Challenges in the implementation and evaluation of a transmural palliative care pathway for acutely hospitalized older adults; lessons from the PalliSupport program

A qualitative process evaluation study

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Challenges in the implementation and evaluation of a transmural palliative care pathway for acutely hospitalized older adults; lessons from the PalliSupport program: A qualitative process evaluation study

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ABSTRACT

Objectives: To improve transmural palliative care for acutely admitted older patients, the PalliSupport transmural care pathway was developed. Implementation of this care pathway was challenging. The aim of this study was to improve understanding why the implementation partly failed.
Design: A qualitative process evaluation study.
Setting/participants: :17 professionals who were involved in the PalliSupport program were interviewed.
Methods: Online semi-structured interviews. Thematic analysis to create themes according to the implementation framework of Grol & Wensing.
Results: From this study, themes within four levels of implementation emerged: 1) The innovation: challenges in current palliative care, the setting of the pathway and boost for improvement; 2) Individual professional: feeling (un)involved and motivation; 3) Organizational level: project management; 4) Political and economic level: project plan and evaluation.
Conclusion and implications: We learned that the challenges involved in implementing a transmural care pathway in palliative care should not be underestimated. For successful implementation, we emphasize the importance of creating a program that fits the complexity of transmural palliative care. We suggest starting on a small scale and invest in project management. This could help to involve all stakeholders and anticipate current challenges in palliative care. To increase acceptance, create one care pathway that can start and be used in all care settings. Make sure that there is sufficient flexibility in time and room to adjust the project plan, so that a second pilot study can possibly be performed, and choose a scientific evaluation with both rigor and practical usefulness to evaluate effectiveness.

1. Introduction

The number of patients requiring palliative care increases with age (Zorgautoriteit, 2021). Palliative care is especially difficult in older adults since they often have chronic diseases and comorbidities, are cared for by different healthcare professionals in different healthcare settings (such as home care, hospital care and informal care) (Bijnsdorp et al., 2019), and recognizing palliative care needs is difficult (de Korte-Verhoef et al., 2015; Meeussen et al., 2009). Care transitions are common in the last months of life (Abarshi et al., 2010), so transmural collaboration in palliative care is important, yet, currently suboptimal (Flierman et al., 2020; Engel et al., 2020). End-of-life preferences are often not met due to this insufficient collaboration (Flierman et al., 2020; Abarshi et al., 2009) and to late identification and initiation of palliative care and end-of-life conversation (Snyder et al., 2013; Glaudemans et al., 2015).

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To improve transmural palliative care, the PalliSupport program was established (Flierman et al., 2020; van Rijn et al., 2019). Transmural care was considered to be care attuned to patient needs, provided by hospital-based healthcare professionals, general practitioners, and home care, with a shared responsibility and specification of delegated responsibilities (van der Linden et al., 2001). Within this program we developed a transmural palliative care pathway (hereafter referred to as pathway) that would help to recognize the end-of-life phase, discuss end-of-life preferences, promote collaboration between general practitioners, district nurses, and hospice care professionals (primary care), and hospital-based professionals (secondary care), and guarantee in-person follow-up after hospital discharge. The pathway was developed according to the Medical Research Council framework for complex interventions (Moore et al., 2015) and was first tested for feasibility in a pilot study (Flierman et al., 2020). Results of this study showed that inclusion of patient was difficult, partly because inclusion criteria were too strict, but also because of high workload and the association with terminal care of many physicians. Also, it appeared to be difficult to follow all steps of the care pathway. Consequently, alterations were made to encourage successful implementation in a large stepped-wedge randomized controlled trial (SW-RCT). These alterations consisted of greater involvement of researchers in the recruitment of patients, an additional e-learning on how to recognize palliative care needs, and greater involvement of all involved healthcare professionals from the start.

However, the implementation was complex and not successful: two out of five involved hospitals and surrounding primary care organizations delivered care according to (parts of) the pathway, for a limited number of patients. To gain more insight into why the implementation partly failed, we performed a qualitative process evaluation, presented in this paper. This study could provide valuable lessons for future implementation of transmural pathways in palliative care.

1.1. *The PalliSupport program*

The PalliSupport care pathway involves early identification of palliative care needs, systematic palliative assessment, advance care planning, weekly multidisciplinary team meetings to which primary and secondary care professionals are invited, warm handover at hospital discharge, and follow-up home visits after discharge. Within all steps of the care pathway, the transmural palliative care team involving both primary care and secondary care had a consulting role (Table 1). The program was co-created with healthcare professionals involved in transmural palliative care.

Several steps were taken to facilitate care according to the care pathway. Financial support was provided for transmural care during the implementation and regions (a region is a hospital and healthcare organizations in the surrounding region of the hospital such as home care, hospices, and general practitioners offices in the northwestern part of the Netherlands. Five regions were involved) were guided in creating an organizational structure and obtaining long-term financial support for transmural care. In addition, transmural palliative care teams were established and multiple guided sessions were held to create a shared vision. Non-specialists in palliative care (such as general hospital nurses and physicians) were educated on how to identify palliative care needs and initiate palliative care.

The aim of the PalliSupport program was to prevent acute hospital admissions and facilitate dying at the patients preferred place by improving identification of palliative care needs, insight into patients' preferences, and continuity of care.

1.2. *Organizational structures*

The PalliSupport project group had the overarching coordination of the project and was responsible for planning plenary meetings and organizing finances provided by the grant. A coordinator guided and

Table 1
An overview of components of the transitional palliative care pathway.

Intervention	Components	Intervention conducted by
Identification of palliative care needs during admission	• Screening of palliative care needs based on SPICT criteria • Discussing the surprise question with the patients' physician	• Researcher [a]
	• Consulting the palliative care team	• Department physician
Palliative care assessment and advance care planning	• Contacting the patient's general practitioner to discuss to what extend palliative care was already discussed at the general practitioners office [b] • Assessing needs, preferences, and symptoms on a physical, psychological, spiritual, and social level • Discussing treatment limitations and the patients' preferred place of death • Formulating an individualized care plan	• Palliative care team and/or department physician
Multidisciplinary team meeting	• Discussing patients during weekly meetings with the transitional palliative care team, hospital specialists, and non-medical specialists • The patients' general practitioner and community nurse are invited to attend the meeting (in person or by phone) • Discussing the patients' individual care plan • Assessing the complexity of the patients' palliative care situation using a color coding system that indicates the stability or severity of the situation	• Palliative care team, department physician, general practitioner, community nurse
Discharge	• Giving the patient an individual care plan • Giving informal caregivers an information sheet about available support	• Palliative care team or department physician/nurse
Handover	• Contacting the patients' general practitioner before discharge or during multidisciplinary team meetings (by phone or in person) • Sending a summary of the multidisciplinary team meetings to the patients' general practitioner and community nurse within 24 hours after discharge • Sending the medical handover to the patients' general practitioner within 24 hours after discharge	• Palliative care team or department physician/nurse
Home visit and follow-up	• Visiting the patient at home • Discussing the patient during multidisciplinary team meetings if needed and adjusting the individualized care plan and color code accordingly	• Palliative care team

[a] Changed after the pilot study.
[b] Added to the care pathway after the pilot study.

facilitated collaboration between primary and secondary care. Each region had a steering group and a task force and a project coordinator connected the steering groups and task forces and monitored progress. To promote full implementation of the care pathway, each region had to fulfill certain preconditions (Fig. 1).

1.3. *The stepped-wedge randomized controlled trial*

Implementation of the care pathway was concurrent to a pragmatic multicenter stepped-wedge randomized controlled trial (SW-RCT) in five hospitals and surrounding healthcare organizations (regions). In all regions, a care as usual phase would be followed by a three month transitional phase in which the care pathway would be implemented. After the transitional phase, the intervention phase would follow, in which patients would receive care according to the pathway.

In total, 3531 patients were screened for eligibility, of which 1743 were in need of palliative care according to the SPICT criteria (Flierman et al., 2020). Of these patients, 605 were excluded, and 656 could not be approached for several reasons such as, already discharged, the patient was too ill, and because healthcare professionals believed it was not right to approach the patient for a study regarding palliative care. Eventually, 257 patients provided informed consent, 226 in the care as usual phase and 31 in the intervention phase. Of these 31 patients, 26 received care according to the care pathway during the intervention phase (Appendix A). Due to difficulties in inclusion and the COVID-19 pandemic, the SW-RCT was stopped before the sample size was reached.

For none of the 26 patients who received care according to the pathway, all steps were followed. The patient's general practitioner never attended the multidisciplinary team meeting, which was organized for 9 patients. For 10 patients, a home visit was arranged (Appendix B).

2. Methods

Healthcare professionals from the five regions involved in the PalliSupport program were invited for this study.

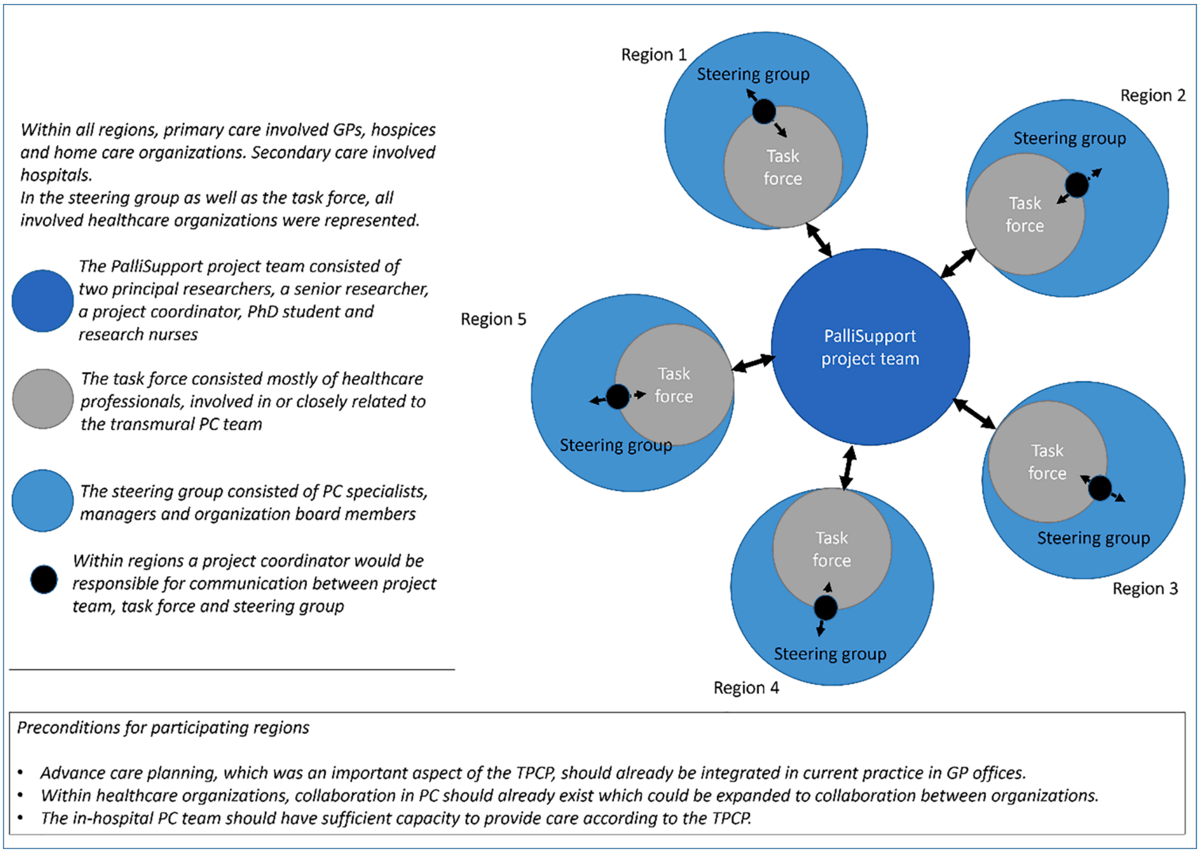
2.1. *Data collection*

Participants were selected and contacted directly by the researchers via e-mail. We used a purposive sampling approach to ensure we included participants from different regions and with different professions to create a sample that was representative for the involved stakeholders. Semi-structured interviews were conducted online because of COVID-19 restrictions by a research student (VvS) who was not involved in the implementation of the program. An interview guide based on the different phases of implementation according to the theoretical framework of Grol and Wensing (2004) was used (Appendix C).

All interviews were held in Dutch, audio-recorded, and transcribed verbatim. After each interview, a summary was sent to the participants and checked for correct interpretation.

2.2. *Data analysis*

Thematic analysis (Braun & Clarke, 2006) was started after completion of the first interview so that these initial findings could be used as additional input for the following interviews: 1) Becoming familiar with the collected data by reading and re-reading the transcripts (VvS, IvD, MvR), 2) Coding the transcripts trough open coding (VvS and partially IvD). Codes were compared and discussed (VvS, IvD, MvR)



Within all regions, primary care involved GPs, hospices and home care organizations. Secondary care involved hospitals.
In the steering group as well as the task force, all involved healthcare organizations were represented.

● *The PalliSupport project team consisted of two principal researchers, a senior researcher, a project coordinator, PhD student and research nurses*

● *The task force consisted mostly of healthcare professionals, involved in or closely related to the transmural PC team*

● *The steering group consisted of PC specialists, managers and organization board members*

● *Within regions a project coordinator would be responsible for communication between project team, task force and steering group*

Preconditions for participating regions

- *Advance care planning, which was an important aspect of the TPCP, should already be integrated in current practice in GP offices.*
- *Within healthcare organizations, collaboration in PC should already exist which could be expanded to collaboration between organizations.*
- *The in-hospital PC team should have sufficient capacity to provide care according to the TPCP.*

Fig. 1. An overview of the organizational structures of the PalliSupport project.

until consensus was reached, 3) Formulating themes (VvS, IvD, MvR), 4) Discussing and adjusting the themes (VvS, IvD, MvR, JP, DW, BM), 5) Formulating and structuring final themes to the framework of Grol and Wensing (2004) (VvS, IvD, MvR, JP, DW, BM).

3. Results

3.1. Study population

Of 31 potential participants, 22 replied to the invitation; of these, five did not want to participate because they had no time or because they considered themselves not familiar enough with PalliSupport. In the end, 17 interviews were held between March and May 2021. Each interview lasted approximately 50 minutes (range: 40 - 67 minutes).

Participants were: one geriatrician, one resident/researcher who was involved in an earlier phase of PalliSupport but not in the implementation, two general practitioners, five nurse specialists, and eight professionals who did not provide direct patient care but had a managing or coordinating function. Participants came from four out of the five involved regions. Two participants had worked in more than one region.

3.2. Themes

Themes were structured according to the levels of innovation described by Grol & Wensing [13]. These levels are *the innovation itself* (current challenges in palliative care, the setting of the pathway, and boost for palliative care), *the individual professionals* (motivation and feeling (un)involved), *organizational context* (project management), and *economic and political context* (Project plan and evaluation) Quotations of healthcare professionals illustrating emerging themes are presented in Table 2.

Table 2
Quotations of healthcare professionals illustrating the emerging themes.

Innovation level	Theme	Quote	Participant
The innovation itself:	Current challenges in palliative care	*I do hope that in the end we will have a transmural team, but a lot has to happen. And that does not only involve money and leadership, yes that again has to do with that 'them-and-us' feeling, the division between hospital, general practitioners and primary care."*	Participant 5. General practitioner
	Setting of the care pathway	*I think it is not ethical to ask patients in an acute situation what PalliSupport intended, a patient is already distressed so I think that is the wrong approach*	Participant 14. Manager
		I think that if you really talk about advance care planning conversations, it would be better to have those conversations in peace and quiet, at the general practitioners' office or the outpatient clinic, that would be better	Participant 6. Nurse specialist
	Boost for palliative care	*Now they know the palliative care team in the hospital, it increased our visibility, we are now recognized and acknowledged as a palliative team in the hospital. So you could see that as a spin-off, so there is support to do something now*	Participant 15. Geriatrician
		Now they know the palliative care team in the hospital, it increased our visibility, we are now recognized and acknowledged as a palliative team in the hospital. So you could see that as a spin-off, so there is support to do something now	Participant 1. Nurse specialist
The individual professional	Motivation	*The nurse specialists thought it was amazing, they were like; it is great and very important this happens. This was less among doctors, however."*	Participant 17. Resident
	Feeling (un) involved	*And as I had already foreseen, all general practitioners were dragging their heels. And that has everything to do with this project being imposed, this was developed from the hospital and it was not taken into account that perhaps this would only cost us more time.*	Participant 5. General practitioner
		But if there is one at the table, representing 120 general practitioners, and that one person interprets it one way, it is very hard to report back to the broader population	Participant 9. Spiritual counselor

(*continued on next page*)

3.2.1. The innovation itself

3.2.1.1. Current challenges in palliative care. During the interviews, challenges to palliative care, which were also the reason to start the PalliSupport program, were frequently noted as barriers to implementing the pathway. Throughout the interviews, a gap between primary and secondary care, which complicated the implementation, was notable.

The high number of professionals and organizations involved in palliative care complicates the decision who should be invited to multidisciplinary team meetings. Arranging these meetings was time consuming and difficult to do on top of their high workload. Getting in contact with the patient's general practitioner was also difficult. Besides, reaching out to the patient's general practitioner, prior to the consultation was noted to be inappropriate because of patient privacy.

3.2.1.2. Setting of the pathway. The pathway started in the acute hospital setting. Participants considered this inappropriate, since acute hospitalizations are often stressful and scary for patients. Initiating palliative care according to the pathway would cause more stress to this hospitalization. A calmer setting, such as the outpatient clinic, the general practitioners' office, or at home, would be a better place to talk about advance care planning. General practitioners in particular disagreed with advance care planning conversations taking place in the hospital rather than in the general practitioners' office.

3.2.1.3. Boost for palliative care. Although the pathway was not implemented and embedded in all regions, most participants observed that the project was a boost for palliative care improvement. PalliSupport inspired new projects, collaborations, and/or pathways in most regions. It also increased awareness of palliative care needs and of the existence of palliative care teams in hospitals. Eventually, one hospital integrated the pathway into routine practice and now provides care

Table 2 (*continued*)

Innovation level	Theme	Quote	Participant
The Organizational context	Project management	*If we had started smaller, we could have done more justice to all parties in the region and we could have had more focus. Then, we also could have gone into more depth and we could have offered more support to the parties*	Participant 12. Project manager
		I think having a good project coordinator is step one of the project; that someone is acknowledged in that function and has time for that. You need to think about who has the coordinating role	Participant 2. General practitioner
		People were enthusiastic and wanted to get to work, but the project coordination, there were holes in there, things took too long, and because of that there was no progress in the project and people became less enthusiastic; you need to make hay while the sun shines	Participant 3. Project leader
Economic and political context	Project plan and evaluation	*And I think it's very important that, when you deal with people who feel like they do something in good conscience, and we think, this can be done better, you will not change that by only making and communicating about a pathway, that won't make a change (..) We noticed that a long haul is needed to come to different behavior*	Participant 9. Spiritual counselor
		I think it helps if the grantor gives the researchers more space so that the results you are working towards can still be open, some sort of action research	Participant 12. Project manager

according to this pathway.

3.2.2. *The individual professional*

3.2.2.1. Motivation. Most participants identified issues in providing early palliative care, such as late identification of palliative care needs and insufficient collaboration between healthcare settings, and thought that PalliSupport could contribute to improvement. They noted that the project was presented as an opportunity to improve transmural palliative care, which many healthcare professionals were enthusiastic about. However, some professionals were satisfied with the current palliative care and did not see the added value.

3.2.2.2. Feeling (un)involved. Many healthcare professionals and organizations are involved in transmural palliative care, so individuals were chosen as representatives. However, we did not reach all healthcare professionals and organizations, leaving some feeling uninvolved and experiencing the implementation as a top-down process. General practitioners, for example, did not feel involved enough during the implementation phase, and in the end, did not believe the final pathway added value to current practice.

3.2.3. *Organizational context*

3.2.3.1. Project management. Five regions were involved in the project, which made it too large, according to some participants. Participants suggested implementing a pathway on a smaller scale with gradual expansion. Focusing on one region first, could have provided better guidance.

The project size resulted in difficulties in regional project organization, due to which the feeling of ownership and leadership was missing. As a result, clear insight into responsibilities for involving all stakeholders and next steps was missing. Also, because of the high number of involved parties, it often took long before questions were answered and next steps were taken, which decreased enthusiasm for the program.

3.2.4. *Economic and political context*

3.2.4.1. Project plan and evaluation. A grant was obtained to fund a pilot study followed by a SW-RCT. However, this grant restricted flexibility to adjust steps in the study procedures. Although the pilot study revealed the challenges of this complex intervention, the next predefined step was starting the SW-RCT. The fixed methodology of the SW-RCT was difficult to deal with in practice, because people had to keep going with the implementation process even though more time was clearly needed for the necessary cultural and behavioral changes. Participants noted that more room was required to make adjustments during the study procedures and that it could help if aims and outcomes were not all predefined (Table 2).

4. Discussion

In this qualitative study, we explored why the PalliSupport pathway was not successfully implemented. Our results suggest that even though we performed a pilot study which led to alterations in the intervention, still, existing barriers complicated the implementation process. The most important problems were the size and setting of the project, and the lack of time and flexibility within the project plan and -evaluation. Despite these problems, the implementation still resulted in a boost for palliative care and provided valuable lessons for future transmural palliative care projects.

4.1. *Interpretation of findings*

Difficulties implementing transmural palliative care improvement programs have also been described by Engel et al. (2021). While transmural care interventions have been successfully implemented in different geriatric populations (Buurman et al., 2016; Pol et al., 2017), implementing transmural palliative care interventions seems to be more challenging.

Existing challenges in palliative care such as the high number of involved professionals and organizations (Bijnsdorp et al., 2019), high workload, and difficulties in timely identifying and initiating palliative care are known from existing literature (Horlait et al., 2016) and the pilot study (Flierman et al., 2020). After alterations based on findings in the pilot study were made, these challenges remained, which highlights the complexity of the intervention. To facilitate anticipation to these problems, implementation should start on a smaller scale, with one or two regions. Within regions, project management should be clear for all stakeholders. Tasks, responsibilities and competences of team members should be clearly defined. These tasks should involve keeping parties informed (Grol & Wensing, 2004), investigating and checking needs, and providing frequent feedback to maintain involvement and motivation. This cannot be done in addition to the existing workload and requires support from management (Collingridge Moore et al., 2020; Oosterveld-Vlug et al., 2019). Lastly, collaboration within organizations should be sufficient to allow team members to create a support base.

Successful implementation in one region could create trust in the pathway and provide an evidence-based strategy for easier implementation of the pathway in other regions.

The hospital setting in which the pathway started appeared to be a second problem for the implementation, due to the clear division between primary and secondary care in the Netherlands. In line with previous findings, we found that primary care is often assumed to be responsible for palliative care (van Doorne et al, submitted). Both primary and secondary healthcare professionals were involved in implementing the program from the start (Grol & Wensing, 2004), and after the pilot, involvement of the general practitioners was emphasized at the start of the pathway. Still, primary care professionals felt uninvolved because the intervention started in hospital. To ensure all healthcare professionals feel equally involved, the pathway should have the possibility to start in all settings. Thus, the pathway should be flexible, both in practice, implementation and evaluation.

Lastly, the lack of time and flexibility within the project plan complicated the implementation process. The PalliSupport program was developed, implemented, and evaluated according to the Medical Research Council framework (Craig et al., 2008). We involved stakeholders in the development process, performed a pilot study, made alterations, and tried to implement and evaluate the pathway in a SW-RCT. In hindsight, a second pilot study could have improved successful implementation, but the grant did not provide the possibility to do this. The SW-RCT also complicated the implementation because it required a uniform way of providing care and precalculated study population (which is often difficult to achieve in palliative care studies (Sherman et al., 2005)) within a strict time frame. This meant that there was not enough time for the cultural and behavioral changes needed for successful implementation. In line with the recently updated Medical Research Council framework (Skivington et al., 2021), which describes that evaluation of complex interventions should not only focus on effectiveness, we would suggest a qualitative evaluation in which all involved stakeholders –including patients and informal caregivers- provide in-depth information about their experiences. Action research and/or a pre-post study design (Miller et al., 2020), in which routine patient data is collected, could provide additional quantitative insights into patient outcomes, such as death at place of preference and unwanted hospital admissions. Appendix D provides an overview of lessons and practical implications for future programs.

4.2. Strength and limitations

We were able to interview a range of different healthcare professionals from different care organizations and regions to understand why this complex intervention was not successfully implemented. However, our study also has some limitations. Response bias may have occurred, since those who agreed to participate in the study may have been more interested in and motivated about PalliSupport. However, most participants were critical, suggesting a proper reflection of the real situation. Since not all participants were involved in implementation from the start, some had limited insight into/knowledge about the first steps of the program. This could have reduced feelings of involvement. Also, some participants were involved in the program a long time ago, which might have led to recall bias. Lastly, due to known difficulties in studies concerning patients with palliative care needs (Sherman et al., 2005), and because only a limited number of patients received care according to the care pathway, we were not able to involve patients in this study.

5. Conclusion and implications

In conclusion, the implementation of the PalliSupport care pathway fell short of its original aims. Nevertheless, we have learned the importance of creating a program that fits the complexity of transmural palliative care in terms of project size and organization, setting, and implementation- and evaluation strategy.

Ethics approval and consent to participate

This process evaluation was part of the PalliSupport study which was approved by the Institutional Review board of Amsterdam University Medical Center (Protocol ID: METC2018_216). Oral informed consent was obtained from all participants before starting the interviews. All methods were carried out in accordance with the Declaration of Helsinki. Data processing was performed according to the General Data Protection (Algemene Verordening Gegevensbescherming (AVG) in Dutch).

Consent for publication

Not applicable.

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Authors' contribution

The current study was designed by Iris van Doorne, Vera van Schie, and Marjon van Rijn and was part of a larger study, which was designed by Bianca Buurman, Dick Willems and Juliette Parlevliet. Data was collected by Vera van Schie, and data was analyzed and interpreted by Iris van Doorne, Vera van Schie, and Marjon van Rijn and discussed with Dick Willems and Bianca Buurman. Iris van Doorne, Vera van Schie and Marjon van Rijn wrote the first draft of the manuscript, which was critically reviewed by and discussed with Marjon van Rijn, Dick Willems, Juliette Parlevliet, and Bianca Buurman after which revisions were made. All authors approved this version to be submitted.

Declaration of Competing Interests

The authors declare that they have no competing interests.

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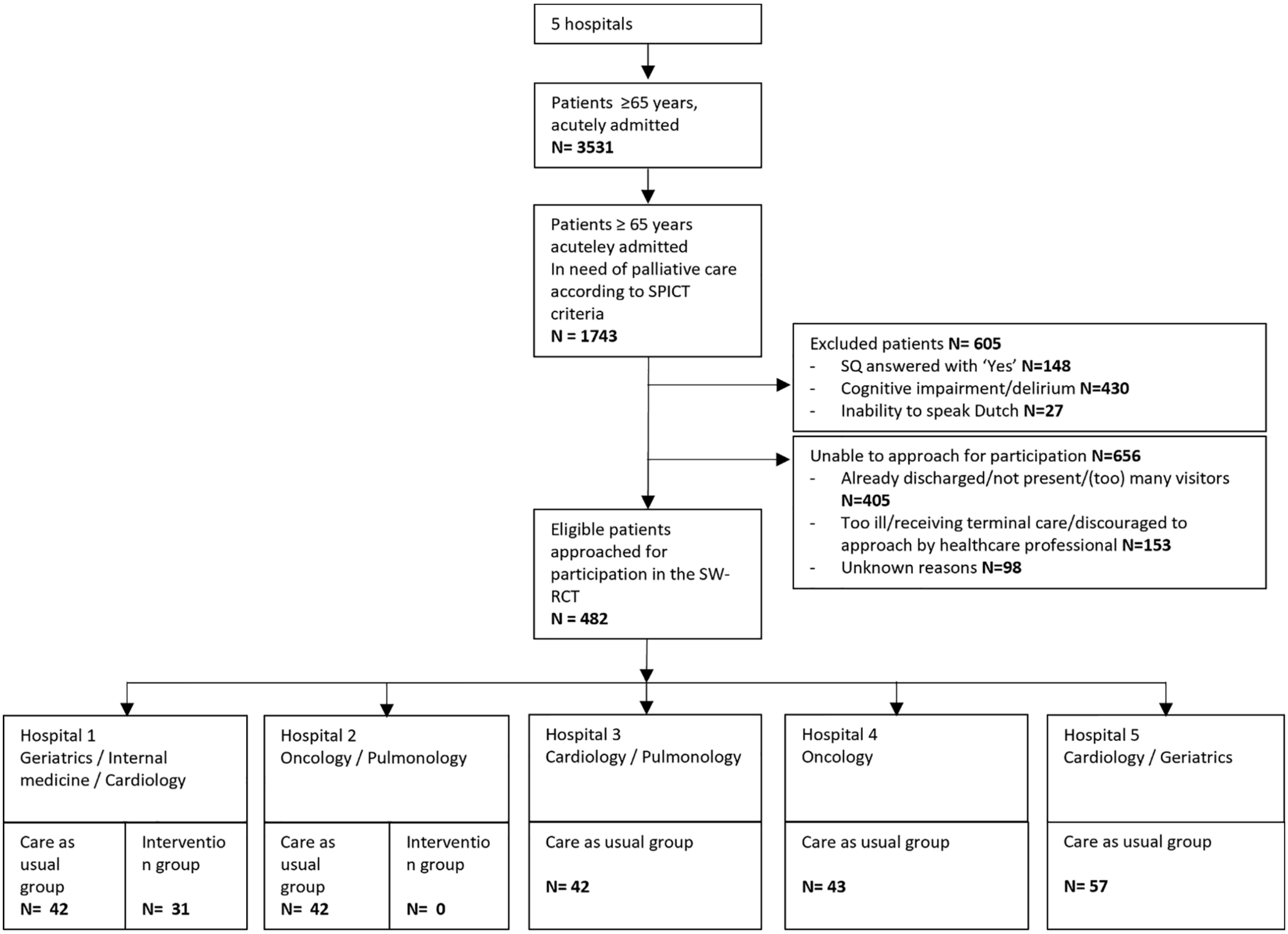
Appendix A. Flowchart of the PalliSupport stepped-wedge randomized controlled trial.



Appendix B. Performed elements of the PalliSupport care pathway

Performed elements of the PalliSupport care pathway	N=26
Palliative assessment by a member of the TPCT	12 (46.2%)
Transmural palliative care team and/or treating physician formulates an individualized care plan	5 (19.2%)
The patient is discussed at the multidisciplinary team meeting	9 (34.6%)
The GP was contacted before multidisciplinary team meeting	5 (55.5%)
The GP was present at multidisciplinary team meeting	0
The GP received a handover after multidisciplinary team meeting	4 (44.4%)
Complexity of the patient's palliative care situation is assessed using the new working method (colour coding green – orange – red)	10 (38.5%) (All green)
GP receives a written medical handover after discharge	26 (100%)
Handover within 24 hours after discharge	19 (73.1%)
District nurse is invited for a warm handover in the hospital	0 (0%)
Out of hours GP notified of the patients palliative care needs	16 (61.5%)
Patient was visited by a member of the TPCT according to color code (green=at least once)	10 (38.5%)

Appendix C. Interview guide.

General:
- Could you tell me something about your job, in terms of work experience, daily activities?
- Could you tell me something about the organization in which you work?

Orientation phase:
- When did you first hear about the PalliSupport project? In which phase was the project at that time?
- Where you interested in the project? Why and how?
- How did you get involved in the project? What was your role and influence?

Insight phase:
- What does the project entail according to you?
- - To what extent did was the project actual in your organization?
- How is the way of providing care according to the project different from current practice?

Acceptance phase:
- To what extent did the care pathway meet how transitional palliative care should be in your opinion?
- Did you feel an urgency to deliver are according to the care pathway?
- What were the perceptions to the project of other healthcare professionals?
- On a scale of 0-100, how much interest did you have in successfully implementing the care pathway?
- On a scale of 0 -100, how much influence did you have on successfully implementing the care pathway?

Change phase:
- To what extend did you, or other healthcare professionals, provide care according to the care pathway?
- What were your experiences with the care pathway?

Maintenance phase:
- Did you continue working according to the care pathway after the research period ended? Do you still provide care according to aspects and/or insights of the program?
- How would you describe support of others during implementation of the care pathway?
- What was the most important barrier for implementation of the care pathway?
- Which factors facilitated implementation of the care pathway?

Appendix D. An overview of implementation levels with aligning themes, influencing factors, lessons, and preconditions.

Innovation level	Themes	Influencing factors	Lessons	Before you start
The innovation itself	Current challenges in palliative care	• The current division between primary and secondary palliative care • The high number of healthcare professionals and organizations involved in palliative care • Difficulties initiating palliative care and advance care planning • High workload	• Do not underestimate the complexity of implementing a care pathway in terms of existing challenges in palliative care	• Involved organizations should have experience with advance care planning • The in-hospital palliative care team should have sufficient capacity to provide care according to the care pathway, or the ability to create capacity
	The setting of the care pathway	• Starting during the acute hospital setting did not suit perspectives regarding palliative care • Starting in the hospital setting made healthcare professionals of other settings feel uninvolved	• Create a care pathway that can start in all settings	• Invest in creating a shared vision and involve all settings from the start
Individual professional	Motivation	• Most involved healthcare professionals recognized current challenges in palliative care	• Be aware of the project size in terms of creating involvement and project management needed to implement a care pathway. Start in one region and create a support and evidence base	• Inform a broad population of healthcare professionals about the current challenges • Be aware of the high number of involved healthcare professionals • Create multiple structures to inform all healthcare professional (i.e., presentations on different levels, newsletters, and by representatives)
	Involvement	• Not all involved healthcare professionals were familiar with the care pathway • Some healthcare professionals felt uninvolved		
Organizational context	Project management	• Predesigned organization structures were not efficient in practice • Responsibilities were unclear • Next steps were unclear and took a long time		• Collaboration within organizations should be sufficient • Tasks should be defined and regional project coordinators and representatives should be fully committed • Representatives and coordinators should be given financial support and time by the management
Economic and political context	Project and evaluation plan	• The grant gave limited room for adjustment based on opportunities for improvement observed in the pilot study • The innovation is complex and requires a cultural and behavioral change • The stepped-wedge RCT made implementation difficult because of limited flexibility and time to adjust and implement	• Make sure there is room for adjustment in the grant application or room for a second pilot test • Choose a less complex study design than a stepped-wedge RCT to assess such a complex care pathway • Consider a before-after study design and/or action research • Consider a qualitative evaluation method	• Take into account how much time and effort is needed to fully implement a care pathway • Choose suitable and relevant for practice outcome measurements • Build in room for adjustment in the grant application

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