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Original Article

A protocol for development of virtual cross-sectoral team conferences for cancer late effects

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ABSTRACT

INTRODUCTION. People who survive cancer often experience late effects that significantly affect daily living and quality of life. Moreover, they frequently encounter fragmented care across healthcare sectors. To address these challenges, a virtual cross-sectoral team conference model is being developed, integrating the expertise of late effects specialists, general practitioners and municipal professionals with patients' perspectives. This article presents the protocol for a qualitative study informing the development and refinement of the model. The study examines how the virtual conference is integrated into clinical workflows and explores patient and professional experiences to identify barriers, facilitators and opportunities for optimisation.

METHODS. Guided by a framework for complex healthcare interventions, the study uses iterative Plan-Do-Study-Act cycles. Data are collected through participant observation of virtual conferences, individual interviews with patient, and focus group interviews with professionals and are analysed thematically.

CONCLUSIONS. By providing in-depth insights from both patient and professional perspectives, this study will help ensure the model is practical, acceptable and responsive to real-world needs. Ultimately, it will contribute to the development of a nationally scalable model for cross-sectoral collaboration, offering a coherent, person-centred care pathway for individuals living with complex late effects after cancer.

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While being declared cancer-free signifies the end of cancer treatment, it does not necessarily mark the end of health-related challenges. People who survive cancer often face physical, psychological, existential and social challenges that significantly affect their daily living and quality of life [1-3]. Moreover, many of these people experience challenges navigating the healthcare system after cancer, particularly in the transition between the end of treatment and their return to everyday life [4]. In Denmark, approximately 400,000 individuals live with or

after a cancer diagnosis, and more than half of those who survive experience late effects. According to a recent national survey [5], 70% reported experiencing one or more late effects that affected their quality of life. While cross-sectoral collaboration was overall positively assessed, respondents also stated that they were not adequately asked about their needs or informed about where to seek support.

Despite the growing number of people affected by cancer late effects, a unified national strategy to address these is lacking in Denmark. Specialised clinics have been established in some regions, and with the fifth National Cancer Plan [6], additional clinics are expected nationwide. However, there is no consensus on which sector or stakeholder is responsible for care and treatment [7]. This unclear division of roles, combined with limited knowledge sharing, contributes to fragmented care across sectors. Building on this, international research has already pointed to the potential of coordinated care models that support patients in navigating services across healthcare sectors. Such models have been shown to reduce social disparities, improve health outcomes and strengthen quality of life [8, 9]. For example, technology-enabled solutions, such as video-based consultations where the patient, an oncologist and the general practitioner (GP) meet virtually, have been tested during cancer treatment to strengthen information sharing, facilitate collaboration and support person-centred care [10]. While such solutions may present practical challenges [10, 11], they create important opportunities to bridge communication gaps between sectors. To our knowledge, however, their use in the survivorship phase remains unexplored.

To address these gaps, a new cross-sectoral care coordination model is being developed as part of a larger cross-regional implementation research project (Supplementary Material). The project is carried out across five Danish Regional Clinics for Late Effects after Cancer (DaRCLEC) and is more commonly referred to as the DaRCLEC project. Central to the model is a virtual cross-sectoral team conference that brings together a multidisciplinary group of late effects specialists, the patient's GP and relevant municipal professionals. In line with national health policy objectives to decentralise follow-up care and strengthen primary care [12], the rationale for developing this DaRCLEC model is to translate these goals into practice by clarifying responsibilities, organising services closer to patients' everyday lives and enhancing continuity across sectors.

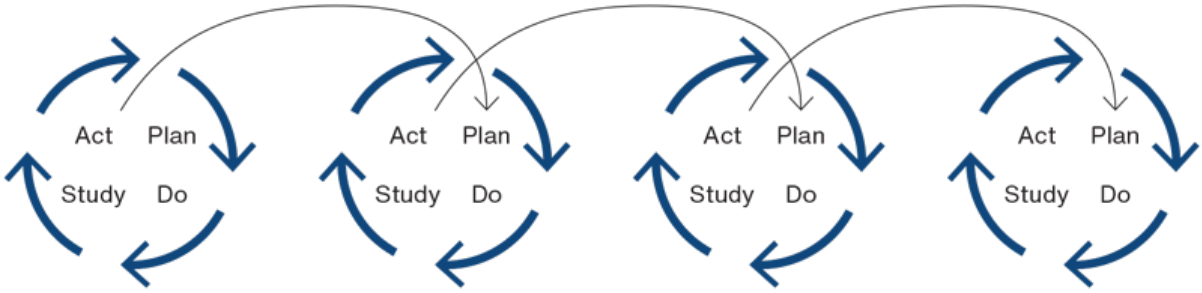
This article presents the protocol for a qualitative study informing the development and refinement of the model. The study examines how the virtual conference is integrated into clinical workflows and explores patient and professional experiences to identify barriers, facilitators and opportunities for optimising the model before broader implementation.

Methods

Study design

This study adopts a phenomenological-hermeneutic approach [13] and is guided by a framework for complex healthcare interventions [14]. To inform the ongoing refinement of the model, the study is conducted in parallel with small-scale testing of the intervention across three to four Plan-Do-Study-Act (PDSA) cycles [15] (**Figure 1**). During each cycle, three qualitative methods are used to collect data: participant observation of the virtual conference [16], individual interviews with patients [17] and focus group interviews with professionals [18]. Findings will be reported in accordance with the Standards for Reporting Qualitative Research [19].

FIGURE 1 Plan-Do-Study-Act cycles.



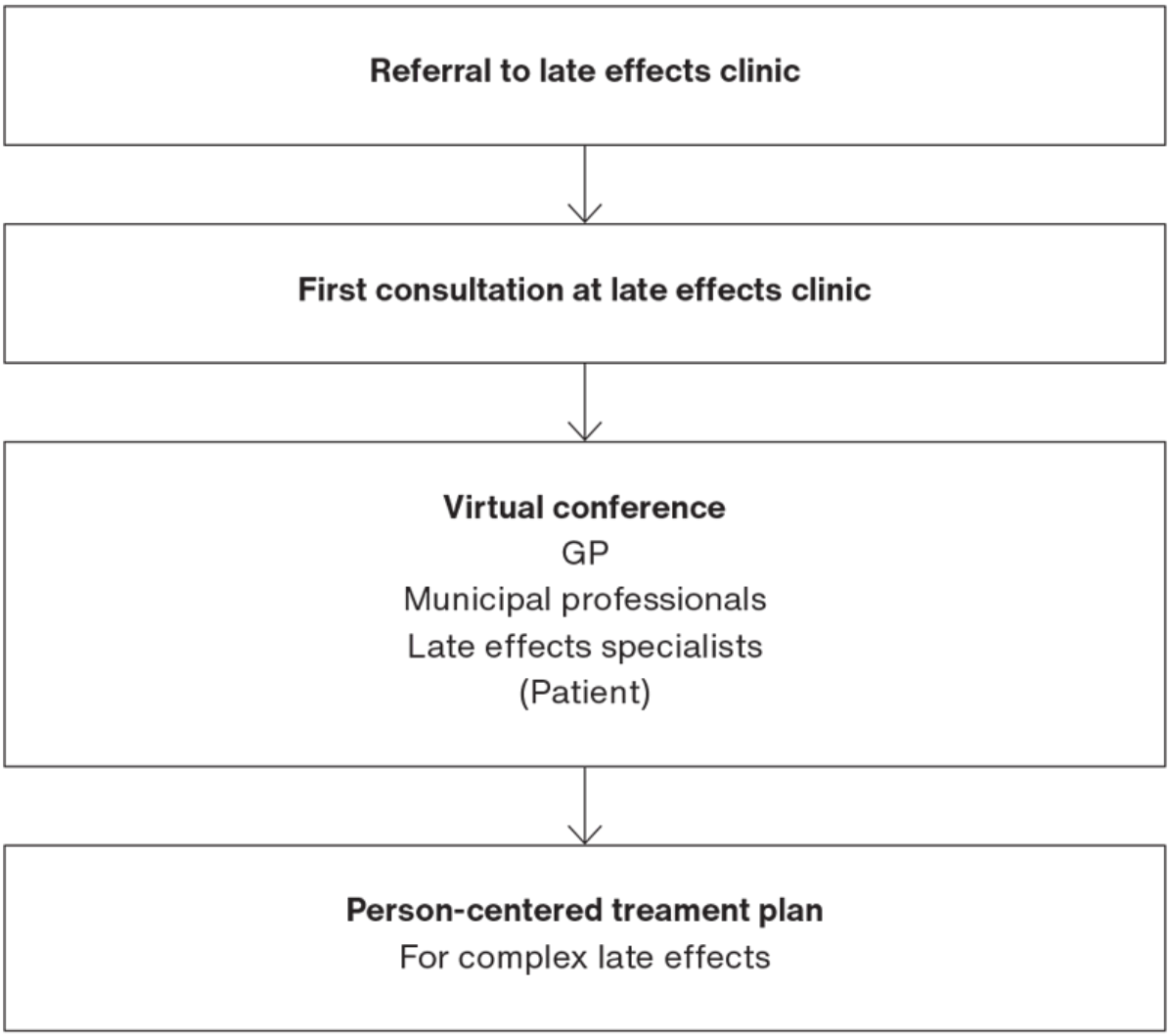
Clinical setting (standard of care)

The study is conducted across the five DaRCLECs; one located in Region Zealand and four clinics in the Region of Southern Denmark. Patients are referred to these clinics either by their GP or by a hospital department. Referral criteria are based on the presence of complex late effects, defined as those that interact or reinforce each other. At their first consultation, patients' late effects are assessed in the context of their cancer trajectory, treatment history, comorbidities, current physical and psychological symptoms, and impact on daily life, family and work. Depending on the individual patient's needs and the composition of the multidisciplinary team in each clinic, the consultation may involve different combinations of late effects specialists (usually two), such as physicians, nurses, sexologists, psychologists, occupational therapists and psychotherapists. Together with the patient, the specialists prioritise late effects requiring treatment and compile evidence-based or best-practice treatment options in accordance with the new clinical guidelines [20]. As needed, patients' cases are reviewed and discussed at a multidisciplinary team conference at the local clinic.

The Danish Regional Clinics for Late Effects after Cancer model (intervention)

The DaRCLEC model extends the standard clinical workflow by inviting the patient's GP and relevant municipal professionals to participate in a virtual conference. Invitations are sent at the time of the patient's referral, allowing professionals to plan their participation. The conference is scheduled within one month of the patient's first consultation at the clinic and may also include the patient. During the conference, moderated by the clinic, participants discuss and agree on which treatments can be provided and in which settings. Treatment plans are aligned with patient preferences during or after the conference to ensure a feasible and person-centred approach. **Figure 2** illustrates the overall clinical workflow of the model, including preparatory steps prior to the conference and follow-up processes, during which decisions are translated into collaborative treatment plans tailored to each patient.

FIGURE 2 Clinical workflow of the Danish Regional Clinics for Late Effects after Cancer model. The parenthesis in the figure indicate that patient participation in the virtual conference is explored as part of model development.



GP = general practitioner.

Participants and recruitment procedures

Eligible participants are patients (≥ 18 years) who have completed cancer treatment with a curative intent and have complex late effects. Patients undergoing active anti-neoplastic or palliative treatment are not eligible, except for yearlong adjuvant treatments such as anti-oestrogens and anti-androgens. Patients are purposively selected to ensure variation in patient characteristics, cancer diagnoses and geographic representation across the five clinics.

Prior to their first consultation at the late effects clinic, patients are contacted by telephone, informed about the intervention study and invited to participate. Written informed consent is obtained from patients during their

first visit, covering both consent for the conference to be held and participation in an interview. Based on patients' consent, each patient's GP and relevant municipal professionals are invited to participate in the virtual conference; their involvement requires a signed collaboration agreement.

Participants for focus group interviews are recruited among professionals who have participated in a virtual conference, and their inclusion is based on separately provided written informed consent.

Data collection

Data collection was initiated in October 2025 (Cycle 1) and is expected to be completed in October 2026. Data is collected by the first author, LB, a qualitative researcher with no clinical training or treatment responsibilities. Prior to formal data collection, LB conducted informal field visits to the five clinics to become familiar with the clinical setting.

Since the first cycle focused on establishing productive and trustful collaboration across sectors, patients did not participate in the conferences themselves during this cycle. In the second cycle, patients are invited to participate in the virtual conference to explore how their involvement affects clinical workflows and cross-sectoral collaboration, and how they experience their own participation. Whether patients will be invited to participate in subsequent cycles will depend on insights gained from the first two cycles.

Table 1 provides an overview of planned data collection for each cycle, including expected numbers of virtual conference observations and interviews. Numbers decrease across cycles to enable manageable data collection and allow deeper exploration of findings. Parentheses indicate that Cycle 4 will be applied only if further model refinement is needed.

TABLE 1 Overview of data collection methods across Plan-Do-Study-Act cycles.

Method	Cycle 1	Cycle 2	Cycle 3	(Cycle 4)[a]
Participant observation during conference, n	10-15	10	10	(10)
Individual interviews with patients, n	10-15	5-10	5-10	(5)
Focus group interviews with professionals, n	2-3	1-2	1	(1)

a) Will only be applied if further refinement of the model is needed.

Participant observation of virtual conferences

The virtual conferences are observed by LB, with an estimated 30-40 conferences across PDSA cycles. Observations are guided by Spradley's ethnographic approach [16] (see **Table 2**) and evolve in three stages: beginning with broad descriptive observations, progressing to more focused and ultimately to selective observations. This progression is shaped by insights derived from each cycle.

TABLE 2 Observation guide inspired by James Spradley's nine dimensions of social interaction.

Dimension	Examples
Space	The virtual platform used for the conference, including technical aspects
Actors	Late-effects specialists, municipal professionals, GPs and possibly patients (and relatives)
Activities	Information sharing, decision-making and coordinating treatment
Objects	Patient records, treatment plans, digital screen shares
Acts	Asking questions, giving instructions, expressing agreement/disagreement, and non-verbal signals
Events	The virtual conference
Time	Meeting duration, time of day, deadlines
Goals	Developing a person-centred treatment plan, clearly divided roles and responsibilities
Feelings	Mood, engagement among participants

GP = general practitioner.

To provide a comprehensive understanding of how the virtual conferences unfold, Spradley's nine fundamental dimensions of social situations guide observations (see Table 2). Reflecting the DaRCLEC model's person-centred foundation, particular attention is given to how patients are addressed, involved or represented.

To minimise the risk of influencing participant behaviour, LB acts as a passive observer, with the video camera off and conferences audio-recorded only. Written field notes are used to record details, including nonverbal information, and reflections are added immediately afterwards to guide and nuance interview questions.

Each observation is expected to last approximately 30 minutes, consistent with the planned duration of the conferences.

Individual interviews with patients

Individual interviews are conducted with patients approximately one week after the virtual conference, once they have had follow-up contact with the late effects clinic. The method is chosen to elicit rich, detailed narratives that capture the nuances of each patient's lived experience [17] and to provide a confidential environment in which patients can openly share sensitive experiences without outside influence.

The interviews are semi-structured, following a flexible guide with open-ended questions that encourage participants to describe their experiences in their own words. The interview guide is organised around overarching themes related to processes occurring before, during and after the virtual conference. This format allows exploration of patient perspectives across all phases of the model, including insights related to whether or not they participated in the conference.

Interviews are conducted in person or remotely (by phone or video), according to participants' preferences, and may include relevant caregivers. They are planned to last 30-60 minutes and are all audio-recorded.

Focus group interviews with professionals

Focus group interviews [18] are conducted with GPs, municipal professionals and late-effects specialists once all virtual conferences within a cycle have been completed or once enough participants are available to form a group. The method is chosen as it encourages discussion among professionals, allowing perspectives and insights to emerge that might not surface in individual interviews. Accordingly, it is used to gain a rich

understanding of interprofessional dynamics and organisational factors influencing the model.

To promote open and honest discussion, participants are grouped by sector where possible, aiming for 4-8 participants per group, while group size and composition may be adjusted for practical reasons. As with the individual interviews, the interview guide is organised around the phases before, during and after the virtual conference. The guide is iteratively refined based on insights from each cycle, with particular attention to identifying barriers, facilitators and opportunities for improving cross-sectoral collaboration.

Each focus group interview is expected to last approximately 60 minutes and will be audio-recorded.

Analysis and interpretation

Interviews are transcribed by LB. Full transcription is applied to interviews from the first cycle, while subsequent cycles are selectively transcribed. LB conducts the initial analysis of transcripts and written field notes, following a phenomenological-hermeneutic approach in three phases [13]: naïve reading, structural analysis and critical interpretation.

The first phase involves open and curious reading to become familiar with the data and grasp the overall meaning. In the second phase, the material is broken into meaningful units (quotes), which are then organised into thematic patterns. The final phase moves beyond the identified themes to interpret them within broader social and organisational contexts. To ensure consistency, credibility and rigour, findings from the structural analysis are discussed among authors, LB, KBD, TOM, LS and LKT. Adjustments to the model informed by these findings are discussed within the full author group to ensure collaborative refinement and shared responsibility.

Data collection and analysis proceed iteratively through each PDSA cycle until sufficient rich data are gathered to address the study aim [15] and with participant feedback incorporated to the greatest extent possible. Three to four cycles are expected to provide sufficient insight to determine feasibility and prepare for final implementation (cf. Table 1).

Ethical approval

The study is conducted in accordance with the principles of the Declaration of Helsinki and has been approved by the Regional Committee on Health Research Ethics for Region Zealand as part of the larger project (ID: EMN-2025-00934). The larger project has also been registered in the respective regional project registers: in Region Zealand, in the Privacy register (P-2025-18567), and in the Region of Southern Denmark, in the Acadre research registration system (25/46978). All data will be securely stored and managed in OPEN (Open Patient data Explorative Network) at the University of Southern Denmark, ensuring compliance with applicable data protection regulations, including GDPR.

Trail registration: ethical approval: EMN-2025-00934.

Conclusions

By combining insights from virtual conference observations with the perspectives of patients and professionals, the qualitative findings are expected to illuminate individual, social and contextual factors that influence clinical workflow and cross-sectoral collaboration. These insights will guide iterative refinement of the DaRCLEC model, ensuring that it is practical, acceptable to all stakeholders and responsive to real-world needs. It will lay the foundation for the larger project's quantitative component, which involves large-scale testing of the intervention and assessment of long-term outcomes, including patient-reported quality of life. Ultimately, this qualitative study contributes to the development of a nationally scalable model for cross-sectoral collaboration, offering a coherent, person-centred care pathway for individuals living with complex late effects after cancer.

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