the studies. This does not imply that research activities were absent during the action research programme. Rather, scientific knowledge was actively integrated throughout the action research cycles: relevant literature was discussed within the research team, methodological and theoretical perspectives were applied to emerging situations, and participatory observations were critically examined in regular research meetings during the two-year programme.

The research-follows-action strategy primarily shaped the timing of conceptual synthesis. The complexity-informed approach to care pathway development developed in this dissertation builds directly on the insights generated in the four empirical studies that form the core of the dissertation. In addition, the research-follows-action approach allowed research questions to emerge from empirical practice, enabling the study of dynamics that could not have been fully anticipated in advance.

In retrospect, a research-simultaneous-with-action orientation in which research questions are co-formulated with the participating organisation as the programme unfolds might have further strengthened the integration of research and action, for instance by enabling more targeted data collection as research questions developed over time. This was not the approach taken in this dissertation. The research-follows-action strategy nonetheless enabled sustained engagement with practice and supported the generation of scientific insights across the four empirical studies.

6.4.2 Balancing embeddedness and analytical distance

A methodological strength of this dissertation lies in the sustained embeddedness of the researcher within the organisational context. Prolonged engagement enabled close access to everyday development practices and supported sensitivity to informal dynamics, interdependencies and emerging constraints across teams and organisational levels. Because the researcher was involved over a longer period in programme coordination, team meetings and reflection sessions, it was possible to engage directly with development work as it unfolded. This embedded position allowed insights from one cycle of the care pathway development programme to inform adjustments in subsequent cycles, thereby supporting both learning and change over time.

The embedded and longitudinal nature of the action research generated rich process data that would have been difficult to capture through more episodic or externally positioned research designs. Sustained proximity enabled the identification of recurring patterns, balancing dynamics and adaptive responses across time. The study therefore centred on sustained, in-depth engagement with development dynamics as they unfolded in practice, with particular attention to how processes, meanings and interactions evolved over time. This orientation aligns with action research traditions, in which knowledge is co-produced through iterative involvement in practice [58,65,76].

At the same time, embeddedness required continuous balancing. As programme lead, the researcher facilitated reflection sessions, coordinated meetings and supported teams in navigating challenges. As researcher, these same processes required critical examination. Balancing these roles required continuous attention to when to contribute to development processes and when to step back to maintain sufficient analytical distance. Working at the interface of research and practice therefore required explicit safeguards. Research meetings were deliberately organised as moments to step back from day-to-day facilitation and to critically examine how interpretations were shaped by the researcher's position within the programme. Reflexive journaling and peer dialogue within the research team functioned as structured practices to question assumptions, surface blind spots and prevent over-identification with dominant organisational perspectives. In this way, reflexive safeguards strengthened the depth and credibility of the findings and helped mitigate the risk of 'going native', a well-recognised challenge in embedded research [78,84–87].

The empirical work was conducted primarily within a specialised rehabilitation hospital, which limits transferability. Because the study was situated in a single organisational context, findings are shaped by this specific setting. This limitation was mitigated by providing detailed descriptions of organisational context, programme design and development dynamics, allowing readers to assess relevance for other pathway development and quality improvement settings [58,85].

In addition, the longitudinal and relational character of the research, combined with the use of criterion sampling [88], shaped which perspectives were most prominently represented in the data. Repeated engagement with participants who were closely involved in the programme enabled deep insight into development processes but may also have amplified the perspectives of actors who were more consistently present.

6.4.3 Balancing methodological rigour and practical relevance

Methodological robustness was strengthened through multimethod data collection. Data source triangulation, investigator triangulation and research team discussions enhanced the contextual sensitivity and credibility of the findings [84,85]. These strategies supported the exploration of development dynamics across programme and team levels, while enabling sensitivity to contextual variation over time. They were deliberately used to balance close engagement with practice with systematic and transparent research procedures.

In this dissertation, it is important to distinguish between reflective practices within the programme and reflexivity within the research process itself. Reflective practices were organised through reflective conversations with team members, leadership triads and senior management, as well as facilitated reflection sessions at the end of each action research cycle in which the research team and organisational stakeholders jointly evaluated progress and identified targeted interventions. These practices supported collective learning and informed adjustments in subsequent action research cycles. In line with action research as a cyclical and change-oriented methodology [60,76], reflection functioned here as a driver of practical learning and iterative development.

By contrast, reflexivity within the research process was deliberately organised to safeguard the scientific research component of the programme and to support rigorous knowledge generation. Reflexivity is widely recognised as a key quality criterion in action research [56,60,61,67]. Drawing on action research quality frameworks that integrate personal, relational and conceptual forms of knowing [56,60], reflexivity in this study operated at three levels. At a personal level, the lead researcher engaged in reflexive journaling to examine how prior professional experience, assumptions and role positioning shaped engagement in the field and interpretation of empirical material. At an interpersonal level, research meetings functioned as dialogical spaces in which interpretations were critically discussed, differences in perspective were explored, and potential blind spots were surfaced. This relational reflexivity was particularly important given the dual role of programme lead and researcher. At a conceptual level, emerging interpretations were related to relevant theoretical and methodological perspectives. In line with reflexive qualitative practice [89,90], this involved recognising that findings were constructed through engagement with the data and theoretical lenses, rather than discovered as neutral representations of reality. Through this three-level reflexivity, insights generated in the programme were critically examined and functioned as a bridge between practical relevance and methodological rigour, ensuring that scientific knowledge could be generated.

Furthermore, action research deliberately integrates change, learning and scientific knowledge generation [58,59,69,75–77]. In practice, this requires balancing organisational priorities focused on timely, context-specific improvement with the need to safeguard space for systematic and theoretically-informed research work. Under conditions of time pressure, shifting priorities or limited research capacity, maintaining this balance can become challenging. There is a risk that action research is abandoned in response to perceived constraints in feasibility for practice, potentially marginalising the societal value of scientific knowledge generation and dissemination. Conversely, insufficient attention to practical constraints may undermine the sustainability of action research collaborations. Balancing methodological rigour and practical relevance therefore depends not only on individual researcher competence but also on organisational and institutional conditions that make such balancing possible.

Future research could examine what organisational and institutional arrangements enable action research to maintain methodological rigour under conditions of time pressure, shifting priorities and limited research capacity, for instance, how the threefold aim of change, learning and scientific knowledge generation can be made explicit and negotiated with practice partners from the outset, and what forms of academic supervision and embedded research support are feasible in different organisational contexts. This is particularly urgent given that the term action research is increasingly applied to practice improvement initiatives that do not meet the methodological criteria that define it as a scientific approach, which risks devaluing its scientific and societal credibility. Conceptual clarity about what distinguishes rigorous action research from practice-oriented learning cycles is essential. As argued in Section 6.3.4, when the full conditions for action research are not achievable, action learning offers a legitimate and distinct alternative that preserves the reflective-adaptive orientation without claiming scientific rigour it cannot deliver.

Finally, as with any research focus, choices were made that left other scientifically relevant factors unexamined, including organisational culture and organisational readiness for hybrid care. Organisational culture has been studied within healthcare quality improvement [91] and, more specifically, within value-based healthcare implementation [92], but was not systematically examined in this dissertation. Similarly, organisational readiness for hybrid care, identified as a barrier to digital implementation in the wider literature [93, 94] and raised in Chapter 2 as a possible explanation for limited progress, was not systematically studied. Future research could examine how such organisational and contextual factors shape engagement with the four layers of complexity, both in care pathway development and, more broadly, in value-based quality improvement. Future research could also examine whether and how such organisational and contextual factors enable or constrain the practical application of the reflective and adaptive approach presented in this dissertation.

6.4.4 Balancing facilitation and research

The dual role of programme lead and researcher was not only a methodological challenge but also a formative experience. What initially appeared to be a smooth process of care pathway development gradually revealed itself as a process of navigating complexity: balancing competing values, addressing uncertainties and adapting to dynamic organisational contexts. Over time, engagement with literature helped to recognise that what unfolded within this organisation reflected broader developments extending beyond this single setting. This experience shaped both the motivation for this dissertation and the lead researcher's development as an action researcher, learning to navigate the intersection of facilitation and research, and to engage reflexively with the organisational dynamics unfolding throughout the programme.

In this dissertation, facilitation and research were closely intertwined in daily practice. Acting as a facilitator of reflection and learning created opportunities for trust-building, relevance and practical impact. At the same time, it required explicit attention to how facilitation activities related to the scientific research component of the programme. This meant clarifying expectations with organisational partners about when the focus was on supporting development and when time and space were needed for research-related work. From a quality perspective, scholars such as Bradbury et al. [56,60], Coghlan and Shani [69] and Casey et al. [61] emphasise that robust action research depends on strong research–practice partnerships, high relational quality and sustained engagement. This dissertation reflects a relational and partnership-oriented understanding of action research, in which sustained collaboration enabled the joint exploration of emerging issues and the development of contextually grounded insights.

At the outset of the programme, the threefold aim of action research, encompassing change, learning and scientific knowledge generation, was not always discussed explicitly with all partners. In retrospect, it would have been helpful to revisit more explicitly, at several moments during the programme, how these three aims were being balanced in practice. Continuously revisiting and concretising these aims into shared sub-goals may strengthen the research-practice partnership and sustain alignment between organisational relevance and methodological rigour, particularly in contexts characterised by time pressure and competing demands [56,61]. Balancing facilitation and research therefore emerges not only as an individual responsibility of the action researcher but as a collective and relational accomplishment that is central to action research quality.



6.5 Conclusion

This dissertation positions complexity not as a contextual challenge to be managed but as constitutive of care pathway development itself. Rather than unfolding through linear implementation steps, care pathway development can be understood as a reflective and adaptive practice. Because complexity continuously shapes development processes in dynamic organisational contexts, care pathway development programmes should be deliberately organised to engage with and adapt to the ongoing interaction between multiple layers of complexity, rather than treating programme adjustment as incidental to development work. In this dissertation, this complexity is conceptualised as consisting of four interacting layers: structural, interactional, interpretive and normative. These layers simultaneously shape care pathway development (Table 6.1). Together, this dissertation synthesises them into a heuristic framework for understanding and navigating complexity in care pathway development. This complexity-informed framework suggests that value-based quality improvement is achieved not by reducing complexity, but by continuously navigating it throughout care pathway development.

The findings of this dissertation show that care pathway development unfolds through the continuous navigation of the four layers of complexity. A care pathway development programme is therefore best organised around reflective and adaptive cycles directed at these layers of complexity. Taken together, these findings suggest that progress in care pathway development depends less on strict adherence to predefined development steps and more on the capacity to organise such recurring cycles. Through these cycles, emerging challenges are collectively interpreted, assumptions are reconsidered, and development trajectories are adjusted in response to contextual dynamics. Figure 6.1 visualises the interplay between reflective and adaptive cycles as the core mechanism of this approach, while Figure 6.2 synthesises the complexity-informed approach to care pathway development as a whole, showing how a broadly phased development process is continuously shaped by the four layers of complexity and by the ongoing interplay between reflective and adaptive cycles.

This dissertation further demonstrates that action research functioned as a valuable enabling infrastructure for supporting and studying such processes in complex contexts. In this dissertation, it connected cycles of planning, action and reflection while allowing programme structures and development strategies to evolve over time. When organised as a long-term, embedded and reflexive collaboration, action research can effectively accommodate complexity through reflective and adaptive cycles and the learning that emerges through their interplay, while remaining closely connected to everyday development work. Sustained engagement with development practice, explicit attention to reflexivity and role positioning, and continuous balancing between supporting change and maintaining scientific distance were critical in shaping both the insights generated in this dissertation and the ways in which care pathway development was supported in practice. The findings equally underline that such intensive approaches depend on organisational commitment and long-term partnerships, which may limit their feasibility in some contexts.

Through this work, this dissertation contributes a theoretically grounded and empirically based complexity-informed approach to care pathway development that moves from conceptual recognition of complexity towards its operationalisation in practice, and offers both researchers and practitioners a framework for understanding and navigating the conditions under which care pathway development and, more broadly, value-based quality improvement actually unfolds.

6.6 References

[1] Daniels K, Rouppe van der Voort MBV, Biesma DH, Van der Nat PB. Five years' experience with value-based quality improvement teams: the key factors to a successful implementation in hospital care. BMC Health Serv Res 2022;22(1):1271. doi:10.1186/s12913-022-08563-5

[2] Steinmann G, Daniels K, Mieris F, Delnoij D, Van de Bovenkamp H, Van der Nat PB. Redesigning value-based hospital structures: a qualitative study on value-based health care in the Netherlands. BMC Health Serv Res 2022;22(1):1193. doi:10.1186/s12913-022-08564-4

[3] Van Engen V, Buljac-Samardzic M, Baatenburg de Jong R, Braithwaite J, Ahaus K, Den Hollander-Ardon M, et al. A decade of change towards value-based health care at a Dutch university hospital: a complexity-informed process study. Health Res Policy Syst 2024;22(1):94. doi:10.1186/s12961-024-01181-z

[4] Leusder M, Van Elten HJ, Ahaus K, Hilders CGJM, Van Santbrink EJP. Patient-level cost analysis of subfertility pathways in the Dutch healthcare system. Eur J Health Econ 2025;26(6):927–943. doi:10.1007/s10198-024-01744-5

[5] Leusder M, Relijveld S, Demirtas D, Emery J, Tew M, Gibbs P, et al. Toward value-based care using cost mining: cost aggregation and visualization across the entire colorectal cancer patient pathway. BMC Med Res Methodol 2024;24(1):321. doi:10.1186/s12874-024-02446-5

[6] Leusder M, Porte P, Ahaus K, Van Elten H. Cost measurement in value-based healthcare: a systematic review. BMJ Open 2022;12(12):e066568. doi:10.1136/bmjopen-2022-066568

[7] Cossio-Gil Y, Omara M, Watson C, Casey J, Chakhunashvili A, Gutiérrez-San Miguel M, et al. The roadmap for implementing value-based healthcare in European university hospitals—consensus report and recommendations. Value Health 2022;25(7):1148–1156. doi:10.1016/j.jval.2021.11.1355

[8] Koster F, Lopes Barreto D, Nair SC, Kok MR, Weel-Koenders AEAM. Defining the care delivery value chain and mapping the patient journey in rheumatoid arthritis. Rheumatol Int 2023;43(4):743–750. doi:10.1007/s00296-022-05215-z

[9] RIVM. Monitor Digitale Zorg 2025: stand van zaken digitale zorg in Nederland. Bilthoven: RIVM; 2026. doi:10.21945/RIVM-2025-0176

[10] Nederlandse Zorgautoriteit. Stand van de zorg 2024. Utrecht: Nederlandse Zorgautoriteit; 2024. Available from: https://puc.overheid.nl/nza/doc/PUC_775407_22/

[11] Rijksinstituut voor Volksgezondheid en Milieu. Volksgezondheid Toekomst Verkenning 2024: kiezen voor een gezonde toekomst. Bilthoven: Rijksinstituut voor Volksgezondheid en Milieu; 2024. doi:10.21945/rivm-2024-0110.

[12] OECD/European Commission. Health at a glance: Europe 2024 - state of health in the EU cycle. Paris: OECD Publishing; 2024. Available from: https://www.oecd.org/health/health-at-a-glance-europe/

[13] World Health Organization, United Nations Children's Fund (UNICEF). Global report on assistive technology: summary. Geneva: World Health Organization; 2022. Available from: https://www.who.int/publications/i/item/9789240049451

[14] Plsek PE, Greenhalgh T. Complexity science: the challenge of complexity in health care. BMJ 2001;323(7313):625–628. doi:10.1136/bmj.323.7313.625

[15] Braithwaite J, Churruca K, Long JC, Ellis LA, Herkes J. When complexity science meets implementation science: a theoretical and empirical analysis of systems change. BMC Med 2018;16(1):63. doi:10.1186/s12916-018-1057-z

[16] Greenhalgh T, Wherton J, Papoutsi C, Lynch J, Hughes G, A'Court C, et al. Analysing the role of complexity in explaining the fortunes of technology programmes: empirical application of the NASSS framework. BMC Med 2018;16(1):66. doi:10.1186/s12916-018-1050-4

[17] Cohn S, Clinch M, Bunn C, Stronge P. Entangled complexity: why complex interventions are just not complicated enough. J Health Serv Res Policy 2013;18(1):40–43. doi:10.1258/jhsrp.2012.012036

[18] Holliday B. The messy middle [Internet]. 2025 [cited 2026 Jan 12]. Available from: https://benholliday.com/2025/01/28/the-messy-middle/

[19] Wilcocks T. Messy middles [Internet]. LinkedIn; 2026 Jan [cited 2026 Jan 12]. Available from: https://www.linkedin.com/posts/tashwillcocks_facilitation-design-ucd-activity-7291898400654917632

[20] Bevan H. The messy middle of change [Internet]. LinkedIn; 2026 Jan [cited 2026 Jan 12]. Available from: https://www.linkedin.com/posts/helenbevanhealthcare_new-article-on-the-messy-middle-of-change-activity-7292613659111936000

[21] Drori I, Neumann K, Vaara E, Boersma K, Kyratsis Y, Santacreu-Vasut E, et al. Grand challenges and the rhetoric of collective action. Acad Manag Perspect 2025;39(1):7–21. doi:10.5465/amp.2024.0333

[22] Oldenhof L, Petit-Steeghs V, Wehrens R, Van Haperen S, Heerings M. Working with value complexity in healthcare. Qual Health Res 2025. doi:10.1177/10497323251330999

[23] Wehrens R, Oldenhof L, Heerings M, Petit-Steeghs V, Haperen Sv, Bal R, et al. Integrating system dynamics and action research: towards a consideration of normative complexity. Comment on "Insights gained from a re-analysis of five improvement cases in healthcare integrating system dynamics into action research". Int

J Health Policy Manag 2023;12:7582. doi:10.34172/ijhpm.2023.7582
[24] Churruca K, Pomare C, Ellis LA, Long JC, Braithwaite J. The influence of complexity: a bibliometric analysis of complexity science in healthcare. BMJ Open 2019;9(3):e027308. doi:0.1136/bmjopen-2018-027308
[25] Carroll Á, Collins C, McKenzie J, Stokes D, Darley A. Application of complexity theory in health and social care research: a scoping review. BMJ Open 2023;13(3):e069180. doi:10.1136/bmjopen-2022-069180
[26] Prigogine I. Exploring complexity. Eur J Oper Res 1987;30(2):97–103. doi:10.1016/0377-2217(87)90085-3
[27] Greenhalgh T, Papoutsi C. Studying complexity in health services research: desperately seeking an overdue paradigm shift. BMC Med 2018;16(1):95. doi:10.1186/s12916-018-1089-4
[28] Braithwaite J. Changing how we think about healthcare improvement. BMJ 2018;361:k2014. doi:10.1136/bmj.k2014
[29] Greenhalgh T, Papoutsi C. Spreading and scaling up innovation and improvement. BMJ 2019;365:l2068. doi:10.1136/bmj.l2068
[30] Preiser R, Biggs R, De Vos A, Folke C. Social-ecological systems as complex adaptive systems: organizing principles for advancing research methods and approaches. Ecol Soc 2018;23(4):46. doi:10.5751/ES-10558-230446
[31] Rusoja E, Haynie D, Sievers J, Mustafee N, Nelson F, Reynolds M, et al. Thinking about complexity in health: a systematic review of the key systems thinking and complexity ideas in health. J Eval Clin Pract 2018;24(3):600–606. doi:10.1111/jep.12856
[32] Thompson DS, Fazio X, Kustra E, Patrick L, Stanley D. Scoping review of complexity theory in health services research. BMC Health Serv Res 2016;16(1):87. doi:10.1186/s12913-016-1343-4
[33] Papoutsi C, Shaw J, Paparini S, Shaw S. We need to talk about complexity in health research: findings from a focused ethnography. Qual Health Res 2021;31(2):338–348. doi:10.1177/1049732320968779
[34] Aeyels D, Van der Veken L, Vanhaecht K. 7-fasenmodel voor de ontwikkeling, implementatie, evaluatie en continue opvolging van zorgpaden: uitdieping voor transmurale zorg. Leuven: Netwerk Klinische Paden – Leuvens Instituut voor Gezondheidszorgbeleid; 2016.
[35] Lodewijckx C, Decramer M, Sermeus W, Panella M, Deneckere S, Vanhaecht K. Eight-step method to build the clinical content of an evidence-based care pathway: the case for COPD exacerbation. Trials 2012;13(1):229. doi:10.1186/1745-6215-13-229
[36] Vanhaecht K, Eva VG, Deneckere S, Lodewijckx C, Janssen I, Van Zelm R, et al. The 7-phase method to design, implement and evaluate care pathways. Int J Pers Cent Med 2012;2(3):341. doi:10.5750/ijpcm.v2i3.247
[37] Flores EJ, Mull NK, Lavenberg JG, Mitchell MD, Leas BF, Williams A, et al. Using a 10-step framework to support the implementation of an evidence-based clinical pathways programme. BMJ Qual Saf 2018;28(6):476. doi:10.1136/bmjqs-2018-008454
[38] Gartner J, Lemaire C, Côté A. Learning care pathways framework: a new method to implement, learn, replicate, and scale up care pathways for and with the patient. Int J Health Policy Manag 2025;14:8517. doi:10.34172/ijhpm.8517
[39] Argyris C. Education for leading-learning. Organ Dyn 1993;21(3):5–17. doi:10.1016/0090-2616(93)90067-B
[40] Argyris C. Teaching smart people how to learn. Harv Bus Rev 1991;69(3):99–110.
[41] Argyris C. Action Science: Promoting learning for action and change. In: Argyris C, Putnam R, McLain Smith D, editors. Action science: concepts, methods, and skills for research and intervention. San Francisco: Jossey-Bass; 1985. p. 36–79.
[42] Patton MQ. Developmental evaluation. Eval Pract 1994;15(3):311–319.
[43] Bailie J, Laycock AF, Peiris D, Bainbridge RG, Matthews V, Cunningham FC, et al. Using developmental evaluation to enhance continuous reflection, learning and adaptation of an innovation platform in Australian Indigenous primary healthcare. Health Res Policy Syst 2020;18(1):45. doi:10.1186/s12961-020-00562-4
[44] Laycock A, Bailie J, Matthews V, Bailie R. Using developmental evaluation to support knowledge translation: reflections from a large-scale quality improvement project in Indigenous primary healthcare. Health Res Policy Syst 2019;17(1):70. doi:10.1186/s12961-019-0474-6
[45] Martens KR. Developmental Evaluation: Applying complexity concepts to enhance innovation and use [book review]. Can J Program Eval 2011;26(2):108–110.
[46] Patton M. Developmental evaluation. In: Pokorski J, Popis Z, Wyszyńska T, Hermann-Pawłowska K, editors. Theory-based evaluation in complex environments. Warsaw: Polish Agency for Enterprise Development; 2017. p.7–19.
[47] Patton MQ. Emergent developmental evaluation developments. J MultiDiscip Eval 2021;17(41):23–34. doi:10.56645/jmde.v17i41.699
[48] Patton MQ, Mckegg K, Wehipeihana N. State of the art and practice of developmental evaluation. In: Patton MQ, McKegg K, Wehipeihana N, editors. Developmental evaluation exemplars: principles in practice. New York: Guilford Press; 2015. p. 1–24.
[49] Scott VC, Alia K, Scaccia J, Ramaswamy R, Saha S, Leviton L, et al. Formative evaluation and

complex health improvement initiatives: a learning system to improve theory, implementation, support, and evaluation. Am J Eval 2020;41(1):89–106. doi:10.1177/1098214019868022
[50] Stetler CB, Legro MW, Wallace CM, Bowman C, Guihan M, Hagedorn H, et al. The role of formative evaluation in implementation research and the QUERI Experience. J Gen Intern Med 2006;21:S1–S8. doi:10.1111/j.1525-1497.2006.00355.x
[51] Elwy AR, Wasan AD, Gillman AG, Johnston KL, Dodds N, Mcfarland C, et al. Using formative evaluation methods to improve clinical implementation efforts: description and an example. Psychiatry Research 2019;283:112532. doi:10.1016/j.psychres.2019.112532
[52] Smith ME, Brandenburg DC. Summative evaluation. Perform Improv Q 1991;4(2):35–58.
[53] Vanhaecht K, Sermeus W. The Leuven Clinical Pathway Compass. Int J Care Pathw 2003;7(1):2–7. doi:10.1177/147322970300700102
[54] Weick KE, Sutcliffe KM, Obstfeld D. Organizing and the process of sensemaking. Organ Sci 2005;16(4):409–421. doi:10.1287/orsc.1050.0133
[55] Ruijters MPC. Donald Schön en Chris Argyris: double-loop learning. In: Ruijters MPC, Simons PRJ, editors. Canon van het leren: 50 concepten en hun grondleggers. Deventer: Kluwer; 2012. p. 197–210.
[56] Bradbury H, Glenzer K, Ku B, Columbia D, Kjellström S, Aragón AO, et al. What is good action research: quality choice points with a refreshed urgency. Action Res 2019;17(1):14–18. doi:10.1177/1476750319835607
[57] Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care 2007;19(6):349–357. doi:10.1093/intqhc/mzm042
[58] Coghlan D, Brannick T. Doing action research in your own organization. 5th ed. London: Sage; 2019.
[59] Zandee DP, Coghlan D. Action research for impact in addressing the grand challenges. Strateg Organ 2025;23(1):147–161. doi:10.1177/14761270241270913
[60] Bradbury H, Glenzer K, Apgar M, Embury DC, Friedman V, Kjellström S, et al. Action Research Journal's seven quality choice points for action oriented research for transformations. Action Res 2020;18(1):3–6. doi:10.1177/1476750320904562
[61] Casey M, Coghlan D, Carroll Á, Stokes D. Towards a checklist for improving action research quality in healthcare contexts. Syst Pract Action Res 2023;36(6):923–934. doi:10.1007/s11213-023-09635-1
[62] Fazey I, Schäpke N, Caniglia G, Patterson J, Hultman J, Van Mierlo B, et al. Ten essentials for action-oriented and second-order energy transitions, transformations and climate change research. Energy Res Soc Sci 2018;40:54–70. doi:10.1016/j.erss.2017.11.026
[63] Burns D. Systemic action research: changing system dynamics to support sustainable change. Action Res 2014;12(1):3–18. doi:10.1177/1476750313513910
[64] Dick B. Reflections on the SAGE encyclopedia of action research and what it says about action research and its methodologies. Action Res 2015;13(4):431–444. doi:10.1177/1476750315573593
[65] Bradbury H, Reason P. Action research. Qual Soc Work 2003;2(2):155–175. doi:10.1177/1473325003002002003
[66] Long KM, McDermott F, Meadows GN. Being pragmatic about healthcare complexity: our experiences applying complexity theory and pragmatism to health services research. BMC Med 2018;16:94. doi:10.1186/s12916-018-1087-6
[67] Casey M, Carroll Á, Coghlan D, Stokes D. Appraising quality in action research in healthcare settings. Int J Action Res 2024;20(1):27–49. doi:10.3224/ijar.v20i1.04
[68] Coghlan D, Shani AB. Components of action research. In: Coghlan D, Shani AB, editors. Conducting action research for business and management students. London: SAGE; 2018. Chapter 3. doi:10.4135/9781529716566
[69] Coghlan D, Shani AB. Introducing action research. In: Coghlan D, Shani AB, editors. Conducting action research for business and management students. London: SAGE; 2018. Chapter 1. doi:10.4135/9781529716566
[70] Revans RW. What is action learning? J Manag Dev 1982;1(3):64–75. doi:10.1108/eb051529
[71] Pedler M. Action learning in practice. 4th ed. Farnham: Gower Pub; 2011.
[72] Pedler M, Burgoyne J. Action learning. In: Bradbury H, editors. The SAGE handbook of action research. London: SAGE; 2015. Chapter 21. doi:10.4135/9781848607934.n29
[73] Revans R. The characteristic assumptions of action learning. In: The ABC of action learning. Farnham: Gower Publishing, Ltd; 2011. p. 1–15.
[74] Revans R. The philosophy of action learning. In: The ABC of action learning. Farnham: Gower Publishing, Ltd; 2011. p. 63–76.
[75] Casey M, Coghlan D, Carroll Á, Stokes D, Roberts K, Hynes G. Application of action research in the field of healthcare: a scoping review protocol. HRB Open Res 2021;4:46. doi:10.12688/hrbopenres.13276.2
[76] Coghlan D. Action research as the social science of change and changing. In: Burnes B, Hughes M, editors. Handbook of research methods in organizational change. Cheltenham (UK): Edward Elgar Publishing; 2023. p. 19–46.
[77] Coghlan D, Shani AB. Creating action research quality in organization development: rigorous, reflective and relevant. Syst Pract Action Res 2014;27(6):523–536.

doi:10.1007/s11213-013-9311-y
[78] Tresch J. On Going Native: Thomas Kuhn and anthropological method. Philos Soc Sci 2001;31(3):302–322. doi:10.1177/004839310103100302
[79] Coghlan D, Shani AB, Coughlan P. Enhancing the quality of project management through action research. Int J Manag Proj Bus 2023;16(1):9–21. doi:10.1108/IJMPB-10-2021-0291
[80] Wehrens R, Bekker M, Bal R. Dutch academic collaborative centres for public health: development through time - issues, dilemmas and coping strategies. Evid Policy 2012;8(2):149–170. doi:10.1332/174426412X640063
[81] Lomas J. The in-between world of knowledge brokering. BMJ 2007;334(7585):129–132. doi:10.1136/bmj.39038.593380.ae
[82] Garretsen H, Van de Goor I, Van de Mheen D. Dutch experiences in new partnerships between science and practice in health promotion: toward a fourth-generation university. Health Promot Int 2023;38(4):daab194. doi:10.1093/heapro/daab194
[83] Coghlan D, Rigg C. Action learning as praxis in learning and changing. In: Shani ABR, Pasmore WA, Woodman RW, editors. Research in organizational change and development. Bingley: Emerald Group Publishing Ltd; 2012. p. 59–89.
[84] Mortelmans D. Handboek kwalitatieve onderzoeksmethoden. 3rd ed. Leuven: Acco; 2020.
[85] Green J, Thorogood N. Qualitative methods for health research. 4th ed. Los Angeles: SAGE; 2018.
[86] Fuller D. Part of the action, or 'going native'? Learning to cope with the 'politics of integration'. Area 1999;31(3):221–227. doi:10.1111/j.1475-4762.1999.tb00086.x
[87] Kanuha VK. "Being" native versus "going native": Conducting social work research as an insider. Soc Work 2000;45(5):439–447. doi:10.1093/sw/45.5.439
[88] Schreier M. Sampling and generalization. In: Flick U, editor. The SAGE handbook of qualitative data collection. 1st ed. London: SAGE Publications Ltd; 2018. Chapter 6. doi:10.4135/9781526416070.n6
[89] Braun V, Clarke V. Toward good practice in thematic analysis: avoiding common problems and be(com)ing a knowing researcher. Int J Transgend Health 2023;24(1):1–6. doi:10.1080/26895269.2022.2129597
[90] Braun V, Clarke V. Reflecting on reflexive thematic analysis. Qual Res Sport Exerc Health 2019;11(4):589–597. doi:10.1080/2159676X.2019.1628806
[91] Mannion R, Davies H. Understanding organisational culture for healthcare quality improvement. BMJ 2018;363:k4907. doi:10.1136/bmj.k4907
[92] De Mattia E, Angioletti C, D'Agostino M, Paoletti F, De Belvis AG. Moving from principles to practice: a scoping review of value-based healthcare (VBHC) implementation strategies. Healthcare (Basel) 2024;12(23):2457. doi:10.3390/healthcare12232457
[93] Alotaibi N, Wilson CB, Traynor M. Enhancing digital readiness and capability in healthcare: a systematic review of interventions, barriers, and facilitators. BMC Health Serv Res 2025;25(1):500–15. doi:10.1186/s12913-025-12663-3
[94] Schreiweis B, Pobiruchin M, Strotbaum V, Suleder J, Wiesner M, Bergh B. Barriers and facilitators to the implementation of eHealth services: systematic literature analysis. J Med Internet Res 2019;21(11):e14197–e14197. doi:10.2196/14197



Summary

Background and conceptual framing of the dissertation

Healthcare organisations face the challenge of improving patient outcomes while managing rising costs, workforce pressures and growing organisational complexity. In this context, care pathway development and value-based healthcare have increasingly converged as complementary strategies for organising, improving and evaluating care. Within value-based healthcare, care pathway development has emerged as a central strategy to organise care around patients' needs, outcomes and resource use. However, widely used care pathway development methods often assume relatively stable contexts and relatively linear implementation processes, offering limited guidance on how multidisciplinary teams navigate value tensions, boundary dynamics and contextual change in everyday development practice. This dissertation argues that complexity is not an external challenge to care pathway development but constitutive of how development itself unfolds.

This dissertation addresses this gap by examining how care pathway development unfolds in dynamic organisational contexts characterised by interacting forms of complexity. Rather than studying individual pathways, the dissertation adopts a programme-level perspective in which multiple care pathways are developed in parallel within a shared programme structure. This perspective enables empirical insight into how value-based quality improvement unfolds through multidisciplinary collaboration over time.

The dissertation draws on a longitudinal action research programme conducted in a Dutch specialised rehabilitation hospital, in which multidisciplinary teams developed multiple care pathways in parallel. The programme combined care pathway development with recurring cycles of planning, action and reflection, enabling close examination of how pathway development unfolded over time.

The overarching aim of this dissertation is to examine how care pathway development unfolds in dynamic organisational contexts characterised by multiple, interacting forms of complexity and how such complexity can be navigated in practice. To this end, this dissertation retrospectively identifies four interconnected, heuristic layers of complexity, each illuminating a distinct dimension through which complexity in care pathway development becomes visible in practice:

- **a structural lay**er (programme complexity), focusing on the complexity that arises in organising and coordinating programmes for care pathway development at the programme level;
- a**n interactional lay**er (boundary complexity), focusing on the complexity that arises when multidisciplinary teams collaborate across professional and organisational boundaries;
- a**n interpretive lay**er (discursive complexity), focusing on how professionals' and managers' beliefs and discourses about patient and public involvement shape whether, when and how such involvement takes place in care pathway development;
- **a normative lay**er (value complexity), focusing on how tensions between multiple and sometimes competing values, such as care quality, efficiency, financial viability and professional autonomy, shape goal alignment and decision-making.

These four layers provide a heuristic framework constructed retrospectively to organise the empirical insights across the four studies and make visible different manifestations of complexity in care pathway development, across both programme and team levels.

The dissertation adopts a qualitative, interpretivist and complexity-informed perspective, grounded in health services research on care pathway development, quality improvement and value-based healthcare. Data were collected through prolonged engagement in practice, including participatory observations, reflective conversations, reflexive journals and programme documentation. This embedded design enabled the study of care pathway development as it unfolded in practice, capturing how cycles of planning, action and reflection were organised, how learning emerged over time and how development trajectories evolved in response to contextual dynamics.

By approaching care pathway development as a complex and adaptive practice rather than a linear implementation project, this dissertation contributes to understanding how care pathway development can be organised and sustained in dynamic healthcare settings.

Empirical findings across four layers of complexity

This dissertation examines care pathway development through four interconnected layers of complexity: structural, interactional, interpretive and normative. Each empirical chapter addresses one layer, together providing an integrated account of how care pathway development unfolds in dynamic organisational contexts.

The **structural complexity** layer is examined in Chapter 2, which studies how multiple care pathways were developed in parallel within a coordinated programme. The findings show that parallel pathway development generated recurring programme-level challenges. Principle-based programme structures provided direction and coherence while requiring ongoing adjustment in response to contextual change. Action research enabled phased implementation and continuous adaptation of the programme, supporting reflective learning while navigating tensions between programme structures and evolving organisational conditions.

The **interactional layer** is explored in Chapter 3, which examines how boundary work shaped multidisciplinary teams' value-based quality improvement efforts. Three forms of boundary work were identified: competitive, collaborative and configurative. Collaborative boundary work supported trust, shared decision-making and improvement progress, whereas competitive boundary work constrained engagement and slowed progress. Configurative boundary work, typically enacted by advisors, created enabling conditions for collaboration but also introduced dependency risks.

The **interpretive layer** is addressed in Chapter 4, which examines professionals' and managers' beliefs about patient and public involvement in care pathway development. The study identified distinct discursive repertoires that framed patient involvement as essential , conditionally valuable or problematic. These discourses shaped when, how and to what extent patients were involved. Beliefs about feasibility, representativeness, vulnerability and professional responsibility influenced the postponement, restriction or avoidance of involvement.

The **normative layer** is examined in Chapter 5, which explores how the coexistence of multiple and sometimes competing values shaped care pathway development. Tensions between care quality, efficiency, financial viability and professional autonomy influenced goal alignment and decision-making. These tensions were navigated through pragmatic adjustment, including reflective dialogue, small-scale experimentation and financial modelling that helped teams sustain progress despite recurring value tensions. Rather than resolving these tensions, teams arrived at provisional stabilisations, temporary, workable alignments that allowed development to continue without

requiring consensus or final resolution. These periods of negotiation and recalibration (what this dissertation refers to as the 'messy middle' of care pathway development) characterised the empirical process across all four studies.

A complexity-informed approach to care pathway development

Chapter 6 synthesises the empirical findings to develop a complexity-informed approach to care pathway development and addresses the overarching research question: how can the complexity of care pathway development in dynamic organisational contexts be understood and navigated? The synthesis positions complexity not as an obstacle to be reduced or controlled but as constitutive of care pathway development itself. Structural, interactional, interpretive and normative complexities emerge simultaneously and interact as development unfolds across programme and team levels.

Within this perspective, navigating these complexities requires recurring reflective and adaptive cycles that enable actors to engage with emerging forms of complexity over time as development unfolds. Reflective cycles support collective sensemaking by examining how assumptions, interpretations and value judgements shape development processes across the four layers of complexity. Through reflective dialogue, actors surface implicit assumptions, boundary dynamics and value tensions that influence development trajectories. Adaptive cycles translate these insights into adjustments to programme structures, facilitation strategies and development directions, such as revising programme pacing, redefining ambitions or restructuring collaboration arrangements.

Together, reflective and adaptive cycles constitute the central mechanism through which actors navigate complexity in care pathway development. As a result, development unfolds through ongoing cycles of sensemaking and adjustment rather than through predefined implementation steps. Organising such cycles requires structures that connect reflection and action over time. In this programme, action research provided such an enabling infrastructure by linking planning, action and reflection, while legitimising ongoing programme adjustment and collective learning. Where the conditions for action research are not available, action learning offers a legitimate and distinct alternative that preserves the reflective-adaptive orientation without claiming scientific rigour it cannot deliver.

Figure 6.1 visualises the interplay between reflective and adaptive cycles as the core mechanism of the approach. Figure 6.2 synthesises the complexity-informed approach as a whole, showing how a broadly phased, method-independent development process is continuously shaped by the four layers of complexity and by the ongoing interplay between reflective and adaptive cycles.

Contribution of the dissertation

This dissertation makes three interrelated contributions.

Theoretically, it advances understanding of care pathway development as a reflective and adaptive practice by arguing that complexity is constitutive of how development unfolds, shaped by interacting layers of complexity. It provides an empirically grounded conceptualisation of how actors involved in care pathway development navigate complexity across programme and team levels during value-based quality improvement. In addition, the dissertation develops a complexity-informed approach in which reflective and adaptive cycles constitute the central mechanism for engaging with complexity in practice.

Practically, the dissertation shows how care pathway development programmes can be organised to support reflective and adaptive cycles. The findings highlight the importance of creating protected spaces for dialogue, legitimising pauses for reflection alongside action, and supporting facilitation roles that help surface boundary dynamics and value tensions.

Methodologically, the dissertation demonstrates how action research can support and study care pathway development under conditions of complexity. It highlights the importance of reflexivity, role awareness and balancing practical engagement with scientific distance in embedded research settings. It further shows that where sustained academic–practice collaboration is not available, action learning offers a practice-oriented alternative that preserves the core reflective-adaptive principles.





Conclusion

This dissertation develops a complexity-informed approach to care pathway development that foregrounds reflective and adaptive cycles as the central mechanism through which complexity is engaged in practice. Care pathway development unfolds through the ongoing interaction of structural, interactional, interpretive and normative complexities within dynamic organisational contexts. Sustained progress therefore depends less on adherence to predefined development steps and more on the capacity of teams and programmes to organise and sustain recurring cycles of collective reflection and adaptive adjustment. By integrating empirical findings with theoretical and methodological reflection, the dissertation contributes to more reflexive, adaptive and complexity-informed approaches to care pathway development and value-based quality improvement in healthcare.



Samenvatting

Achtergrond en conceptuele positionering van het proefschrift

Zorgorganisaties staan voor een moeilijke opgave: de kwaliteit van zorg verbeteren terwijl de kosten blijven stijgen, personeel schaars is en de organisatie van zorg steeds complexer wordt. In deze context worden zorgpaden en waardegedreven zorg steeds vaker gebruikt om zorg te evalueren en te verbeteren.

Binnen waardegedreven zorg spelen zorgpaden een belangrijke rol. Een zorgpad beschrijft hoe zorg voor een bepaalde doelgroep wordt georganiseerd, met aandacht voor uitkomsten en behoeften van patiënten en het doelmatig gebruik van middelen. Veel bestaande methoden voor het ontwikkelen van zorgpaden gaan echter uit van relatief stabiele omstandigheden en duidelijke, opeenvolgende implementatiestappen. In de praktijk is de situatie vaak anders. Multidisciplinaire teams moeten samenwerken over afdelingsgrenzen heen, omgaan met verschillende belangen en waarden, en inspelen op veranderingen in de organisatie. Bestaande methoden bieden hiervoor vaak weinig houvast. Dit proefschrift stelt dat complexiteit geen externe uitdaging is voor zorgpadontwikkeling, maar onlosmakelijk verweven met het ontwikkelproces zelf.

Dit proefschrift onderzoekt daarom hoe zorgpadontwikkeling verloopt in organisaties waar verschillende vormen van complexiteit tegelijk aanwezig zijn. In plaats van één zorgpad te bestuderen, keek dit onderzoek naar een programma waarin meerdere zorgpaden gelijktijdig werden ontwikkeld binnen een gedeelde programmastructuur. Het onderzoek was gebaseerd op een longitudinaal actieonderzoeksprogramma in een revalidatieziekenhuis in Nederland. In dit programma ontwikkelden meerdere multidisciplinaire teams gelijktijdig een zorgpad. Het programma combineerde terugkerende cycli van plannen, uitvoeren en reflecteren, waardoor nauwkeurig kon worden gevolgd hoe ontwikkelprocessen in de tijd verliepen. Hierdoor werd zichtbaar hoe teams samenwerken, leren en bijsturen tijdens het verbeteren van zorg en hoe de programma aanpak hierop aangepast werd.

Het overkoepelende doel van dit proefschrift is te onderzoeken hoe zorgpadontwikkeling verloopt in dynamische organisatorische contexten en hoe met de complexiteit die daarbij ontstaat in de praktijk kan worden omgegaan. Om dit te begrijpen zijn in deze dissertatie vier samenhangende, heuristische lagen van complexiteit retrospectief geïdentificeerd, die elk een onderscheiden dimensie belichten waardoor complexiteit in zorgpadontwikkeling zichtbaar wordt:

- een **structurele laag** (programmacomplexiteit), gericht op de complexiteit die ontstaat in het organiseren en coördineren van het programma voor zorgpadontwikkeling;
- een **interactionele laag** (grenscomplexiteit), gericht op de complexiteit die ontstaat wanneer multidisciplinaire teams samenwerken over grenzen van disciplines en rollen heen; in de empirische studie onderzocht als grenzenwerk (boundary work);
- een **interpretatieve laag** (discursieve complexiteit), gericht op hoe professionals en managers denken over de rol van patiënten in zorgverbetering en hoe dit patiëntparticipatie in zorgpadontwikkeling beïnvloedt;
- een **normatieve laag** (waardecomplexiteit), gericht op hoe het gelijktijdig bestaan van meerdere, soms onderling spanning oproepende waarden, zoals kwaliteit, financiële haalbaarheid, efficiëntie en professionele autonomie, doelafstemming en besluitvorming beïnvloedt.

Deze vier lagen bieden een retrospectief geconstrueerd heuristisch kader waarmee de empirische inzichten uit de vier studies worden geordend en verschillende manifestaties van complexiteit in zorgpadontwikkeling zichtbaar worden gemaakt, zowel op programma- als teamniveau.

Het onderzoek heeft een kwalitatieve en interpretatieve onderzoeksopzet. De data zijn verzameld door langdurige betrokkenheid bij de praktijk, onder andere via participerende observaties, reflectieve gesprekken, onderzoeksnotities en programmadocumenten. Door dit ingebedde onderzoeksontwerp kon zorgpadontwikkeling worden bestudeerd zoals deze zich in de praktijk ontvouwde en aangepast werd aan veranderende contextuele omstandigheden.

Door zorgpadontwikkeling te benaderen als een complex en adaptief proces, in plaats van als een lineair implementatieproject, laat dit proefschrift zien hoe zorgpadontwikkeling kan worden georganiseerd en volgehouden in dynamische zorgcontexten.

Empirische bevindingen in vier lagen van complexiteit

De vier empirische hoofdstukken in dit proefschrift richten zich elk op één van deze lagen en samen bieden zij een geïntegreerd beeld hoe zorgpadontwikkeling zich ontwikkelt in dynamische organisatorische contexten.

De **structurele laag** van complexiteit wordt onderzocht in hoofdstuk 2, waarin wordt bestudeerd hoe meerdere zorgpaden gelijktijdig werden ontwikkeld binnen een gecoördineerd programma. De bevindingen lieten zien dat parallelle zorgpadontwikkeling terugkerende programmatische uitdagingen met zich meebracht. Programmastructuren boden richting en samenhang, maar moesten regelmatig worden aangepast wanneer omstandigheden in de organisatie veranderden. Actieonderzoek maakte een gefaseerde implementatie en continue aanpassing van het programma mogelijk, waardoor reflectief leren werd ondersteund en teams beter konden omgaan met spanningen tussen de oorspronkelijke programmastructuur en veranderende organisatorische omstandigheden.

De **interactionele laag** wordt onderzocht in hoofdstuk 3, waarin wordt geanalyseerd hoe grenzenwerk (boundary work) de inspanningen voor waardegedreven kwaliteitsverbetering van multidisciplinaire teams vormgaf. Drie vormen van grenzenwerk werden geïdentificeerd: competitief, collaboratief en configuratief. Collaboratief grenzenwerk ondersteunde vertrouwen, gezamenlijke besluitvorming en voortgang in verbeterprocessen, terwijl competitief grenzenwerk betrokkenheid beperkte en de voortgang vertraagde. Configuratief grenzenwerk, vaak uitgevoerd door adviseurs, creëerde voorwaarden die samenwerking tussen disciplines mogelijk maakten, maar bracht tegelijkertijd risico's van afhankelijkheid met zich mee.

De **interpretatieve laag** wordt behandeld in hoofdstuk 4, waarin de opvattingen van professionals en managers over patiënt- en publieksbetrokkenheid bij zorgpadontwikkeling worden onderzocht. De studie identificeerde verschillende discursieve repertoires waarin patiëntbetrokkenheid op verschillende manieren werd gezien: als essentieel, als onder bepaalde voorwaarden waardevol, of als problematisch. Deze discoursen beïnvloedden wanneer, hoe en in welke mate patiënten werden betrokken. Opvattingen over haalbaarheid, representativiteit, kwetsbaarheid en professionele verantwoordelijkheid droegen bij aan het uitstellen, beperken of vermijden van patiëntbetrokkenheid.

De **normatieve laag** wordt onderzocht in hoofdstuk 5, waarin wordt geanalyseerd hoe het naast elkaar bestaan van meerdere, soms concurrerende waarden zorgpadontwikkeling vormgaf. Spanningen tussen zorgkwaliteit, efficiëntie, financiële haalbaarheid en professionele autonomie beïnvloedden doelafstemming en besluitvorming. Teams gingen met deze spanningen om door pragmatische aanpassingen, waaronder reflectieve dialoog, kleinschalige experimenten en financiële modellering, die teams hielpen om vooruitgang te blijven boeken, ondanks terugkerende waardenspanningen. In

plaats van deze spanningen op te lossen, kwamen teams tot voorlopige stabilisaties: tijdelijke, werkbare afstemmingen die het mogelijk maakten om door te gaan met ontwikkelen zonder dat consensus of definitieve oplossingen vereist waren. Deze perioden van onderhandeling en bijstelling, wat dit proefschrift aanduidt als het 'rommelige midden' (messy middle) van zorgpadontwikkeling, kenmerkten het empirische proces in alle vier de studies.

Een complexiteitsgeïnformeerde benadering van zorgpadontwikkeling

Hoofdstuk 6 synthetiseert de empirische bevindingen om een complexiteitsgeïnformeerde benadering van zorgpadontwikkeling te formuleren en adresseert daarmee de overkoepelende onderzoeksvraag: hoe kan de complexiteit van zorgpadontwikkeling in dynamische organisatorische contexten worden begrepen en genavigeerd? De synthese positioneert complexiteit niet als een obstakel dat moet worden gereduceerd of gecontroleerd, maar als onlosmakelijk verweven met zorgpadontwikkeling zelf. Structurele, interactionele, interpretatieve en normatieve complexiteiten ontstaan gelijktijdig en beïnvloeden elkaar terwijl ontwikkelprocessen zich ontvouwen op zowel programma- als teamniveau.

Binnen dit perspectief vraagt het omgaan met deze complexiteit terugkerende cycli van reflectie en aanpassing die actoren in staat stellen om in de tijd met opkomende vormen van complexiteit om te gaan. Reflectieve cycli ondersteunen gezamenlijke betekenisgeving door te onderzoeken hoe aannames, interpretaties en waardeoordelen ontwikkelprocessen beïnvloeden binnen de vier lagen van complexiteit. Door middel van reflectieve dialoog worden impliciete aannames, grensdynamieken en waardespanningen zichtbaar gemaakt die ontwikkeltrajecten mede vormgeven. Adaptieve cycli vertalen deze inzichten vervolgens in aanpassingen in programmastructuren, begeleidingsstrategieën en ontwikkelrichtingen, bijvoorbeeld door het tempo van het programma aan te passen, ambities te herdefiniëren of samenwerkingsstructuren te herinrichten.

Samen vormen reflectieve en adaptieve cycli het centrale mechanisme waarmee actoren omgaan met complexiteit in zorgpadontwikkeling. Ontwikkeling verloopt daarom via voortdurende processen van betekenisgeving en bijstelling, in plaats van via vooraf vastgelegde implementatiestappen. Het organiseren van dergelijke cycli vraagt om structuren die reflectie en actie met elkaar verbinden. In dit programma fungeerde actieonderzoek als een dergelijke faciliterende infrastructuur, doordat het plannen, handelen en reflecteren met elkaar verbond en ruimte bood voor programmatische aanpassing en collectief leren. Wanneer de voorwaarden voor actieonderzoek niet beschikbaar zijn, biedt actieleren een legitiem en onderscheidend alternatief dat de reflectief-adaptieve oriëntatie behoudt zonder wetenschappelijke strengheid te claimen die niet waargemaakt kan worden.

Figuur 6.1visualiseert het samenspel tussen reflectieve en adaptieve cycli als het centrale mechanisme van deze benadering. Figuur 6.2 synthetiseert de complexiteitsgeïnformeerde benadering als geheel en laat zien hoe een globaal gefaseerd, modelonafhankelijk ontwikkelproces voortdurend wordt gevormd door de vier lagen van complexiteit en door het samenspel tussen reflectieve en adaptieve cycli.

Bijdrage van het proefschrift

Dit proefschrift levert drie onderling samenhangende bijdragen.

Ten eerste draagt het **theoretisch** bij door zorgpadontwikkeling te conceptualiseren als een reflectieve en adaptieve praktijk, waarbij complexiteit wordt begrepen als onlosmakelijk verweven met, en niet slechts contextueel aan, het ontwikkelproces, gevormd door samenwerkende lagen van complexiteit. Het proefschrift biedt een empirisch onderbouwde conceptualisering van hoe actoren die betrokken zijn bij zorgpadontwikkeling complexiteit navigeren op programma- en teamniveau tijdens waardegedreven kwaliteitsverbetering. Daarnaast ontwikkelt het een complexiteitsgeïnformeerde benadering waarin reflectieve en adaptieve cycli het centrale mechanisme vormen om in de praktijk met complexiteit om te gaan.

Ten tweede levert het **praktische** inzichten op hoe programma's voor zorgpadontwikkeling kunnen worden georganiseerd om reflectieve en adaptieve cycli te ondersteunen. De bevindingen benadrukken het belang van het creëren van een veilige ruimte voor dialoog, het legitimeren van momenten van reflectie naast actie, en het ondersteunen van faciliterende rollen die helpen om grensdynamieken en waardespanningen zichtbaar te maken.

Ten derde draagt het proefschrift **methodologisch** bij door te laten zien hoe actieonderzoek zorgpadontwikkeling kan ondersteunen en bestuderen in dynamische, complexe organisatorische contexten. Het onderzoek benadrukt het belang van reflexiviteit, rolbewustzijn en het balanceren van praktische betrokkenheid met wetenschappelijke distantie in ingebedde onderzoekssettings. Daarnaast laat het zien dat actieleren, wanneer duurzame samenwerking tussen academie en praktijk niet beschikbaar is, een praktijkgerichte alternatieve infrastructuur biedt die de kern van de reflectief-adaptieve benadering behoudt.





Conclusie

Dit proefschrift ontwikkelt een complexiteitsgeïnformeerde benadering van zorgpadontwikkeling waarin reflectieve en adaptieve cycli centraal staan als mechanisme om in de praktijk met complexiteit om te gaan. Zorgpadontwikkeling ontvouwt zich via de voortdurende interactie tussen structurele, interactionele, interpretatieve en normatieve vormen van complexiteit binnen dynamische organisatorische contexten. Duurzame voortgang in zorgpadontwikkeling hangt daarom minder af van het volgen van vooraf vastgelegde ontwikkelstappen en meer van het vermogen van teams en programma's om terugkerende cycli van gezamenlijke reflectie en adaptieve aanpassing te organiseren en te onderhouden. Door empirische bevindingen te integreren met theoretische en methodologische reflectie draagt dit proefschrift bij aan meer reflexieve, adaptieve en complexiteitsgeïnformeerde benaderingen van zorgpadontwikkeling en waardegedreven kwaliteitsverbetering in de gezondheidszorg.





Dankwoord

Het is bijna onwerkelijk, maar het is echt zo. Mijn proefschrift is af. En dat voelt als een opluchting en iets om trots op te zijn. Want vanzelfsprekend was het niet. Hoe leuk ik het ook ben blijven vinden, het vroeg moed en doorzettingsvermogen, soms door frustratie heen. Een traject als dit vraagt dan ook om mensen om je heen die geloven, dragen, relativeren en soms gewoon naast je zitten. Die mensen heb ik gehad. Dit dankwoord is voor hen.

Marleen, ik ben je oprecht dankbaar voor de manier waarop jij mij begeleid hebt. Niet door antwoorden te geven, maar door precies de goede vragen te stellen op het moment dat ik ze nodig had. Jouw rust, geduld, scherpte, blijvende positiviteit en het gevoel dat je mij begreep zijn ongelooflijk waardevol geweest. Dat is een zeldzame combinatie. **Anne Marie**, dank dat jij mij de kans hebt geboden dit traject aan te gaan en dat je in mij geloofde. Jouw les heeft mij door de moeilijkste momenten geholpen: maak klein wat je niet kunt overzien, leg het volgende stukje en ga door. Jouw energie, werkkracht en het vermogen om ter plekke verbanden te zien en te creëren zijn bewonderenswaardig. **Kees**, jij straalt een rust en vertrouwen uit die mensen het gevoel geven dat zij erbij horen. Zo heb ook ik dat gevoeld en dat was onmisbaar. Aan mijn promotieteam als geheel: dank dat jullie in mij zijn blijven geloven, ook op de momenten dat ik het zelf even niet meer zag of voelde. Dit hele traject en deze jaren draag ik in dankbaarheid met me mee.

Dit proefschrift had er niet gelegen zonder alle collega's van Rijndam Revalidatie die hebben meegewerkt aan het actieonderzoek. Twee jaar lang werkten wij samen aan de ontwikkeling van zorgpaden, dwars door alle bewegingen heen die dat traject kenmerkte. Dat wij samen verder bleven bouwen aan de revalidatiezorg in de regio is iets waar ik met veel plezier op terugkijk. In het bijzonder wil ik **Alex**, **Arjan**, **Rutger**, **Robert**, **Erik**, **Maxime**, **Agaath** en **Mirjam** bedanken voor hun betrokkenheid. Dat wij elkaar daarin hebben gevonden, ondanks alle uitdagingen die dit traject met zich meebracht, waardeer ik oprecht.

Aad, nog tijdens Covid durfde ik de sprong naar promoveren te wagen vanuit Aranea. Dank voor de ruimte die je mij daarvoor hebt geboden. Mijn Aranea-collega's en **Edwin** als mentor: even bijpraten en stoom afblazen deed altijd goed.

Monica, jou wil ik ook graag bedanken. Ik leerde je kennen tijdens mijn eerste baan bij Bernhoven, in het landelijke project Sneller Beter. Er was meteen een fijne klik, en het bleek dat we dicht bij elkaar woonden en naar dezelfde kerk gingen. Ik bewonderde jou, als vrouw en als adviseur, en droomde ervan ooit weer met je samen te werken. Na Bernhoven bleven we via de kerk in contact, tot jij mij over de streep trok om zelfstandig adviseur te worden, want beslissingen nemen uit angst is nooit goed, zei je. En zo werkten we samen bij PPP-zorg. Ik ben je dankbaar voor de jaren samen en voor de verbinding tussen ons, waarvan ik hoop dat die mag blijven bestaan. Ook dank aan **Rein** en **Annieke** die voor mij eveneens veel hebben betekend en aan de andere collega's van PPP voor de mooie jaren.

Mijn collega's bij HSMO en mede-promovendi: jullie maakten Bayle 7^{e} etage een plek waar ik graag kwam. Ik voelde mij welkom en gewenst en ik hoop dat onze wegen elkaar blijven kruisen. **Britt** en **Pauline**, dank voor de goede gesprekken en dat we een stukje samen hebben mogen oplopen. **Naomi** en **Tamara**: met jullie bleek maar weer dat samen zoveel leuker is dan alleen! Dank voor de fijne samenwerking.

Maar er is meer dan werk.

Mijn vriendinnen **Maaike**, **Karin** en **Annelies**, jullie zijn een anker voor mij. Of we elkaar nou vaak zien of niet, het gevoel dat jullie er zijn, in mij geloven en mij waarderen, is goud waard. Mijn tennismaatjes en -team **Mr. Chow's Funfactory**, jullie zorgden voor een goede tegenhanger voor al het denkwerk: sportiviteit, spontaniteit en vooral veel plezier. Dank ook aan **Gea** en **Christiaan** voor de gezellige momenten samen en het luisterend oor. Ik hoop dat er nog vele volgen.

Een eigen plek in dit dankwoord is er voor **Gerben**, **Laura** (nu zr. Sarah) en **Ronald**, mijn reisgenoten in geloof. Samen lopen wij een weg waarop de grote vragen niet worden weggestopt, maar juist worden uitgesproken. Jullie helpen mij mijn leven steeds weer in een groter licht te plaatsen: dat ik gaandeweg gedragen word, is iets wat ik mijzelf mede dankzij jullie steeds weer mag herinneren. Gerben, jij liet mij het beeld van Augustinus zien: het leven als een haven met een opening naar zee, veilig, maar niet afgesloten, want ook in de haven klotst het water wanneer het stormt. Dat beeld helpt mij: geborgenheid en veiligheid betekent niet dat de storm wegblijft, maar dat ik er niet alleen doorheen hoef.

En dan mijn familie. Jullie zijn het fundament. **Dick**, dankjewel voor jouw humor, rust, liefde en vertrouwen en dat je er altijd bent. **Paul** en **Sander**, voor jullie draag ik een liefde die niet te beschrijven is. Ik kijk met trots en verwondering naar de weg die jullie gaan, steeds meer de wereld in en je eigen pad kiezend. Dat wij met ons drieën een gezin zijn, geeft mijn haven een flinke kademuur. Mijn moeder **Marijke**, je bent mijn grootste fan. Je gelooft in mij met een vanzelfsprekendheid die mij nog steeds kan verbazen. Jouw liefde is niet alleen groot maar ook concreet: bloemen op tafel elke week, een helpende hand waar nodig, en de gezamenlijke borrelmomentjes in het weekend die goud waard zijn. Voor mij, voor Dick, maar ook voor Paul en Sander. Op naar de pluktuin in onze achtertuin samen! Mijn broer **Guus**: jij bent onderdeel van mijn haven. Hoe verschillend we ook zijn, de verbinding is overduidelijk. Dankjewel daarvoor. En mijn lieve hond Freya, met wie ik vele kilometers wandel, heerlijk buiten ben, uren samen train en van wie ik de meest onvoorwaardelijke begroetingen krijg. Ook al vraagt ze zorg, ze is een verrijking van mijn leven.

Al deze mensen samen maken het leven mooi, hoe spannend het soms ook. Jullie maken dat ik het blijf aandurven. Dit proefschrift is daar het bewijs van.

Tot slot wil ik dit proefschrift opdragen aan **oom Wim**, mijn lieve stiefvader, die wij in oktober 2025 hebben moeten loslaten. Zijn liefde voor mij was van onschatbare waarde. We hebben even de tijd nodig gehad om dat echt tot zijn recht te laten komen, maar de laatste jaren waren daarin goud. Dit is voor jou.



Declarations

Funding statement

This research was partially supported by the Dutch Organisation for Health Research and Development (ZonMw), project number 05160062010008. Additional financial support was provided by Aranea Consult B.V. ('s-Hertogenbosch, the Netherlands), and Stichting Rijndam Revalidatie (Rotterdam, the Netherlands), both of which contributed to the funding of the lead researcher's position. None of the funders had any role in the design of the study, data collection, analysis, interpretation of the data, or writing of the manuscript.

Ethical statement

Ethical approval, including verification of General Data Protection Regulation compliance, was obtained from the Erasmus University Ethical Review Committee (ETH2122-0333). The multiple case study reported in Chapter 3 additionally draws on data from a second organisation, for which separate ethical approval was obtained from the Tilburg University Ethical Review Committee (TSB_RP1196). All participants provided informed consent prior to data collection.

Availability of data and materials

Datasets generated and analysed for this dissertation are not publicly available due to privacy restrictions. In accordance with institutional data management requirements, the research data are archived in the Erasmus University YODA repository under the project folder '**research-blended-care-pathways**'. Upon finalisation of the dissertation, the dataset will be transferred to the YODA Vault for long-term retention. Access to the data may be requested through the lead researcher.



PhD portfolio

PhD information

PhD student:	Mildred Visser
Department:	Erasmus School of Health Policy and Management Section Health Services Management and Organisation
PhD period:	2021 – 2026
Promotors:	Prof. dr. ir. C.T.B. Ahaus Prof. dr. J.W.M. Weggelaar - Jansen
Co-promotor:	Dr. M. de Mul

PhD training

Year	Course description	Organiser	ECTS
2022	How to supervise thesis students	EUR CLI Microlab, Risbo	1,00 ECTS
2022	Story design	Nobbe Mieras	1,00 ECTS
2023	Referencing workshop 'who says'	Tilburg University	1,00 ECTS
2023	English academic writing for PhD candidates	Erasmus University, EGSH	2,50 ECTS
2023	Professionalism and integrity in research	Erasmus University, EGSH	1,50 ECTS
2024	How to get your article published	Erasmus University, EGSH	2,50 ECTS
2024	Writing course for PhD candidates	Louter Promoveren	1,50 ECTS
2024	Searching and managing your literature	Erasmus University, EGSH	1,00 ECTS
2024	Prepare your publication package	Erasmus University, EGSH	1,00 ECTS
2024	Qualitative coding and analysis of textual data with Atlas.ti	Erasmus University, EGSH	1,50 ECTS
2024	Visual exploration of scientific literature with VOS viewer	Erasmus University, EGSH	1,50 ECTS
2025	Open science and research transparency	Erasmus University, EGSH	2,50 ECTS
			18,50 ECTS

Attended conferences and seminars

Year	Description	Role	ECTS
2025	Academy of Management (AOM)	Professional development workshop co-lead	2,50 ECTS
2024	Amsterdam Business Forum	Attendee	-
2023	Dutch Conference of Rehabilitation Medicine (DCRM)	Professional development workshop co-lead	2,00 ECTS
2023	Emotions Conference 2023	Attendee	1,00 ECTS
2023	Linnean Waardegedreven zorgketens	Attendee	-
2023	Kennisproeverij zorgtransformatie t.g.v. oratie prof. dr. J.W.M. Weggelaar	Professional development workshop co-lead	2,00 ECTS
			7,50 ECTS

Teaching activities

Year	Teaching activity
2021-2022	Thesis supervision Master students Health Care Management
2022-2023	Thesis supervision Master students Health Care Management
2023-2024	Thesis supervision Master students Health Care Management
2023-2024	Thesis/internship supervision Bachelor students Health Sciences

Presentations

Year	Description
2025	Aranea inspirational conference
2024	HSMO science club
2024	Aranea and Open University, Round table session
2023	HSMO academic exchange
2023	HSMO science club

Professional development workshops

Year	Description	Organiser
2023	Influencing without authority	Erasmus University, TOP
2023	Personal leadership	Erasmus University, TOP
2023	Speak up dear	Nobbe Mieras
2023	Heart intelligence	Erasmus University, TOP
2024	Personal leadership in how you experience your work workshop	Erasmus University, TOP
2024	Boost your career: personal branding and networking workshop	Erasmus University, TOP
2025	Your next step	Erasmus University, TOP

List of publications

Peer reviewed publications

Visser M, De Mul M, Ahaus K, Osterthun R, Pangalila R, Grauwmeijer E, et al. Action research as a methodology for adaptive care pathway development in a dynamic organisational context. Health Res Policy Syst. 2026. doi:10.1186/s12961-026-01520-2

Visser M, De Mul M, Ahaus K, Weggelaar-Jansen AM. Navigating value complexity in CP development: A qualitative case study. BMJ Open. 2025;15(8):e098157. doi:10.1136/bmjopen-2024-098157

Visser M, 't Hart N, de Mul M, Weggelaar-Jansen AM. The Perspectives of Healthcare Professionals and Managers on Patient Involvement in CP Development: A Discourse Analysis. Health Expectations. 2024;27(3):e14101. doi:10.1111/hex.14101

Boumans NPG, Landeweerd JA, Visser M. Differentiated practice, patient-oriented care and quality of work in a hospital in the Netherlands. Scandinavian Journal of Caring Sciences. 2004;18(1):37-48. doi:10.1111/j.1471-6712.2004.00253.x

Visser M, Boumans NPG. Functiedifferentiatie en patiëntgericht verplegen in een perifeer ziekenhuis. Verpleegkunde. 2002;17(2).

Publications under review

Visser M*, Broughton T*, de Mul M, Sülz S et al. Boundary work in value-based quality improvement: A qualitative multiple case study of multidisciplinary teams. PLoS One. Revision submitted
** Mildred Visser and Tamara Broughton contributed equally to this manuscript and share first authorship.*

Professional publications

Visser M, de Mol E. Zorgpaden: hoe ontwikkel je zorgpaden met een digitale component? 's-Hertogenbosch: Aranea, 2023. 18 p.

Weggelaar-Jansen AM, de Mul M, Auragh R, Visser M, Sülz S, van Elten H et al. e-health waardenmodel. Rotterdam: Erasmus School of Health Policy & Management (ESHPM), 2020. 44 p.

Visser M, Jellema P, de la Rambelje N, de Bruijne MC, Weggelaar - Jansen AM. Handleiding vormgeving van dashboards met kwaliteitsinformatie. Utrecht, 2018. 56 p. (Sturen op Kwaliteit).





About the author

Mildred Visser was born on October 29, 1976, in Tiel, the Netherlands. She lives in Geldermalsen with her husband Dick, their two sons Paul and Sander, their dog Freya, and two cats, Tikkie and Spikkel. Running, walking with Freya and tennis are among her favourite ways to recharge, clear her head and find new perspectives. It is no coincidence that the title of this dissertation, On the Way, draws on the same insight: that navigating complexity requires attentiveness, continuous reflection and adaptation and the way forward often only becomes clear by keeping moving.

A passion for healthcare has driven Mildred since an early age. She initially aspired to study medicine, and when she chose Health Sciences instead, it was with the same ambition: to contribute to better care. Mildred studied Health Sciences at Maastricht University completing two specialisations, Biological Health Sciences and Health Policy and Administration, and obtaining her Master's degree in February 2001. Her Master's thesis was subsequently published as a scientific article, and her supervisor, Dr. Nicolle Boumans, invited her to join the department. At the time, however, Mildred felt strongly drawn to working in healthcare practice first, a choice that would shape the next two decades of her career and, ultimately, this dissertation.

Following her graduation, Mildred built a career at the intersection of healthcare management, organisational change and quality improvement. She held positions in policy development and project management at Ziekenhuis Bernhoven and Sint Elisabeth Ziekenhuis, served as department manager at Ziekenhuis Rivierenland, and subsequently as senior project leader and board advisor at Franciscus Gasthuis & Vlietland. Since 2015, she has worked as an independent consultant in healthcare innovation, and from 2020 onwards as an advisor at Aranea Management Consulting, supporting healthcare organisations in value-based quality improvement, hybrid care pathway development and regional collaboration.

In February 2021, Mildred was invited by Prof. dr. Anne Marie Weggelaar-Jansen to join a doctoral research programme at the Erasmus School of Health Policy and Management, Erasmus University Rotterdam. The programme examined care pathway development in dynamic organisational contexts, leading to the action research programme at Rijndam Revalidatie that forms the empirical basis of this dissertation. As both programme lead and lead researcher, she was responsible for setting up and guiding the care pathway development programme while simultaneously conducting the research. This dual role shaped both the programme and her understanding of how complexity unfolds in practice. Alongside her doctoral research, Mildred supervised Master's students, contributed to teaching activities, and engaged in professional development in the areas of governance and healthcare leadership.

Following her doctorate, Mildred intends to continue combining advisory work, knowledge dissemination and research, translating complexity-informed insights into concrete approaches for healthcare organisations navigating change and contributing to broader innovation in healthcare.


N
W
E
S



Blijvend onderweg

Een actieonderzoek naar het navigeren van complexiteit in zorgpadontwikkeling