AARHUS UNIVERSITY

WARD ROUNDS WITH OLDER PATIENTS WITH FRAILTY: EMBEDDING PATIENT AND INFORMAL CAREGIVER PERSPECTIVES TO INFORM MEDICAL EDUCATION

PhD dissertation

LENE HOLST ANDERSEN, MD

Health
Aarhus University
Department of Clinical Medicine

2025

PHD STUDENT

Lene Holst Andersen, MD
Department of Clinical Medicine, Faculty of Health, Aarhus University, Denmark
Department of Medicine, Randers Regional Hospital, Denmark

SUPERVISORS

Kasper Glerup Lauridsen, MD, PhD, Associate Professor (Main supervisor)
Department of Clinical Medicine, Faculty of Health, Aarhus University, Denmark
Department of Internal Medicine, Randers Regional Hospital, Denmark

Bo Løfgren, MD, PhD, Consultant Cardiologist, Head of Cardiology and Research
Department of Medicine, Randers Regional Hospital, Denmark
Research Centre for Emergency Medicine, Aarhus University Hospital

Rune Dall Jensen, MSc, PhD, Associate Professor
Department of Clinical Medicine, Faculty of Health, Aarhus University, Denmark
MidtSim, Central Denmark Region, Denmark

Mads Skipper, MD, PhD, Head of Education
Graduate Medical Education, Central Denmark Region, Viborg, Denmark

Kristian Krogh, MD, PhD, Consultant Anaesthesiologist, Associate Professor
Department of Anaesthesiology, Aarhus University Hospital, Denmark

ASSESSMENT COMMITTEE

Mette Krogh Christensen, MSc, PhD, Associate Professor (Chair)
Centre for Educational Development - CED, Aarhus University, Aarhus

Hollis D. Day, MD, MS, MHPE, Associate Professor and Chief of Geriatrics
Boston University Chobanian and Avedisian School of Medicine, Boston, USA
Geriatric Medicine, Boston Medical Centre, Boston, USA

Trine Lignell Guldberg, MD, PhD, Associate Professor and Consultant Responsible for Coordinating Medical Education
Department of Clinical Medicine, Aalborg University Hospital, Denmark
Department of Oncology, Aalborg University Hospital, Denmark

LIST OF ORIGINAL PAPERS

Paper I

Ward round communication with older patients
Andersen LH, Jensen RD, Skipper M, Lietzen LW, Krogh K, Løfgren B
The Clinical Teacher 20.6 (2023): e13614

Paper II

"They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a qualitative study
Andersen LH, Løfgren B, Skipper M, Krogh K, Jensen RD
European Geriatric Medicine (2024): 1-10

Paper III

Enhancing ward rounds for older patients with frailty: A modified Delphi process
Andersen LH, Løfgren B, Skipper M, Krogh K, and Jensen RD
BMC Medical Education (2025): 25, 446

Paper IV

Implementing a cognitive aid for conducting ward rounds for older patients with frailty: A feasibility study
Andersen LH, Jensen RD, Skipper M, Davodian I, Bech JK, Lietzen LW, Krogh K, Løfgren B
Submitted to The Clinical Teacher, in revision

FINANCIAL SUPPORT

The PhD project received funding from Graduate Medical Education, Central Denmark Region and Randers Regional Hospital.

ABBREVIATIONS

ADLs	Activities of Daily Living
CFS	Clinical Frailty Scale
CGA	Comprehensive Geriatric Assessment
DNACPR	Do Not Attempt Cardiopulmonary Resuscitation
EPA	Entrustable Professional Activity
iADLs	instrumental Activities of Daily Living
ICs	Informal Caregivers
LLM	Large Language Models
PPI	Patient and Public Involvement
PROMs	Patient-Reported Outcome Measures

ACKNOWLEDGEMENTS

Thank you to my supervisors for your patience and encouragement. Kasper, Bo, Mads, Rune, and Kristian, I am deeply grateful for the opportunity to immerse myself in full-time research! Over the years, you've helped me grow as a researcher, providing the right balance of support and feedback. Thank you for trusting me to find my own path and for being there during stressful times. Your support, guidance, and good company have made this journey worthwhile.

A special thanks also to Pernille Sarto from the Medical Department of Randers for making this PhD a possibility and providing support along the way.

I sincerely thank all the patients, informal caregivers, doctors, and others who participated in my PhD studies.

I deeply appreciate the Senior Citizens' Council in Aarhus and Randers, especially Aase, Lena, Peder, Per, and Carsten for your invaluable contributions to Study I, II, and IV. Hopefully, we will continue to collaborate for years to come.

Thank you to the staff at the Department of Medicine, Randers Regional Hospital, and Department of Geriatrics, Aarhus University Hospital, for allowing me to conduct my research and helping me find patients.

To the team at MidtSim, Maria, Anders, Karen, Kirstine, and others, thank you for making this journey less lonely and far more enjoyable, not least through unforgettable conferences in Glasgow and Basel, where I became aware of my hygienic standards. Also, Neel and Ejvind, for your contributions at a critical time.

Thank you to the Department of Geriatrics, Aarhus University Hospital, especially Bodil, Merete, Rikke, Anne, Maria, Catherine and Maike. Your support has been invaluable. Lone, I am particularly grateful for your time, knowledge, and passion and

our journey to come. Tone, our partnership means a great deal to me, may we always remain partners in crime (and research).

Siri, I value our shared determination to create meaningful research that will change the world someday.

Thank you to my family and friends. Mette, Line, Ellen, and others, you have continuously provided me with energy, care and support. You've paid attention to small changes and been there for me and my family. My dear sister, thank you! Your family has brought joy, and your encouragement has been greatly appreciated. To my parents and in-laws, your endless support throughout the process has been truly crucial. Mom, thank you for helping me, both practically and emotionally. All of you provided win-win solutions, ensuring my boys were hopefully happier even if their mother was absent at times.

Speaking of, Carl and Max, thank you for balancing my priorities. Although I have been away for days at a time, I have cherished the extraordinary moments spent with you (and yes, the comment: "When will you stop being stressed, mom?" stung, but it was a good reminder of what's important).

Finally, Mikkel, whose patience and decency mean everything to me. Thank you for your kindness, providing me the opportunity to devote myself to conferences and writing. I know it's been tough, and I love you all the more for it! I promise that I will finish my sentences from now on.

TABLE OF CONTENTS

1. PROLOGUE

"An individual never has something to do with another person without holding something of that person's life in his hands."

- K.E. Løgstrup

This thesis reflects years of exploration into ward rounds and communication with older patients living with frailty. Ward rounds lie at the heart of hospital care, yet training for this essential task often receives insufficient attention. As such, the overall idea for this thesis stemmed from my clinical experiences. I was struck by how one of the most critical encounters during hospitalisation—ward rounds—was so often underprioritized in medical training and often left to chance. I also became aware that the voices of older patients and their caregivers were absent when defining what makes a ward round meaningful or effective. Too often, the emphasis appeared to lie with hospital logistics and efficiency, which is also important, however, should not cause patients to be inadequately informed or that their priorities were not understood. These observations became the point of departure for a research journey shaped by a deep interest in communication, patient care, and education.

The design and execution of the studies were developed in collaboration with my supervisors, whose expertise in qualitative research and medical education—particularly within the constructivist tradition—greatly informed the project. The methodological approach reflects the pluralism characteristic of contemporary research in medical education. Across the studies, methods were selected to serve different research purposes—ranging from describing and mapping current practices, to justifying the need for change, and clarifying the mechanisms that may support more effective communication in ward rounds. This alignment of methods with

purpose, as suggested by Cook and colleagues (2008), allowed the research to address the complexity of real-world clinical education and practice from multiple perspectives and will be elaborated in this thesis.[1]

Initially, my focus was on verbal communication, but through this PhD exploring patients' perspectives on ward rounds, I discovered that communication is deeply rooted in relationships. As such, this thesis reflects not only my academic journey but also the collaborative efforts, challenges, and insights gained along the way.

2. DANISH SUMMARY

Denne ph.d.-afhandling undersøger, hvordan stuegang for ældre patienter med skrøbelighed kan forbedres ved at integrere patient- og pårørendeperspektiver i uddannelsen af læger. Med fokus på udfordringer, såsom kommunikation, fælles beslutningstagning og patientcentreret behandling, sigter ph.d.-studiet mod at udvikle og implementere værktøjer, der kan styrke lægers kompetencer til at møde denne patientgruppe.

Studie 1, litteraturstudie: Dette studie var en litteraturgennemgang, der undersøgte effektiv kommunikation med ældre patienter samt barrierer herfor. Studiet viste, at brug af medicinsk fagsprog og jargon bør undgås, da dette fremhæver forskellen i magt mellem læge og patient, samt hvordan skrøbelighed påvirker patientinddragelse og kommunikation.

Studie 2, interviewstudie: Dette studie var et interviewstudie med ældre patienter og pårørende, der undersøgte deltagernes præferencer vedrørende kommunikation under stuegang. For patienter omfattede de væsentlige temaer vigtigheden af at indgå i relation med lægen, opnå tillid og få skræddersyet information. For pårørende var det vigtigt, at de aktivt blev inviteret til at blive inddraget i stuegangen. Samtidig følte de sig ansvarlige for kvaliteten af den behandling, som den ældre modtog. Desuden skulle de pårørende opretholde en positiv relation med patienten, selv når der kunne være uoverensstemmelser imellem deres og den ældres syn på den ældres sygdom og funktionsevne.

Studie 3, konsensusstudie: I dette studie blev der brugt en modificeret Delphi-metode til at opnå konsensus blandt eksperter inden for geriatri og medicinsk kommunikation om den nødvendige viden og kompetencer, der kræves for at gå stuegang hos ældre patienter med skrøbelighed. Eksperterne blev enige om i alt 108 udsagn, som samlet set danner grundlag for en helhedsorienteret vurdering af patienten, samt effektive

kommunikationsstrategier og tværfagligt samarbejde med fokus på at tilpasse sig patienternes psykiske og fysiske behov.

Ud fra fund i studie 1-3 blev et støtteværktøj designet sammen med medlemmer fra Ældrerådet i Randers kommune. Støtteværktøjet fokuserede på forberedelse, gennemførelse af stuegangen samt specifikke omstændigheder, som lægerne bør være opmærksomme på ved håndtering af ældre patienter med skrøbelighed.

Studie 4, gennemførlighedsundersøgelse: Dette studie undersøgte en uddannelsesintervention bestående af bl.a. simulation og podcasts samt implementering af støtteværktøjet. Derudover blev patienters og pårørendes oplevelse af stuegangen efter implementeringen af støtteværktøjet undersøgt. Resultaterne fremhævede udfordringer ved at integrere nye redskaber i klinisk praksis og understregede behovet for struktureret træning for medicinske uddannelseslæger. Samtidig belyste studiet udfordringer ved at engagere patienter som evaluatorer af uddannelsesinitiativer.

Dette ph.d.-afhandling understreger kompleksiteten af stuegang hos ældre patienter med skrøbelighed og pårørendes afgørende betydning. Afhandlingen diskuterer fordelene, udfordringerne og praktiske anbefalinger til at forbedre klinisk praksis og fremme en mere patientcentreret tilgang ved at integrere patient- og pårørendeperspektiver i medicinsk uddannelse.

3. ENGLISH SUMMARY

This PhD dissertation investigates how integrating patient and informal caregiver perspectives into medical education can improve ward rounds for older patients with frailty. By focusing on challenges such as communication, shared decision making, and patient-centred care, the study aims to develop and implement tools to enhance doctors' competencies in addressing the needs of this patient group.

Study I, literature review: This study reviewed the existing literature on effective communication with older patients and the barriers to achieving it. It showed that medical jargon should be avoided, as it highlights the power imbalance between doctor and patient and how frailty affects patient involvement and communication.

Study II, interview study: This study involved qualitative interviews with older patients and their informal caregivers to explore their preferences for communication during ward rounds. Key themes for patients included the importance of building relationships and trust with doctors and receiving personalised information. For caregivers, involvement in ward rounds relies on active invitation. Yet, they feel responsible for the quality of patient care while striving to maintain a positive relationship with the patient, even when disagreements arise.

Study III, Delphi study: This study used a modified Delphi method to gather consensus from geriatrics and medical communication experts on knowledge and competencies for conducting ward rounds of older patients with frailty. The experts agreed on 108 items, encompassing a holistic approach to patient evaluation, effective communication strategies, and interdisciplinary collaboration, focusing on adapting to patients' cognitive and physical needs.

Based on the findings of studies 1-3, a cognitive aid was designed with help of the Randers Municipality Senior Citizens' Council members. The tool focused on

preparation, conducting ward rounds, and specific circumstances that doctors should consider when managing older patients with frailty.

Study IV, feasibility study: The fourth study evaluated an educational intervention that included simulation training, podcasts, and the implementation of the cognitive aid. Additionally, it examined how patients and caregivers perceived the ward rounds after the tool was introduced. The results highlighted challenges in integrating new tools into clinical practice and emphasised the need for structured training for medical residents. The study also revealed difficulties in engaging patients as evaluators of educational initiatives.

This PhD study underscores the complexity of ward rounds with older patients with frailty and the vital role of caregivers. The dissertation discusses the benefits, challenges, and practical recommendations for improving clinical practice and supporting a more patient-centred approach to care by integrating patient and caregiver perspectives into medical education.

4. HOW TO READ THIS THESIS

The thesis begins with a brief **Introduction** that outlines the relevance and urgency of improving ward rounds for older patients with frailty

This is followed by a **Background** chapter introducing ward rounds, frailty, patient-centred care, and ward round competencies, and providing essential context for understanding the challenges addressed in the aim and research questions of the thesis

Then follows the **Aim and Research Questions** to provide the overall aim of the thesis and structure of the four studies

The **Theoretical Framework** is then introduced, including the epistemological positioning and communication theories that informed the research and development of the intervention

The **Research Design and Methodology** are presented, detailing the rationale and methods used in each of the four studies

Then the **Summary of Findings** of each study are presented.

The **Discussion** section analyse and interpret findings across several thematic areas: patient perspectives, communication strategies, operationalisation of competencies, educational development, and implementation

Then **Methodological Reflections** are presented, including synergies between studies, researcher positioning, and limitations

Finally, the **Conclusions** of the PhD project is presented, and future research directions are suggested to further advance the field of medical education

5. INTRODUCTION

The ageing population is transforming the landscape of healthcare systems worldwide.[2] Older patients (>80 years) account for approximately 20% of all hospital admissions in Denmark, and a figure expected to rise in the coming decades.[3,4] Many of these patients present with multimorbidity, polypharmacy, functional decline, and cognitive impairment, contributing to greater complexity in clinical decision making and care coordination.[5,6] Thus, frailty—an age-related state of reduced physiological reserve and increased vulnerability to stressors—is increasingly prevalent among hospitalised older adults, and is associated with poor healthcare outcomes.[7–9] At the same time, average hospital stays are becoming shorter, although older patients have longer average length of stays, as compared to younger patients.[4,10] Despite this, many hospital systems remain unprepared to meet the specific needs of older adults with frailty.[11] In Denmark, the Health Structure Commission's Report from 2024 ["*Sundhedsstrukturkommissionen*"] highlights the urgency of addressing these gaps.[12] Among other things, the report recommends a reorientation of medical specialisation and clinical training, placing greater emphasis on generalist competencies and the ability to manage patients with complex, multimorbid conditions without immediate recourse to specialist care.[12] This implies that more doctors—regardless of specialty—must be equipped with the tools and competencies to care for older patients with frailty during routine clinical encounters, in line with a recent Danish reform of the medical specialist education from 2023.[13]

Although the ward round remains one of the most important clinical encounters between inpatients, informal caregivers, and healthcare professionals—and one where the presence of frailty adds complexity — clinical experience suggests that structured training for junior doctors in performing this increasingly frequent and multifaceted task is not consistently implemented Traditionally seen as a core learning opportunity conducted jointly with a senior doctor, empirical experiences

suggest that ward rounds in Danish medical departments are oftentimes undertaken independently by junior doctors without supervising doctors present in internal medicine specialties, potentially leading to missed opportunities for learning and professional development.[14,15] Alongside this shift towards more solitary ward round practice, patient-centred care has gained increasing attention.[16] Yet achieving patient-centredness in ward rounds involving older adults with frailty is challenging due to cognitive, relational, and functional barriers.[17,18]

Also, patient involvement has gained momentum within healthcare research and quality improvement initiatives, but remains relatively underused within medical education, which leads to the question: How can patient and informal caregiver perspectives be embedded into medical education?[19,20]

This project set out to explore ward rounds with a particular focus on communication seen from the perspectives of patients, informal caregivers, and healthcare professionals, with the aim of developing educational initiatives grounded in patient and caregiver experiences. The overarching goal was to better prepare internal medicine residents to conduct ward rounds in the complex reality of caring for older patients with frailty. The project was structured in three phases: initially, to explore and describe ward rounds from the perspective of patients, informal caregivers, and healthcare professionals (Studies I–III); subsequently, to translate these insights into the development of a cognitive aid for internal medicine residents; and finally, to examine the feasibility of implementing this intervention in clinical practice (Study IV). This approach enabled an exploration on how to better prepare internal medicine residents to conduct patient-centred ward rounds in the complex reality of caring for older patients with frailty."

6. BACKGROUND

This chapter provides the contextual foundation for the PhD project by outlining the clinical, conceptual, and educational dimensions relevant to ward rounds with older patients with frailty. It begins by describing ward rounds as a clinical activity and situates them within the modern hospital and the Danish healthcare context. It then introduces the principles of geriatric medicine, with a particular focus on frailty and the involvement of informal caregivers. The chapter proceeds to review key concepts in patient-centredness and shared decision making, including communication dynamics specific to older patients with frailty. Lastly, the chapter addresses the educational landscape, focusing on ward round competencies in medical education, with particular attention to frameworks such as CanMEDS, Milestones, and Entrustable Professional Activities. Together, these sections aim to demonstrate the relevance and complexity of ward rounds in geriatric care and the educational gaps that this thesis seeks to address.

Ward rounds

Modern ward rounds

The ward round is the backbone of modern hospital care. Initially developed to train medical students and junior doctors, ward rounds have evolved to support clinical practice primarily.[21] These repeated visits between healthcare professionals, patients, and informal caregivers form the basis for planning and evaluating patient care.[15] A multidisciplinary team approach is described as best practice, i.e., to have team members' clinical assessments and then collaborate to create a holistic care approach.[15]

The elements of the ward round process are outlined in Figure 1.[15] The ward round primarily functions as a non-linear process requiring careful preparation, dynamic interaction with patients and their informal caregivers, as well as collaboration with

the interdisciplinary healthcare team. While it is a specific moment of clinical focus, Healthcare professionals must consider past and future aspects of patient care. This includes evaluating the events leading to the current hospitalisation and planning an optimal discharge process that ensures continuity of care and supports rehabilitation. An essential component of ward rounds is documentation. With the widespread use of electronic health records, there has been a notable shift in how time is allocated during these interactions. While accurate and thorough documentation is vital for patient safety and communication within the healthcare team, it has also led to an unintended consequence: healthcare professionals often spend more time in front of computer screens and less time directly engaging with patients.[22]

Figure 1 Individual patient review during ward round

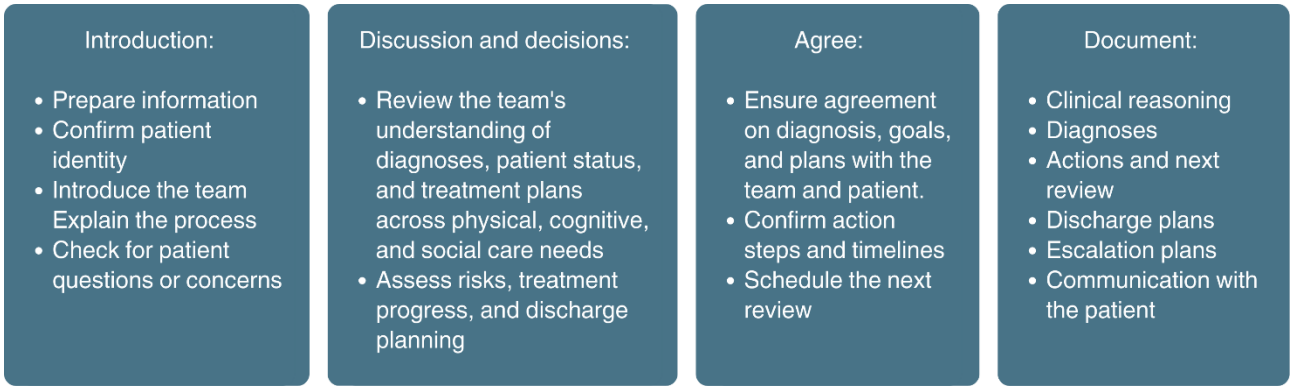


Figure 1 is adapted from Figure 3, Modern Ward Rounds, p. 22.[15] It highlights elements incorporated in the ward round and its complexity.

Ward rounds in Denmark

In Denmark, the structure of ward rounds has evolved from the traditional model involving a professor leading a group of healthcare personnel to a format where doctors often conduct rounds independently. While patients may have their informal caregivers present during these rounds, this presence is not an inherent right. It

depends on the healthcare professional's initiative to facilitate the invitation to ward rounds. Additionally, the timing of ward rounds is often unpredictable. Doctors may arrive at different times due to emergencies or schedule delays, creating uncertainty for patients and their informal caregivers. This setup leads to variability in patient support, which may impact their comfort and sense of advocacy during ward round interactions.

Furthermore, Danish ward rounds are conducted during office hours, contrasting with practices in other countries, such as the United States, where structured evening ward rounds (PM rounds) are more common. These rounds provide a second touchpoint for patients and informal caregivers. In Denmark, most medical specialities only conduct evening rounds when urgent issues arise. Similarly, weekend ward rounds are in most departments limited to handling acute situations, leaving routine patient follow-up to weekdays.

Geriatric Medicine

Geriatric Medicine was established as a medical speciality in Britain in 1947.[23] With the growing number of older adults requiring care for chronic diseases and long-term care facilities, the speciality of geriatrics has experienced growth in some developed countries in the last decades. Still, several European countries do not recognise Geriatric Medicine as a medical speciality, although joint European initiatives, such as COST-PROGRAMMING, aim to change this.[24] Geriatric Medicine provides comprehensive medical care for older people, with its fundamental instrument being the Comprehensive Geriatric Assessment (CGA). CGA is a holistic and *"multi-dimensional, diagnostic and therapeutic process conducted to determine the medical, mental, and functional problems of older patients with frailty so that a coordinated and integrated plan for treatment and follow-up can be developed"*.[25] Thus, the CGA encompasses both acute and chronic illnesses with a patient-centred approach.

Globally, geriatricians are also involved in primary care; however, in Denmark, geriatric medicine handles predominantly secondary sector patients.

Frailty

Frailty refers to an age-related syndrome of functional loss in several domains, leading to an increased risk of adverse healthcare outcomes, even in minor illnesses.[26] These domains, such as gait imbalance or cognitive impairment, may be physical or psychological. The pathological complex mechanisms of ageing play a role but are not fully understood.[27] Frailty is associated with an increased risk of falls, disability, and hospital admissions.[27] Also, frailty is associated with mortality.[27] With growing global adoption, the Clinical Frailty Scale (CFS) is widely used in Denmark to provide an assessment of overall frailty levels, see Figure 2.[28] The Clinical Frailty Scale considers scores of 5 to 8 as indicating varying levels of frailty, while a score of 9 denotes a terminally ill condition.[8] The Clinical Frailty Scale is a common reference tool in clinical quality programs.[28,29]

Frailty and ward rounds

Corresponding to global trends, the number of older adults with frailty is expected to increase.[30] Likewise, Denmark is experiencing a significant increase in hospitalised older patients. Projections indicate that by 2050, the number of hospital bed days for individuals aged 70 and over is expected to rise by more than 50% compared to 2013.[4] The complexity of hospitalised older patients is rising, with increasing levels of multimorbidity, polypharmacy, and consequently, a higher prevalence of frailty.[6,31] Indeed, ward rounds for these patients are particularly challenging due to both acute and chronic conditions, polypharmacy, social issues, and frequently impaired physical and cognitive functions, all of which contribute to communication difficulties.[32,33]

Figure 2 The Clinical Frailty Scale[8]

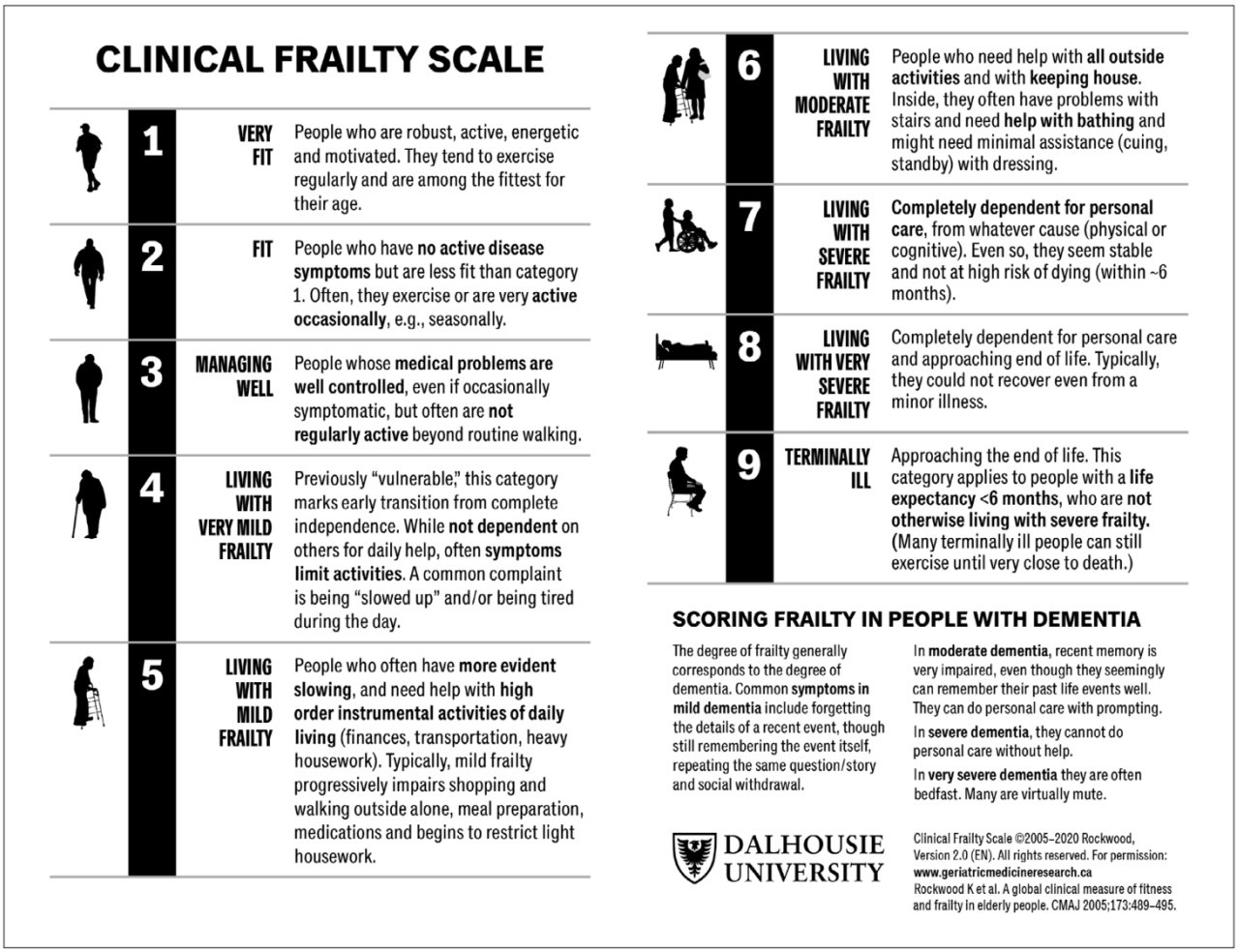


Figure 2 shows the Clinician Frailty Scale, which offers an applicable and hands-on scaling of frailty across healthcare sectors.[8]

Furthermore, as these patients often have non-specific and subtle symptoms, it may be challenging to elicit complaints.[34] This may lead to inaccurate tentative diagnoses and prolonged hospital stays.[35]

For older patients with frailty, ward rounds require joint multidisciplinary and profession-specific medical assessments, care, and plans to be effective.[15,31] During the last years, Denmark has reduced its hospital bed capacity by 37% from 2007 to 2023.[36] This shift is reflected in the average length of stay (LOS), which has decreased significantly in people aged 80+ from 7.9 to 4.9 days.[36] This underscores the need for highly efficient ward rounds during hospitalisation to address patients' needs within

shorter time frames. Consequently, many patients now continue their rehabilitation at home, where informal caregivers play an essential role in supporting older patients with frailty after hospital discharge.

Informal caregivers

Informal caregivers provide unpaid care and assistance to a person with chronic illnesses or disabilities.[37] Informal caregivers are typically family members, friends, or neighbours. In the case of an older person, the informal caregivers support activities of daily living (ADLs), such as bathing, dressing and eating, and instrumental activities of daily living (iADLs), e.g. managing finances and medications or coordinating medical appointments. Furthermore, they frequently offer emotional and social support. Unlike professional caregivers, informal caregivers do not receive formal training or compensation for their services and often have to balance caregiving responsibilities with other personal, professional, or familial duties.[38,39] This may result in deteriorating informal caregiver health.[38,40,41]

Informal caregivers often play a crucial role when older patients with frailty have healthcare interactions. Informal caregivers can be considered "the patient's living health record" due to their ability to provide comprehensive information across sectors. Additionally, they advocate on behalf of patients, contributing to improved care outcomes.[42] Their importance is particularly pronounced during discharge planning. Bookman and Harrington have called them "*the geriatric case managers*" for their integral role in coordinating care and ensuring continuity post-discharge. [39]

Patient-centredness

Patient-centred care

Patient-centred care occurs when the patient's perspective guides all clinical decisions. For this to happen, healthcare providers must respect and respond to patient preferences, needs, and values.[43] This approach is multidimensional.[44] Mead

and Bower describe patient-centred care as encompassing five dimensions: *"the biopsychosocial perspective", "patient-as-person", "sharing power and responsibility", "therapeutic alliance", "doctor-as-person".*[16]

Implementing a patient-centred care approach in healthcare has been shown to reduce costs and improve patient outcomes, such as fewer hospital admissions and readmissions.[45,46] However, not all healthcare professionals hold favourable perceptions of patient-centred care.[47] Several factors contribute to this, including time constraints—since patient-centred care often requires more time per interaction—and lack of training. Healthcare professionals may feel they lack sufficient training in essential skills for effective patient-centred care, such as communication and shared decision making.[18] Thus, patient-centred care is expanding into healthcare learners' curricula, although previous studies on these students' perspectives on patient-centred care have been mixed.[47]

Patient-centred communication

Patient-centred communication is a healthcare approach that focuses on understanding and responding to patients' needs, preferences, and values. As Levinson states, patient-centred communication means to "*elicit patients' true wishes and recognise and respond to their needs and emotional concerns*".[48] Therefore, patient-centred communication is an essential component of patient-centred care, even an enabler of patient-centred care.[44]

In a family medicine setting, Hashim proposed a set of basic skills for patient-centred communication in Family Medicine (Table 1).[49] According to Hashim, effective patient-centred communication requires the doctor to adopt a more reserved role, allowing the patient to express themselves fully.[49] This encompassed open-ended questions (as opposed to yes/no questions), listening actively, and expressing empathy. Some of the barriers to patient-centred communication are the patients' altered mental state,

severe illness or health literacy, which is common among older patients with frailty.[50] However, the doctor's time constraints also play a role.[50]

Table 1 Recommended patient-centred communication in Family Medicine

Introduction and create a connection
Elicit the patient's agenda
List all the patient's agenda items
Negotiate the agenda
Start discussing the patient's concerns with open-ended questions
Elicit the patient's perspective
Empathise
Summarise
Transition to standardised questions
Standardised questions

Table 1 shows the recommended sequence for patient-centred communication in Family Medicine and is adapted from Hashim[49]

Elucidating the patients' views on patient-centred communication, a study from Taiwan investigated patient complaints using negative feedback to identify "communication errors".[51] These errors were non-verbal, verbal, content, and poor attitudes.[51] A rapid review from 2023 found that non-verbal communication strategies, particularly touch, inviting facial expressions and close physical distance, were preferred among older patients in primarily primary care settings.[52] However, the author excluded communication with older adults affected by hearing or speaking impairment in this review.[52] In these circumstances, patient-centred communication is even more critical. A Delphi Study from 2022 on the communication curriculum in Danish undergraduate medical education discarded "communication with elderly".[53]

Given the increasing prevalence of older adults in Danish hospital settings, this decision appears highly counterintuitive and overlooks a critical aspect of graduate clinical practice.[5,54]

The patient-communication context

Communication is the most common procedure in medicine.[55] Communication is inherently context-dependent, as its effectiveness and implication are shaped by the specific setting, circumstances, and individuals involved.[56] In healthcare, communication styles and strategies may differ significantly between primary care, emergency rooms, and palliative care units. Each context demands tailored approaches to meet patients' needs, emotional states, and expectations. Additionally, factors like cultural background, the severity of illness, cognitive abilities, and informal caregivers' presence further influence how information is conveyed and received.[49]

The Calgary-Cambridge Guide to patient interviews provides a structured approach to effective medical communication.[57] The medical interview is divided into stages of the patient consultation, reflecting its primary use in Family Medicine, as shown in Figure 3.

Shared decision making

Shared decision making and patient-centred care have emerged in healthcare services in the last 25 years.[58] Nevertheless, there is a lack of consensus on the definition and purpose of shared decision making. However, NICE guidelines state that *"shared decision making is a collaborative process that involves a person and their healthcare professional working together to reach a joint decision about care."*[59] Care could either mean current care or care decisions regarding, e.g., advanced care planning, but also decisions about treatment options or opting out of a particular therapy plan. Involving people in decisions about their care may result in greater satisfaction with the decisions made and experience with care in general, as well as better compliance with an agreed treatment plan.[60,61] In the older population, some patients prefer not to play

an active role in healthcare decision making.[62] However, they should be allowed to participate in decisions, and any decisions, including treatment reasoning, should be communicated to them.[62]

Figure 3 Basic framework from The Calgary-Cambridge Guide

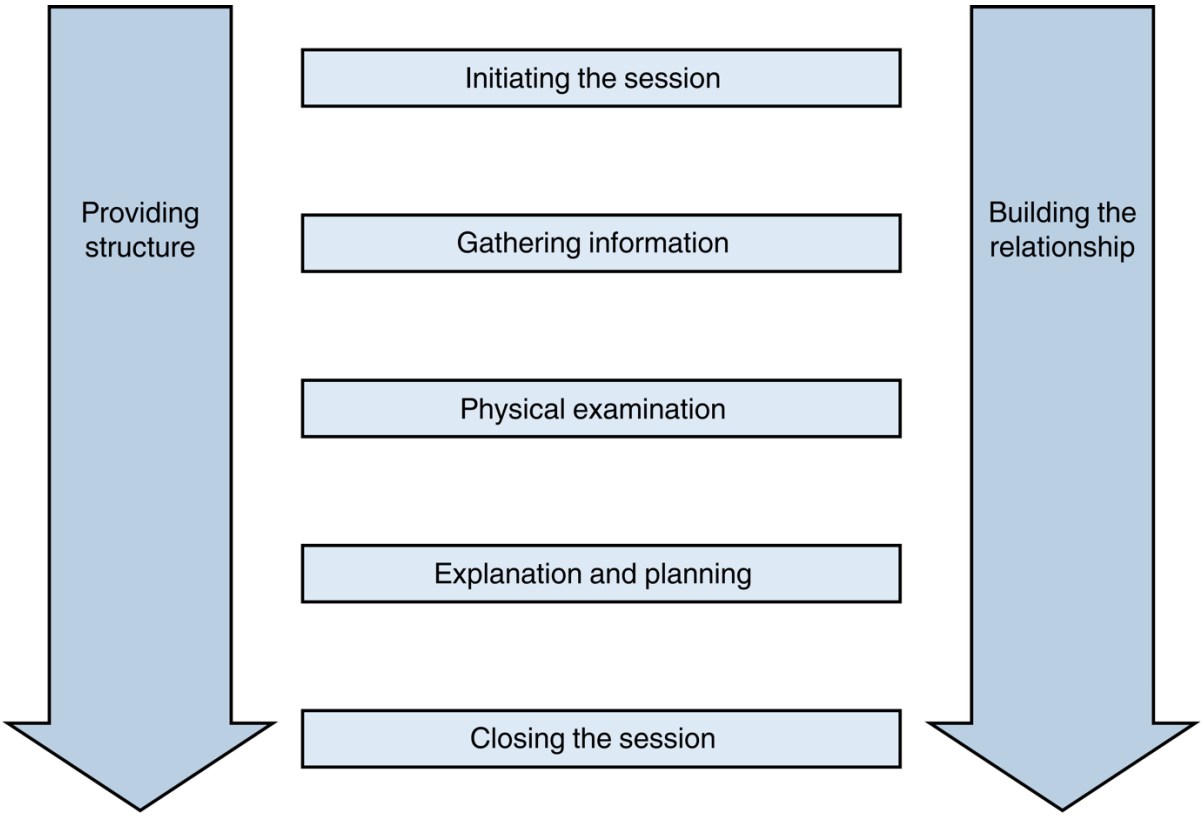


Figure 3 outlines the medical interview from the Calgary-Cambridge Guide, with emphasis on structure and building relationships, while going through the stages in the middle light-grey boxes. From p.18[57]

In Denmark, the legislation empowers patients by securing their rights, but patient participation or involvement is not explicitly stated.[63] Resources are allocated to shared decision making projects, focusing on research and integrating shared decision making into national clinical guidelines.[63] Additionally, educational initiatives focus on shared decision making competencies and further, equipping patients with patient

decision aids.[63] These initiatives aim to change behaviour and culture towards the shared decision-making approach, including its integration into ward rounds.[63]

However, effectiveness and feasibility of patient decision aids in certain patient populations remain uncertain. A systematic review by Thodé et al. (2022) concluded that more high-quality studies are needed to evaluate these tools, particularly among older adults with frailty.[64] Moreover, the use of patient decision aids has been less studied in hospitalised older adults with cognitive impairment who, according to the Clinical Frailty Scale, are living with frailty.[28,65] A recent Danish study found that 70% of patients aged 65+ had cognitive impairment and half were living with frailty before admission.[54] In such cases, clinician-facing tools may better support shared decision making, as neither NICE nor IPDAS currently offer guidance on PDAs for cognitively impaired patients.[59,66] Enhancing clinicians' ability to facilitate these conversations may offer a more inclusive approach.[59] In clinical contexts involving cognitive impairment, for example, patients may struggle to engage with structured decision making processes or interpret complex medical information, raising important concerns about the suitability and accessibility of standardised patient decision aids in this population.[64,65]

Ward round competencies

Surprisingly, ward rounds are not well-studied despite their widespread use and importance.[21,67] In the later years, however, more attention has been drawn towards achieving ward round competencies, as some evidence suggests that students struggle with fundamental tasks, such as physical examination, medication reviews, etc.[68]

Achieving ward round competencies

In a systematic review from 2022, authors Khalaf and Khan examined education during ward rounds, including perceived barriers to teaching and learning.[69] They found 16

studies that described learning activities during ward rounds from 2015-2022.[69] Didactic strategies including simulation-based training and teaching during rounds, such as case reflections, informal discussions, and explaining clinical rationales in real-time. Additionally, structured sessions provide in-depth learning opportunities, while quick, in-parallel teaching points during care ensure practical, context-driven education. Simulation was highlighted as a strategy that offered a safe environment for practising ward round skills without compromising patient safety. However, they argue that learning opportunities are often missed.[69] In Denmark, ward rounds are usually taught to medical students during dyad practice[i], with two students working together.[70,71] While this can be an effective learning strategy, insufficient supervision may reinforce misunderstandings or malpractice among students.[70,71] In Denmark, the education specialist program of internal medicine specifies that ward round training should be achieved through competence cards requiring observation, feedback, and formal assessment.[72] However, beyond these curriculum requirements, there no published evidence on how such training is implemented in practice. My clinical experience as a resident-both in clinical training and in educational roles at local and national levels, suggests that ward round competence acquisition is largely up to random opportunities rather than structured training**.**

Milestones and Entrustable Professional Activities

Globally, Milestones and Entrustable Professional Activities (EPAs) are increasingly introduced in medical education to describe and assess competencies for conducting ward rounds[73–75]. Milestones offer specific, measurable stages of progress that focus on the knowledge, skills, and attitudes, which learners should develop during their specialist training.[75,76] EPAs identify tasks or responsibilities that the learner can perform independently once the learner has demonstrated sufficient competence.[74]

[i] A dyad is a pair. Dyad practices refer to training in pairs, often comprising two students, but other possibilities are a student and a teacher, a doctor and a patient or a nurse.

However, Milestones, EPAs, or similar regarding ward round competencies have not yet been implemented in Denmark.[77]

The CanMEDS framework

The Danish Health Authority adapted the CanMEDS roles in 2005 to enhance the description of medical competencies in graduate medical education.[78,79] A Danish adoption is shown in Figure 4.[80] The CanMEDS is a competency framework developed by the Royal College of Physicians and Surgeons of Canada, most recently updated in 2015.[81] The CanMEDS framework outlines seven roles, which all doctors must fulfil to provide high-quality healthcare. This framework is widely adopted internationally as a model for medical education.[81] Ward rounds are not explicitly mentioned in the CanMEDS framework, but the CanMEDS roles may actively be utilised during ward rounds. As such, conducting ward rounds is a core and complex competency in many medical specialities and is included as part of the clinical skills required during specialist training.[77]

Figure 4 Modified Danish illustration of the seven roles of doctors[80]

Figure 4 illustrates the Danish adaption to the CanMEDS, where the Medical Expert role is central, and the Professional role serves as an overarching role that informs all other roles.

Specialist training in Internal Medicine

Postgraduate medical training in Denmark is structured as a competency-based programme overseen by the Danish Health Authority.[82] Following graduating from medical school, newly qualified doctors complete a one-year of basic clinical rotations [*Klinisk Basisuddannelse*], after which they may enter a specialist training pathway.[72] Training in internal medicine and its subspecialties, including geriatric medicine, consists of a one-year internship [*Introduktionsstilling*] followed by a five-year specialist training programme [*Hoveduddannelse*]. The curriculum emphasises workplace-based learning, supervision, and competencies across the CanMEDS roles, including medical expert, communicator, and professionalism.[78] Educational activities are guided by national learning objectives in education specialist programs [*Målbeskrivelser*] and include both formal courses conducted by the societies and the Danish Society for Internal Medicine and an overview of competencies and their assessment.[72,83]

Ward rounds in Danish medical curricula

The Danish Health Authority approves the curriculum descriptions for medical specialities by law. These descriptions "*outline the theoretical and practical-clinical competencies required to be recognised as a specialist in each speciality*".[82] In the Danish medical curricula, ward rounds are recognised as a function in which doctors assess and follow up on patients' treatment plans through direct contact and dialogue with the patient and, where applicable, their informal caregivers, although guidelines rarely define or explicitly operationalise ward rounds.[77] However, without explicit, operationalised guidelines, junior doctors often depend on random, informal learning experiences to develop ward round competencies.[84] This challenges consistent or comprehensive skill acquisition.

Assessment of ward round competencies is conducted through the use of checklists to evaluate competence levels (competency cards, [*kompetencekort*]), which in internal medicine, notably, does not change between the introductory year of specialist training, competency card I9B and the final (4–5-year) speciality training, competency card FIM6.[77] This lack of differentiation may suggest that the assessment is not sufficiently detailed, as one would expect competencies to progress and become more advanced as the doctors advance in their training. There is also no description or guidance available for those responsible for assessing ward round competence.[83] While tools such as assessment cards support the evaluation of clinical competencies, they do not in themselves provide structured training. This does not suggest that ward round competencies are absent, but rather highlights that longitudinal, practice-oriented educational initiatives to support their development remain limited in clinical practice.[83] Although such competencies are formally defined, the structured implementation and instructional support for developing these skills remain underdeveloped in many departments.[72,83]

To summarise, despite extensive knowledge of healthcare communication, there is still a lack of detailed understanding of communicating with older patients with frailty during ward rounds. Additionally, a best practice ward round—one that balances patient-centred care and healthcare professionals' perspectives—has yet to be clearly defined. Exacerbating this is the lack of standardised training materials for ward rounds, resulting in reliance on unstructured and inconsistent practices to achieve this competency. As such, there are gaps in the internal medicine specialist training that need to be addressed.

7. AIM AND RESEARCH QUESTIONS

Overall aim

The aim of this PhD project was to explore how ward rounds with older patients with frailty and their caregivers can be supported through educational strategies that embed their perspectives. To achieve this, the project was conducted in three phases: first, to characterise ward rounds with a focus on communication and the perspectives of patients and informal caregivers (Studies I–III); second, to develop a cognitive aid and educational intervention for internal medicine residents based on these insights; and third, to explore the feasibility of the intervention in clinical practice (Study IV).

Overview of conducted studies and research questions

Study	Title of paper	Aim	Research Questions
I	Ward round communication with older patients	To provide an overview of ward round communication with older patients and investigate barriers to the optimal communication	What are the means of skilled communication at ward rounds for older patients?
II	"They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a qualitative study	To explore communication preferences of patients with frailty and their informal caregivers during hospitalisation and to analyse such preferences in light of holistic communication	What are the communication preferences of older patients with frailty and informal caregivers during ward rounds?
III	Enhancing ward rounds for older patients with frailty: A modified Delphi process	To generate consensus-based content items for conducting ward rounds with older patients with frailty	What are the best practices for conducting ward rounds with older patients with frailty?
IV	Implementing a cognitive aid for conducting ward rounds for older patients with frailty: A feasibility study	To evaluate the implementation of this cognitive aid, explore its acceptability among residents, and how the cognitive aid affects ward rounds, as seen from a patient and informal caregiver perspective	To what extent was the cognitive aid intervention feasible? Did residents use the cognitive aid during ward rounds? How did older patients with frailty and their informal caregivers perceive ward rounds following the implementation of the cognitive aid?

8. THEORETICAL FRAMEWORK

The Theoretical framework provided an overview of the epistemological positioning and communication theories that informed the research and the development of the cognitive aid and its associated intervention.

Qualitative epistemology

Hermeneutical phenomenological approach

This PhD study is rooted in the phenomenological epistemology. Being a dynamic and descriptive approach, phenomenology emphasises understanding phenomena as they appear to each individual and seeks to explore how meaning is constructed.[85] A phenomenon is not only a static object but is seen as a dynamic interaction with the observer's perception and interpretation. It can take diverse forms, such as physical objects or subjective experiences. Phenomenology explores the link between the subject, the object, and the world, which means that integrating subjective and relational aspects is key when interpreting our experiences of the world.[86]

The hermeneutical phenomenological stance, i.e. that understanding is through interpretation of lifeworld events, implies that the PhD student's pre-understanding and pre-assumptions cannot be omitted but exist coherently in data analysis. Thus, exploring how subjects (e.g. patients and informal caregivers) experience the world and making sense of what they experience is done in the broader context of ward rounds.

Communication theory

Barnlund's Transactional Model of Communication

Over the years, communication theory has progressed significantly, transitioning from the linear transmission model, which conceptualises communication as a one-way process, to more complex and dynamic frameworks. One such framework is

Barnlund's Transactional Model of Communication, which represents a shift toward understanding communication as an interactive process where participants function simultaneously as both senders and receivers.[87] This model recognises the complexity of communication, where shared understanding is co-constructed through public, verbal and nonverbal cues and shaped by individual perceptions and experiences, including contextual factors.[87]

Habermas' theory of communicative action

Habermas' theory of communicative action concerns the actions that communication entails. These actions represent essentially what is done when communicating.[88] The theory focuses on the fundamental role of *language* in creating mutual understanding. Habermas distinguishes between communicative actions that aim for mutual understanding and strategic actions where language is used instrumentally with a specific intention.[88] Habermas emphasises that genuine communication requires the speakers to make themselves understood, express their views about the world, and consider the relationship between themselves and their recipient.[88] Further, communication requires that one is open to the recipient's acceptance or rejection. The fundamental idea is that the goal of communication is to achieve consensus through rational discourse.[88]

Barnlund's and Habermas' theories follow a phenomenological perspective and explore how communication and, for example, decision making unfold in a context shaped by vulnerability, relational dynamics, and the complexity of healthcare interactions.

Communication skills vs. skilled communication

Introduced in 2011, Salmon and Young's perspective on communication in medical education addresses the idea that communication is not merely a set of skills but a complex and creative process.[89] They prefer skilled communication over communication skills, arguing that teaching these skills often falls short if only

technical training is taught without considering the individual and the clinical context.[89] They view communication as a creative and holistic practice that cannot be reduced to fixed patterns or modules, as clinical situations vary and require flexibility and adaptability.[89]

Cognitive aid development

The cognitive aid was developed the findings of Studies I to III. This was to ensure that the aid was both evidence-based and contextually relevant. The aid should address the complexities of ward rounds for older patients with frailty while taking in Salmon and Young's perspective on skilled communication.[89,90] Thus, we decided not to develop a *checklist* for conducting ward rounds with older patients with frailty. Instead, we acknowledged the need for adaptability and creativity and selected elements in the cognitive aid designed to foster reflection. Although somewhat ambiguous, we intended to integrate these principles to create a cognitive aid providing structured guidance while preserving the individuality and relational dynamics essential to ward rounds.

Constructivist underpinnings of the cognitive aid

The development of the cognitive aid in this PhD project was grounded in a constructivist epistemology, which emphasises that knowledge is co-constructed through interaction and shared meaning-making. This perspective informed both the design process and the intended educational use of the cognitive aid. Drawing on findings from Studies I–III, the cognitive aid was shaped by the voices of patients and informal caregivers, whose perspectives were systematically integrated into its structure and content. As Tan and Ng (2021) and Thomas et al. (2014) argue, constructivist approaches support learners in developing the ability to understand, integrate, and respond to the perspectives of others.[91,92] Supporting residents in this

reflective and relational task was therefore key when working with patients with frailty, cognitive impairment, or otherwise vulnerable older adults.

Although the broader study was grounded in constructivism, the evaluation of the cognitive aid in Study IV also incorporated post-positivist elements. For example, the use of structured assessments and the application of the Kirkpatrick model reflects a pragmatic, outcome-oriented approach to evaluating feasibility and implementation. As Thomas et al. (2014) point out, combining paradigms is often necessary in applied medical education research.[92] Moreover, Tan and Ng (2021) note that constructivist learning is compatible with structured tools, further supporting the development and use of a cognitive aid in this context.[91]

9. RESEARCH DESIGN AND METHODOLOGY

Research approach and the methodological relation between the four studies

Our research approach primarily aligned with the constructivist paradigm, though elements of the postpositivist paradigm were also applied. The constructivist paradigm believes that reality and knowledge are constructed through human experiences and social interactions. From this, the "truth" is not discovered but rather created through these processes.[93] The postpositivist paradigm believes that even though an external reality exists, the understanding of it is always shaped by e.g., personal biases or limitations in measurement. As such, we rely on evidence to get closer to the truth, but as human beings we inherently constrained in fully comprehending the absolute truth.[94]

First, a constructivist approach was applied in Studies I-III to describe the ward rounds of older patients with frailty, capturing the complexity of communication preferences and ward round processes. The constructivist approach favours qualitative research methods, as language and context are inherent in understanding how meaning is constructed.[93] This approach allowed for a co-construction of meaning between patients, informal caregivers, and healthcare professionals, their diversity of experiences, and the situational and relational aspects of ward rounds. Study IV integrates constructivist and postpositivist paradigms through a multi-method approach with quantitative and qualitative assessments. The postpositivist approach acknowledges that measurement and observation are inherently imperfect and that a complete understanding remains unattainable.[94] These approaches were applied to objectify cognitive aid use through multiple sources while exploring patients' and informal caregivers' subjective perspectives.

Research design

The four studies comprising this PhD project are methodologically diverse yet conceptually coherent, with each serving a distinct purpose within a broader research agenda. Drawing on the typology suggested by Cook et al. (2008), the studies can be understood as contributing to the three primary purposes of medical education research: description, justification, and clarification.[1] The first, a scoping review, and the second, a qualitative interview study with older patients and their informal caregivers, serve primarily descriptive purposes. Together, they map the current state of communication practices during ward rounds and provide a nuanced understanding of the patient and caregiver experience. These insights justify the need for change, an aim explicitly addressed in the third study, which employed a modified Delphi method to reach consensus among experts on core components for ward round communication with older patients living with frailty. The fourth study, a feasibility study, adopts a clarificatory approach by exploring the implementation of a cognitive aid derived from the Delphi study and studies 1 and 2, examining both resident and patient perspectives and identifying barriers and enablers to its use. The methodological progression across the studies reflects an intentional alignment of method to purpose, supporting the development and preliminary testing of an educational intervention rooted in both empirical evidence and stakeholder input.

Revised study protocol and rationale for Study IV

The original PhD protocol outlined three studies, including a multicentre design across seven internal medicine departments in the Northern Regional Council of Postgraduate Medical Training (Videreuddannelsesregion Nord). Study I and II explored ward round communication from the perspectives of healthcare professionals, patients, and informal caregivers, while Study III aimed to develop and evaluate a simulation-based training intervention. Due to the COVID-19 pandemic and personal circumstances involving critical illness in my immediate family, Study III was deemed

unfeasible. In agreement with the supervisory group, I revised the protocol to include a redesigned feasibility study (Study IV), which was approved by the Graduate School of Health, Aarhus University in April 2023. This revision included a clearer focus on frailty, reflecting findings from the Scoping Review (Study I), and broadened the scope from communication alone to ward round conduct more generally due to responses in the Delphi study (Study III) regarding needs assessment for internal medicine residents. Study IV was reframed to assess feasibility, implementation, and acceptability—rather than effectiveness—and to explore the potential for involving patients and caregivers in the educational evaluation process.

Study I

In Study I, a framework for conducting scoping reviews, as suggested by Arksey and O'Malley and further refined by Levac, Colquhoun, and O'Brien, was chosen to identify challenges to and how to optimise communication.[95,96] Due to the multidimensional nature of communication, we decided not to conduct a systematic review, as a scoping review allowed for a flexible and exploratory process involving various methodologies (qualitative, mixed-methods, surveys, etc.) rather than testing a defined hypothesis. A scoping review includes a six-step process of identifying the research question, identifying relevant studies, screening and selecting studies, charting data, and summarising the results.[97] The final step, consulting with stakeholders, was an important aspect of the decision to conduct a scoping review, as this allowed us to inform study findings with stockholder perspectives on ward round communication to ensure relevance.[98]

Identifying the research question. The research questions were generated to ensure a broad exploration of communication during ward rounds: 1) What are the means of skilled communication at ward rounds for older patients? 2) What are the barriers and challenges to the optimal ward round communication with older patients and their relatives?

Identifying relevant studies. The databases CINAHL, Embase, MEDLINE, and PubMed were searched in July 2022 without date restrictions. The search strategy was co-developed with a research librarian. The search strategy for PubMed is shown in Box 1. Identified records were managed in Covidence, with duplicates removed, and additional studies were identified through snowballing.[99,100]

Study selection: Inclusion criteria required papers to focus on communication during ward rounds with hospitalised patients aged 65 years or older. This age threshold was chosen due to traditional ways of defining older patients in research papers.[101] In cases where age details were unavailable, the terms "geriatric," "aged," "elderly," "old," or "frail" were used as proxies. Papers addressing telemedicine, nursing rounds, intentional rounding[ii], or organisational aspects of ward rounds were excluded. Peer-reviewed articles in English or Scandinavian languages were eligible. While including non-peer-reviewed articles in the review might have expanded the number of included

Box 1 Search strategy for PubMed

(("Aged"[Mesh] OR "Aged, 80 and over"[Mesh] OR "Frail Elderly"[Mesh] OR "Geriatrics"[Mesh] OR "Geriatric Psychiatry"[Mesh] OR "Geriatric Nursing"[Mesh] OR "Geriatric Dentistry"[Mesh] OR "Dental Care for Aged"[Mesh] OR "Health Services for the Aged"[Mesh]) OR (elder*[tw] OR eldest[tw] OR frail*[tw] OR geriatri*[tw] OR old age*[tw] OR oldest old*[tw] OR senior*[tw] OR senium[tw] OR very old*[tw] OR septuagenarian*[tw] OR octagenarian*[tw] OR octogenarian*[tw] OR nonagenarian*[tw] OR centarian*[tw] OR centenarian*[tw] OR supercentenarian*[tw] OR older people[tw] OR older subject*[tw] OR older patient*[tw] OR older age*[tw] OR older adult*[tw] OR older man[tw] OR older men[tw] OR older male*[tw] OR older woman[tw] OR older women[tw] OR older female*[tw] OR older population*[tw] OR older person*[tw])) AND ("Teaching Rounds"[Mesh] OR teaching round*[tw] OR morning round*[tw] OR ward round*[tw] OR bedside round*[tw] OR clinical round*[tw] OR care round*[tw] OR interdisciplinary round*[tw] OR medical round*[tw] OR patient round*[tw] OR attending round*[tw] OR daily round*[tw])

[ii] Intentional rounding is a structured, systematic process in which typically nurses check on patients at regular, predetermined intervals to address specific care needs.[222]

articles, we chose to include only peer-reviewed papers to ensure a higher standard of quality and evidence.

Two researchers independently screened titles and abstracts, with the lead author reviewing all records. Discrepancies were resolved through discussion or third-party review. Authors were contacted for full-text papers when needed, but no additional papers were identified. The research team made final inclusion decisions collaboratively based on full text reviews.

Data charting: Data extraction was guided by the Joanna Briggs Institute framework, with extracted variables including authors, objectives, population, concepts, context, and key findings.[97] This process was iterative, with data reviewed by a co-author, KK, to ensure consistency and accuracy.

Data collation and Thematic Analysis: The extracted data were subjected to Thematic Analysis by Braun and Clarke, categorising findings systematically.[102] The six-step process is displayed in Box 2 and steps one to five are found in Appendix 1. The results were summarised and discussed within the research team and presented narratively to capture the scope of the review comprehensively.

Stakeholder consultation: Four members of the Randers' Municipality's Senior Citizens' Council were consulted to contextualise the findings.[103] A focus group interview was conducted to present the results and gather feedback. Participants were asked to validate the findings and highlight any additional themes or issues not covered in the review.

Box 2 Thematic Analysis by Braun and Clarke

1. Familiarisation with data	Transcribing data, then reading and re-reading and noting down initial codes
2. Generating initial codes	Coding interesting features in the data systematically across the dataset and organizing data relevant to each code
3. Searching for themes	Collating codes into potential themes and gathering all data relevant to each theme
4. Reviewing themes	Checking if themes work in relation to the coded extracts and the entire dataset and generating a thematic map
5. Defining and naming themes	Refining each theme through ongoing analysis and generating names for each theme
6. Producing the report	Final analysis and selecting extracts, discussing analysis with research question or literature in mind, and producing the report.

Box 2 illustrates the iterative six-step process of Thematic Analysis by Braun and Clarke (2006) with minor iterations.[102]

Study II

In Study II, phenomenological principles guided an understanding of patients' and informal caregivers' lived experiences and perspectives during ward rounds.[86] We aimed to understand how participants made sense of their experiences, focusing on the meaning they gave the interactions between healthcare professionals and how they interpreted this contact. Thus, semi-structured interviews were conducted rather than ethnographic studies with observational data. Although ethnographic studies are

great for understanding contextual behaviours, choosing an interview study allowed for a targeted exploration of the participants' reflections and interpretations.

Data collection

The interview guide was developed in collaboration with the Senior Citizens' Councils of Randers' and Aarhus' Municipalities to align with their perspectives as well as the literature. Following two pilot interviews with patients, minor adjustments were made to the patient interview guide. Both interview guides are included in Appendix 2. The principal investigator, LA, conducted all interviews. Interviews took place between November 2022 and June 2023. Patients were interviewed in the hospital, while caregivers were interviewed in settings most convenient for them: at the hospital, by phone, or at home. All interviews were audio-recorded, transcribed verbatim, and anonymised for subsequent analysis. Patient and informal caregiver data were collected through journal audits and surveys, respectively (Appendix 3).

Data analysis

To ensure coding quality, the first four interviews were collaboratively coded by LA, RDJ, MS, and KK, all experienced qualitative researchers. The researchers met and discussed findings and coding strategy. LA then independently coded the remaining interviews, and themes were refined iteratively in collaboration with RDJ. Recruitment ceased when information redundancy occurred, and no new information emerged.[104] The interviews were inductively coded using Reflexive Thematic Analysis[iii] by Braun and Clarke (Box 2), following the Hermeneutic circle of iterative coding between parts and the whole to develop a deeper understanding of the phenomenon.[102,105,106] Reflexivity *"involves the practice of critical reflection of your role as researcher, and your practice and approach".*[105] From this, research bias was identified (is discussed later), and the iterative nature of the analysis was demonstrated, as the material

[iii] Reflexive Thematic Analysis is a six-step process designed to generate patterns across the dataset based on the research question.[223]

underwent several iterations in coding and theme refinement, even after the first draft of the report.

The analysis was performed using NVivo 12.0 software (QSR International, Melbourne, Australia).[107] To ensure transparency in reporting, we applied COREQ (Consolidated Criteria for Reporting Qualitative Research) guidelines (found in Study II Appendix).[108]

Study III

In Study III, we applied a modified Delphi method, as Hasson, Hsu, and colleagues described, to achieve expert consensus on the best practices for conducting ward rounds with older patients with frailty.[109,110] Participants were asked to describe ward rounds, which are distinct from the initial geriatric review (*gennemgang*). The geriatric review is typically carried out by a senior clinician, often within the first 24 hours of admission, following the initial clerking (*journaloptagelse*) performed by a junior doctor. Frailty was defined using the Clinical Frailty Scale.[8] The study was conducted from January to June 2023.

The Delphi method was chosen to incorporate more perspectives than focus groups, which typically involve fewer participants (5-9) and are better suited for exploratory discussions rather than consensus-building.[111] The Delphi method was modified by incorporating a preliminary focus group and extending the traditional three Delphi rounds to five rounds in total. Incorporating a preliminary focus group meeting served an exploratory purpose to explore key themes and identify relevant questions for Delphi round 1. The number of Delphi rounds was extended to five rounds to allow for iterative feedback and consensus-building. This aligned with the core principles of the Delphi method, enabling collective reflections and judgements to shape the results.

Participants in the focus group meeting were recruited via online peer nomination among members of the Danish Geriatric Society. Professional experience in the field of study was used as a substitute for expertise.[112] As such, experts in geriatric medicine and medical communication with at least five years of relevant experience were

eligible for the Delphi study. Geriatric medicine consultants were invited from all hospitals in Denmark, while medical communication experts were peer-nominated. To ensure diverse perspectives, 35 participants were included, aligning with recommendations in this area.[113]

Data collection

Delphi rounds were conducted via REDCap, hosted at Aarhus University. Participants were invited to each Delphi round via email, with a two-week response window and reminders to maximise participation. A response rate of >60% was required to proceed to subsequent rounds, and only participants from the prior round could continue. The purpose of the Delphi rounds is presented in Box 3.

Box 3 Purpose of each Delphi round in Study III

Round 1	Brainstorming on ward round: - preparation - execution - follow-up - competencies required Analysing responses thematically to create initial content items, themes, and subthemes
Rounds 2 and 3	Refining initial content items for clarity and operationalisation: - adding items - suggesting modifications - merging items and subthemes
Rounds 3-5	Rating content items to build consensus Revising items for re-rating if feedback was given Re-rating items without consensus

Data analysis

For the preliminary focus group meeting and Delphi Rounds 1-3, LA conducted the primary analysis and revised content items with support from RDJ. Items were grouped into themes and subthemes. The rest of the research team assisted in case of uncertainty. An example of the revision process is shown in Figure 5. The definition of consensus in Delphi studies is not clear.[114] Before the study, consensus was defined as 75% agreement on a 1-9 Likert scale, with items rated 1-3 considered omitted and items rated 7–9 included. Other examples of consensus criteria include 90%

Figure 5 Revision process of items in Delphi rounds 2 and 3.

Theme: Preparations. Subtheme: Interdisciplinary collaboration			
Content item #	Content item from previous round	Comments from participants	Revised content item
16	Clarify roles, i.e., who does and says what at ward rounds	(1) "Not all departments have enough staff to have a nurse present at ward rounds. Perhaps instead, "determine the patients where multidisciplinary rounds are most important/necessary." (2) "What roles? With us, the doctor conducts ward rounds alone and then has some so-called cross points with the nurse to initiate prescriptions immediately. Only in case of special needs is the nurse present at rounds." (3) "Perhaps add: Clarify who is the 'moderator'"	Identify which patients would benefit most from multidisciplinary rounds and specify who will moderate the ward round conversation.

Figure 5 illustrates how an item was revised through three participant comments. The revised content item was rated in the following round.

agreement within a unidimensional range (e.g., 90% scoping 7-9 on a nine-point scale) or the use of median scores within a specific range. Adopting a proportion within multidimensional ranges (both 1-3 and 7-9) and setting the threshold to 75% allowed for broader inclusion of items.[114] This decision acknowledged the diverse approaches to conducting ward rounds and enabled capturing various perspectives across Denmark. Items without consensus were revisited in the subsequent round. For each item, the individual participant score, median scores and interquartile range for all participants were included (Figure 6).

Figure 6 Example of re-rating information to Delphi participants

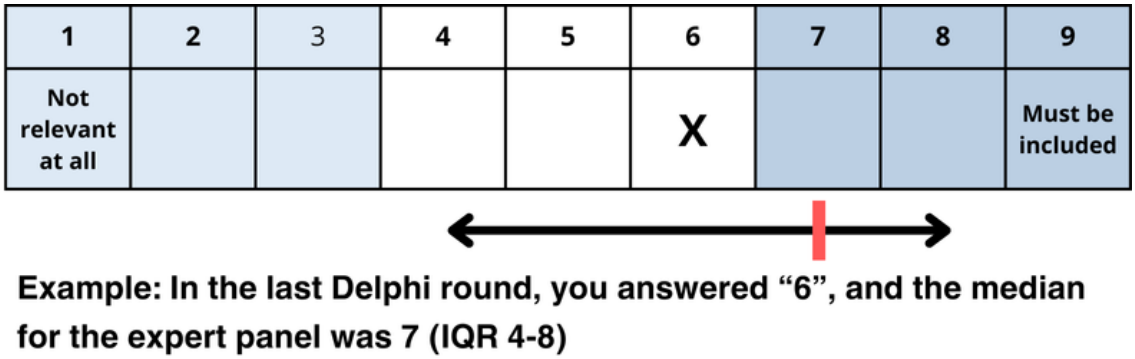


Figure 6 illustrates an example of the information to each participant before they provided their second content item rating. Each item not achieving consensus was revisited in the following round. The Figure includes the individual participant score (X), median score (red vertical line) and interquartile range for all participants (double headed arrow). Abbreviations: IQR: Inter-quartile range

Study IV

Before Study IV, the cognitive aid and its associated intervention was developed (outlined in the 'Summary of findings' section). In brief, Kern's six-step method for curriculum development guided the development of the cognitive aid and its intervention.[90] Kern's six-step method offers a structured approach for designing,

implementing, and evaluating medical education interventions while targeting learners' needs.[90] These steps and the iterative design process are illustrated in Figure 7.

Study IV was designed as a controlled before-and-after feasibility study to evaluate the cognitive aid and its associated intervention. The study applied Bowen et al.'s feasibility framework from 2009, focusing on aspects of implementation and acceptability.[115] This framework provided a structured approach to evaluate whether the intervention could be delivered as intended and how participants perceived it. As such, the purpose of this study was to explore the feasibility of implementing the cognitive aid in clinical practice, not to evaluate effectiveness. This allowed for initial insights into acceptability, implementation, and potential barriers, rather than supporting hypothesis testing.[116]

The first research question in Study IV—"To what extent was the cognitive aid intervention feasible?"—focused on the practical implementation of the educational intervention, which included a lecture, simulation, and podcasts. Feasibility was defined in terms of resident engagement with these components during routine clinical hours, reflecting the organisational and contextual conditions under which the intervention was delivered. This aligns with Bowen et al.'s (2009) feasibility framework under the dimension "Does it work?" (see Box 4), which evaluates whether an intervention can be delivered as intended in a clinical setting and provides early indications of its potential utility.[115] Similarly, the second research question—"Did residents use the cognitive aid during ward rounds?"—addressed the acceptability of the intervention from the residents' perspectives and aligned with the dimension "Can it work?". [115] This domain focused on whether an intervention was acceptable and usable for its intended participants in a real-world setting. A controlled before-and-after design was chosen to explore the feasibility domain of acceptability, in line with Bowen et al.'s recommendation for assessing "Does it work?" in feasibility studies. This

approach allowed for a preliminary comparison of resident behaviour and patient experiences across groups, while also helping to account for potential spillover effects. A single-group design might have offered advantages in this context. Including more residents within a single cohort could have allowed for richer qualitative data and a deeper exploration of how the cognitive aid was used, as well as the barriers and facilitators to its implementation. Such an approach might have yielded more nuanced insights into residents' experiences and a fuller understanding of the educational processes at play.

Box 4 Research questions, feasibility domains, and intervention development phase

Research question	Feasibility domain	Intervention development phase
1) To what extent was the cognitive aid intervention feasible?	Implementation	Does it work?
2) Did residents use the cognitive aid during ward rounds?	Acceptability	Can it work?
3) How did older patients with frailty and their informal caregivers perceive ward rounds following the implementation of the cognitive aid?	Acceptability	Does it work?

Study design

Residents were divided into control and intervention groups, with the control group assessed first to prevent spillover effects. Including a control group provided a comparative baseline, enabling an evaluation of the potential impact of the cognitive aid intervention. Additionally, it allowed us to assess the extent to which elements of

the cognitive aid were already embedded in existing practices. This was relevant, as we anticipated that residents might naturally employ aspects of the cognitive aid, even without direct exposure to the cognitive aid or the intervention. In the intervention group, the cognitive aid was introduced within the first two weeks via a lecture, a simulation session, and two podcasts. The participants in the control group were offered access to the intervention following their participation.

The study design is illustrated in Figure 8.

Figure 7 Kern's six-step approach to curriculum development (from [p.7 90])

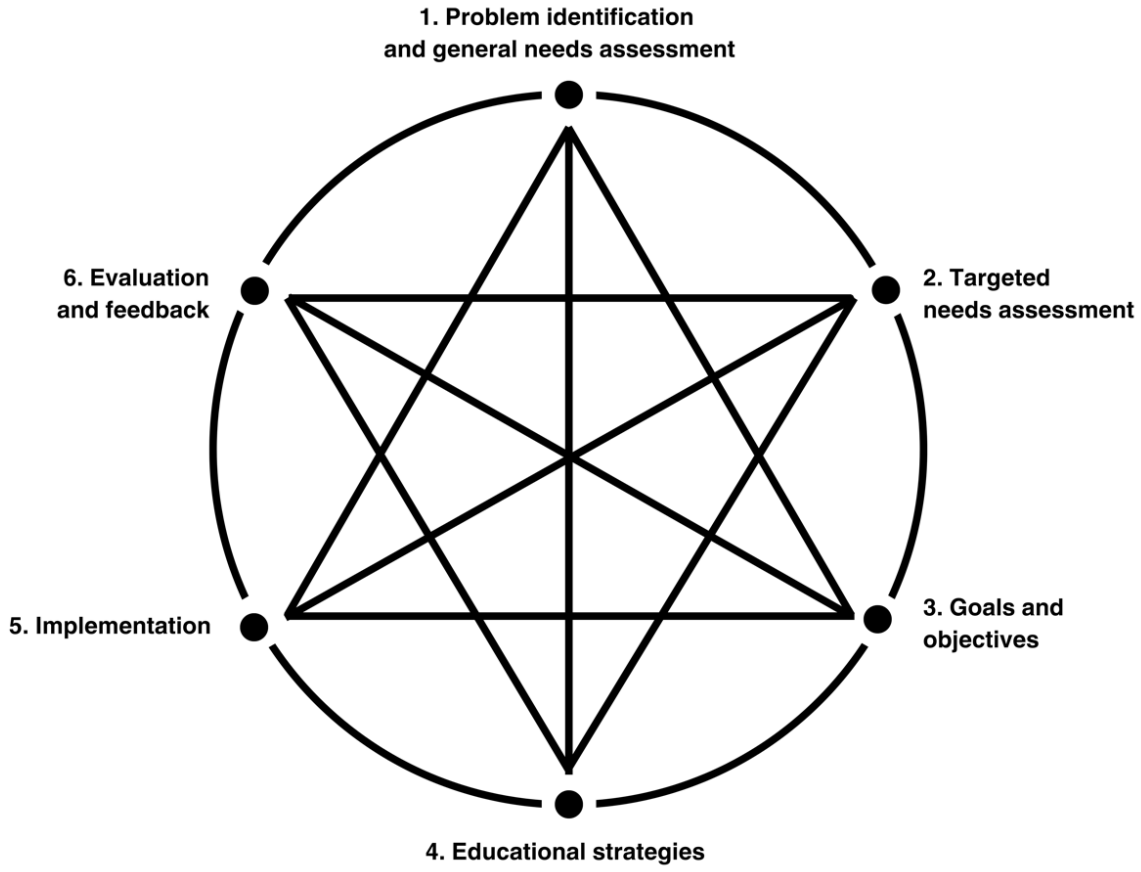


Figure 7 illustrates the process of developing curriculum and teaching material according to Kern et al.[90] All lines should be regarded at bilateral arrows illustrating the iterative process between each step.

Study participants

The study was conducted in the Department of Medicine at Randers Regional Hospital, Denmark, a 191-bed teaching hospital, from October 2023 to February 2024. Internal Medicine residents were eligible if they worked in the department during the study period. Recruitment was conducted by LA and the clinical education team using convenience sampling. Convenience sampling was considered suitable because the participants were readily available and reflected the real-world setting in which the intervention was to be implemented.[117] Patients and informal caregivers were also recruited via convenience sampling, with consent obtained from patients prior to caregiver participation. Patients and caregivers could participate in multiple ward rounds. Frailty was assessed using the Clinical Frailty Scale, with eligible patients scoring between 5 and 8 and being able to provide informed consent.[28]

The sample size for the internal medicine residents was determined pragmatically, based on the how many internal medicine residents were employed in the Internal Medicine Department in Randers Regional Hospital. During this study period, 20 internal medicine residents were eligible. This sample size aligns with other feasibility studies, which typically report a median of 30 participants (IQR 20–50), according to a review of UK-based studies.[118]

Drawing on Bowen et al.'s framework for feasibility studies, the study addressed two core questions: “Can it work?” and “Does it work?” (Box 4). While research questions 1 and 2 focused on the resident physicians as users of the intervention, the study also ensured that the perspectives of patients and informal caregivers were meaningfully included in the evaluation process. For research questions 3, this was partially explored in the development phase, during which the Senior Citizens' Council in Randers Municipality reviewed and provided feedback on the cognitive aid. The patient and caregiver perspective was further integrated in Study IV, where patients and informal caregivers—unaware of residents’ group allocation—were asked to evaluate

their ward round experience, enabling preliminary comparisons between intervention and control groups. This provided a patient-centred dimension to the assessment of the intervention's practical impact.

In line with Kirkpatrick's model of training evaluation, patient and caregiver responses were intended to reflect Level 4 outcomes: the broader effects of training as perceived by service recipients. Although the primary goal of Study IV was not to assess effectiveness, including the dual perspectives of residents and patients was essential for ensuring that the intervention was responsive to real-world complexity and stakeholder expectations.

Data collection

Baseline data were collected for all residents, while patient and caregiver data were gathered during baseline and follow-up. Patient and informal caregiver data were collected through journal audits and surveys, respectively. This was similar to Study II (Appendix 3), while resident data was collected through a survey (Appendix 4).

Implementation data included field notes and self-reports. Ward rounds were videorecorded at baseline and after 6–8 weeks. The follow-up timing of video recordings varied due to ward round scheduling. Resident use of the cognitive aid was evaluated via self-reports and video recordings. We included video recordings to assess cognitive aid usage from multiple perspectives, recognising that residents might gain insights from the intervention without consciously noticing or reporting their use. Self-reports were added post hoc when no group differences emerged in cognitive aid use.

Two independent raters (a geriatric resident and consultant), blinded to group assignment, assessed videos in random order. Videos were rated using a 7-point Likert scale, with irrelevant items marked as "not relevant" (e.g., if difficult conversations such as advanced care plans were not discussed). Raters met with LA after 5, 10, and

15 videos to compare results and thereafter only reconvened for discrepancies greater than two points.

Figure 8 Study design of Study IV

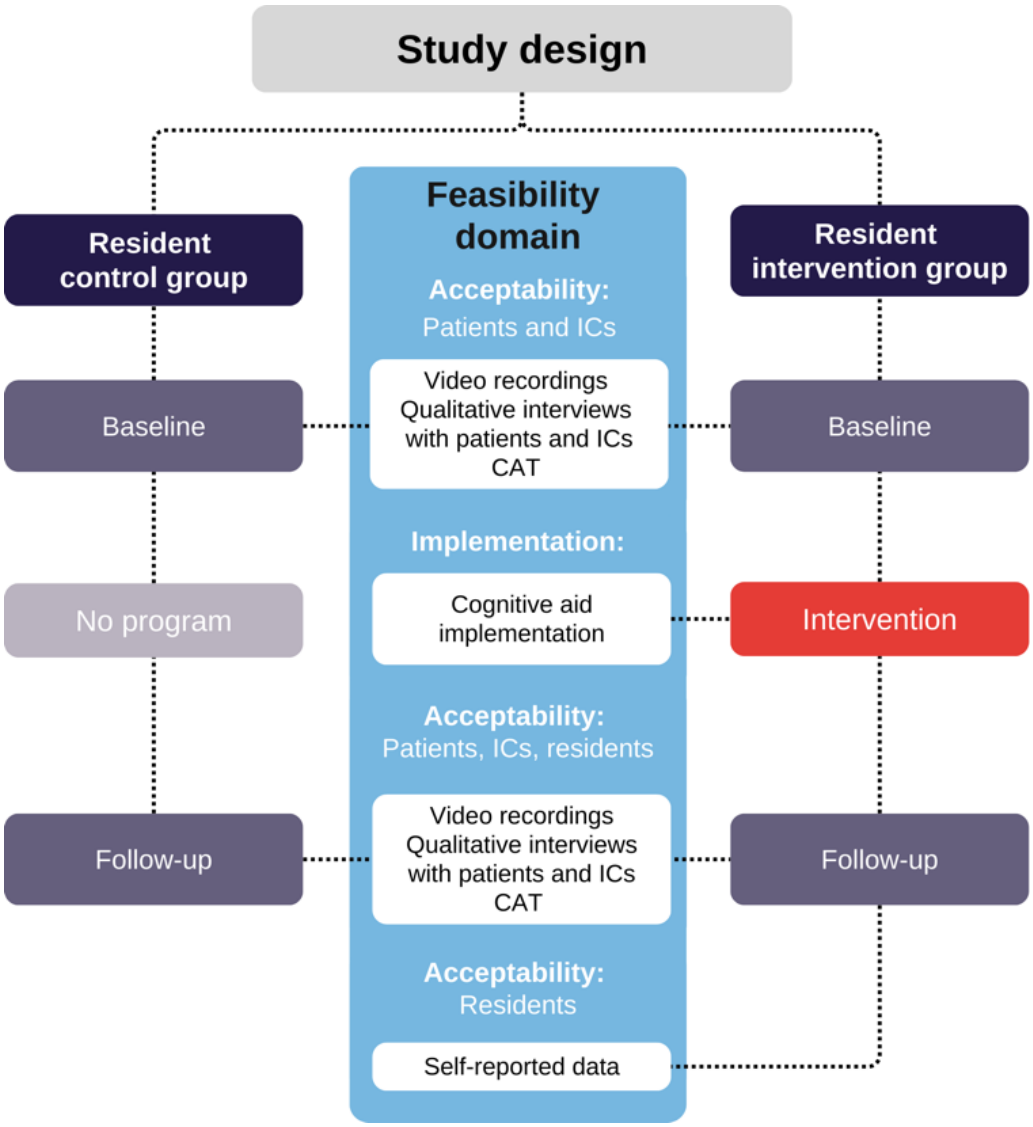


Figure 8 illustrates the controlled study design with baseline and follow-up. The feasibility domains explored in this study, according to Bowen et al., are acceptability and implementation (the blue box), with their corresponding data sources (white boxes).[115] Abbreviations: ICs: Informal caregivers, CAT: Communication Assessment Tool.

Patients' and informal caregivers' perceptions of ward rounds were explored through interviews conducted by LA following each ward round. Findings from Study II revealed

that patients experienced fatigue[iv], prompting us to use more structured interviews to reduce interview duration. These interviews focused on patient satisfaction, involvement and understanding of the information provided. The interview guides can be found in Appendix 5. While this approach limited the depth of analysis and did not allow for exploratory analysis, the use of diverse data sources allowed for assessment of Kirkpatrick's Level 3 (Behaviour) and Level 4 (Results).[119]

Patients completed the Communication Assessment Tool to evaluate residents' communication skills.[120,121] The Communication Assessment Tool consists of 14 items, each rated on a 5-point Likert scale, focusing on listening, explaining, and demonstrating care and respect.[121] This tool is validated for use in an older patient group.[120] The Communication Assessment Tool was read aloud to accommodate visual impairments.

[iv] This is further discussed in the ethics session.

Choice of participants

Studies I-III informed the cognitive aid. To gain insights into ward rounds with older patients with frailty from multiple perspectives, participants included geriatric consultants involved in medical education throughout Denmark and peer-nominated medical communication experts, as well as patients, informal caregivers, and patient representatives from the Senior Citizens' Councils in Randers' and Aarhus' Municipalities.[103] In Studies II and IV, patients and informal caregivers were recruited via convenience sampling, with patients recruited based on age (65+), frailty level (5-8), and the ability to provide informed consent. While the age threshold of 65 may reflect a more traditional view of geriatrics—acknowledging that older adults today are generally healthier and more active—the frailty criterion ensured that patients recruited to the study were indeed vulnerable, aligning with the focus of the study. Internal Medicine residents were selected for Study IV due to their clinical experience and lack of formalised ward round training within their residency programs. Their experience level was anticipated to provide more nuanced feedback on the cognitive aid and the intervention. The PhD student had previously been part of the educational team at the Department of Medicine, Randers Regional Hospital, and had worked with some participants during her Internal Medicine residency, providing contextual knowledge and establishing relationships that supported the study.

Ethical considerations

All studies conducted within this PhD project adhered to ethical principles and guidelines for research involving human participants. Ethical approval was obtained from relevant authorities as required for each study:

Study I (Scoping review): This study involved a systematic review of existing literature, so no ethical approval was required.

Study II (Qualitative interviews): This study was approved by the Research Ethics Committee at Aarhus University in Denmark. All the interviewees gave their verbal and written informed consent to participate.

Study III (Delphi study): The Regional Ethics Committee of the Central Denmark Region exempted the study from ethical approval under Danish law. Informed consent was obtained before data collection.

Study IV (Feasibility study): The Research Ethics Committee at Aarhus University, Aarhus, Denmark, approved the study. Before the intervention began, all participants gave verbal and written consent.

Defining a population of older adults based on their frailty may raise ethical questions about categorising individuals by their vulnerabilities. Some have proposed focusing on 'reserve or intrinsic capacity,' viewing this group from a more optimistic 'glass half-full' perspective.[122] Thus, care was taken to avoid stigmatising potential participants by referring them as frail in the study information material.

The interview questions in Study II addressed sensitive topics, such as decisions regarding resuscitation or how to deliver difficult news, e.g. a cancer diagnosis. These topics might evoke discomfort for some participants; therefore, the option to skip any question was explicitly stated at the beginning of the interview. The participant information sheet also noted that the interview would not impact their hospital

treatment or care. Furthermore, even though the patients participating in this study were competent to provide consent, they were living with frailty to the extent that it significantly impacted their daily lives. In the interview study (Study II), some inpatients experienced fatigue after a relatively short time, even with opportunities for breaks. Therefore, to minimise any undue burden, interviews in Study IV were planned to last approximately 15 minutes.

Literature indicates that the perspectives of patients and informal caregivers may diverge.[123,124] Efforts were made to remain open to each participant's interpretation of the situations described without imposing a judgment on whose perspective was more accurate. However, entirely avoiding interpretative bias is inherently challenging. Therefore, the findings should be understood as representations of the participants' lived experiences within their unique life-worlds rather than definitive or objective truths. Including both perspectives highlights the nuanced nature of patient-informal caregiver relationships but also underscores the potential for conflicting priorities, which may complicate the interpretation and application of findings in clinical practice.

Randers Regional Hospital's Department of Medicine employs approximately 70 doctors, including 46 doctors in-training. As a result, the study involved a relatively small group of doctors from an identifiable hospital, increasing the risk of individual recognition. This risk was explicitly stated in the participant materials to ensure doctors could make an informed decision about their participation. Precautions were taken in disseminating the research results, such as merging individual data into larger, anonymised groups to prevent the identification of any single participant. Identifiable characteristics, such as unique responses or demographic details, were excluded from the published results.

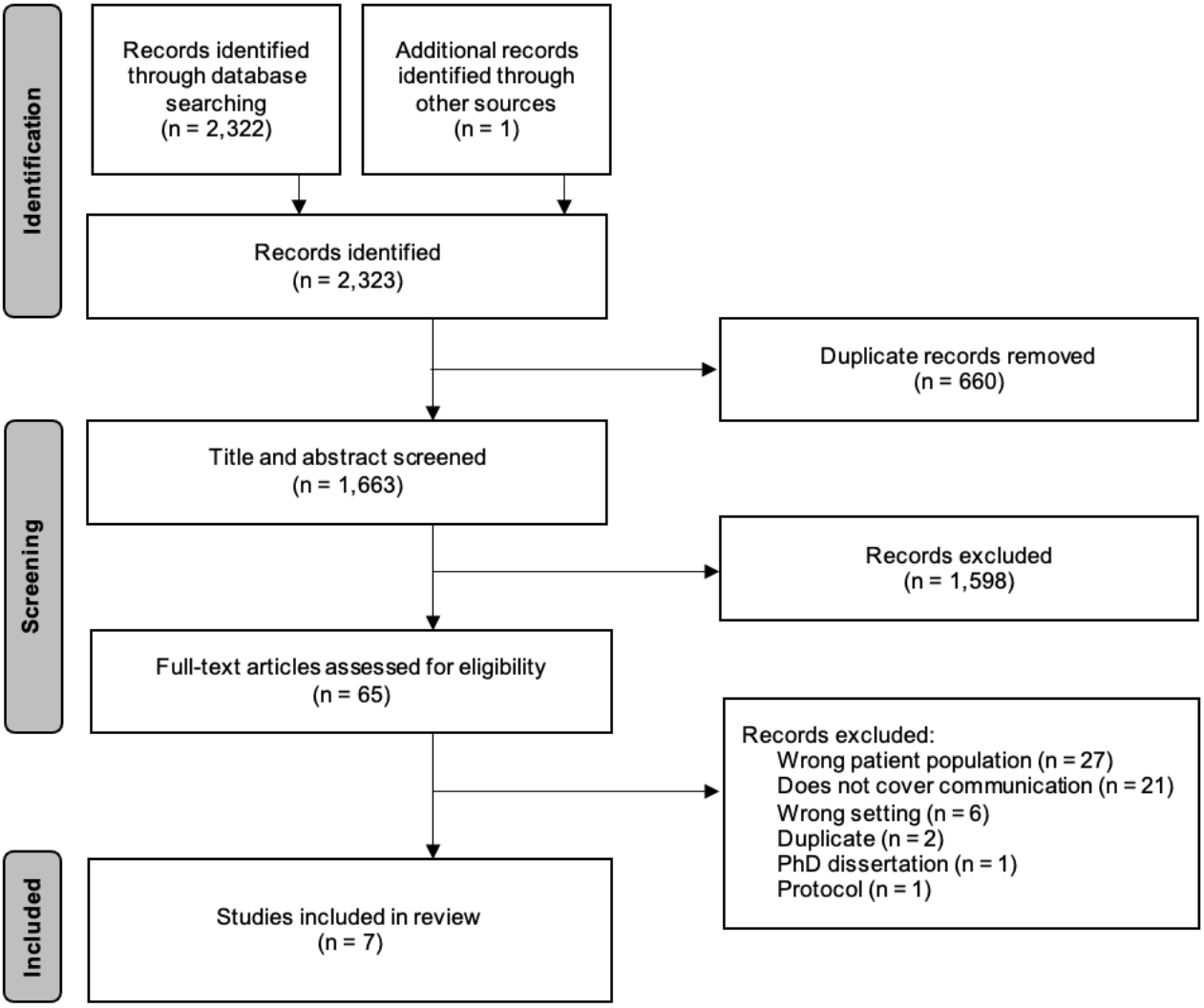
10. SUMMARY OF FINDINGS

In this chapter, the results from each study are summarised. Please refer to the individual papers for a detailed account of all results. Central illustrations are embedded from Studies I and II.

Study I

Seven peer-reviewed articles met the inclusion and exclusion criteria of the 1,663 publications identified in the Scoping review. Figure 9 shows the article selection process flowchart.

Figure 9 Flowchart of the article selection process



Most studies were mixed methods (n = 4) or qualitative studies (n = 2), stemming from Europe (n = 3) and the US (n = 2). The Thematic Analysis generated three themes, operationalised in Figure 10:

1. Communication strategy: Optimise communication using clear, jargon-free language and actively encourage patient participation by asking about their concerns and discomfort. Avoid leading questions that prompt agreement, such as “Okay?” and instead use phrasing like “What concerns do you have?” to elicit meaningful responses better. Challenges include discrimination based on a person's age (ageism) and a lack of opportunities for informal caregivers to speak privately with the doctor.

2. Frailty and patient participation: Optimising communication involves recognising that patients with frailty's passivity may not accurately reflect their participation preferences and ensuring sufficient time for meaningful interaction. Challenges include the exacerbation of frailty during hospitalisation, reduced participation levels, and fatigue that may diminish active resistance to proposed care plans.

3. Organisational and age-norm challenges: Optimising communication includes avoiding pre-determined care plans by actively assessing input from patients and informal caregivers. Challenges include an imbalance of power, where doctors may exclude patients from participating; ward round structures that fail to address individual needs; overcrowding and seating arrangements that can feel confrontational; and age norms that encourage passive acceptance of care plans with little or no questioning.

Among notable contributions from Senior Citizens' Council of Randers was that some patients prefer not to be a burden and may refrain from asking questions. Further, recognising that full disclosure may not suit everyone and to provide an option for a companion to support the patient in the absence of informal caregivers. While the study revealed valuable insights, the operationalisation of concepts, such as "clear communication" or "make patients feel safe, " remained unclear.

Figure 10 Central illustration from Study I

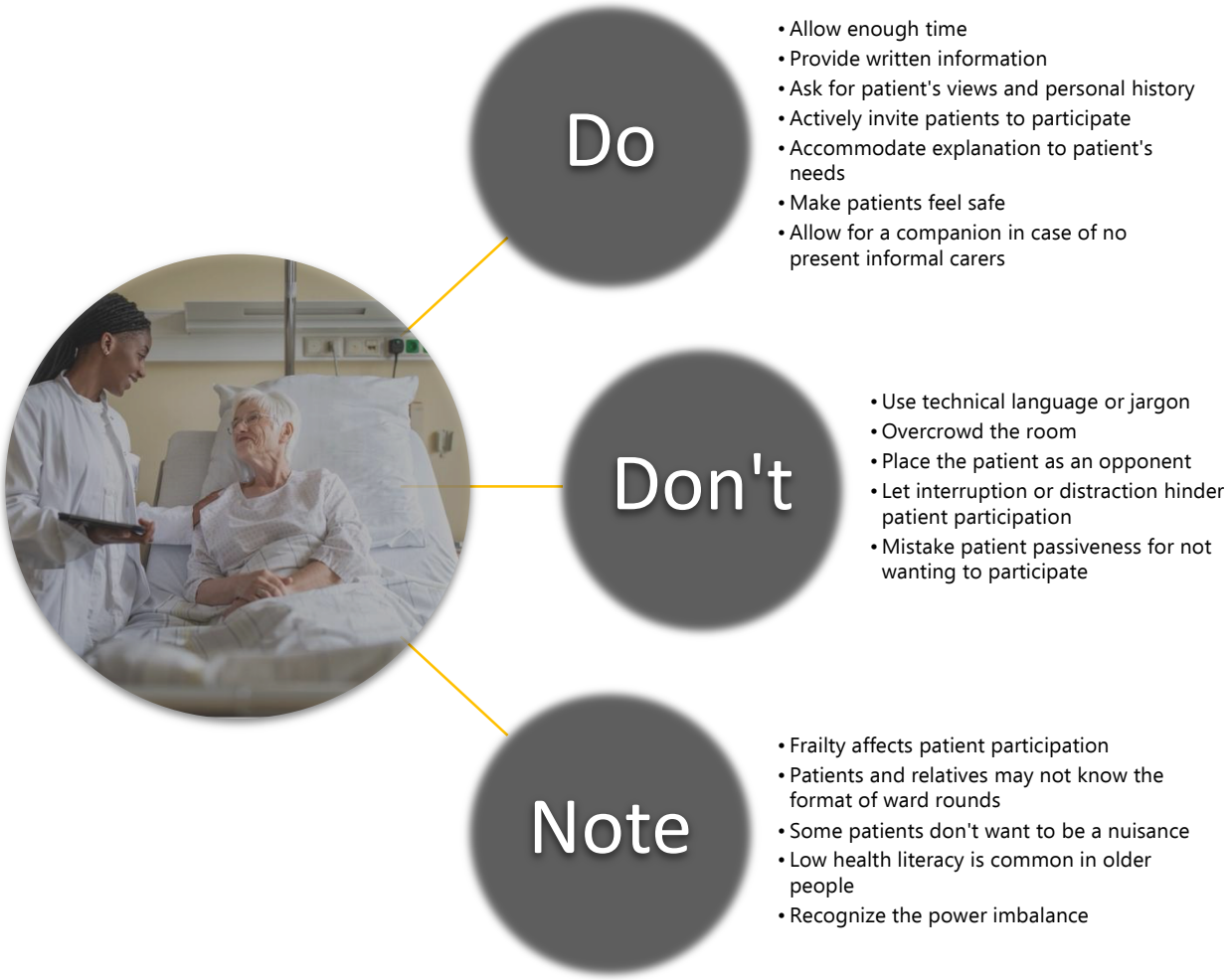


Figure 10 operationalises the findings from Study I in three categories: Do's, don'ts and key considerations for communication with older adults during ward rounds.

Study II

A total of 30 interviews were conducted, evenly split between patients and informal caregivers. The patients had a median age of 85 years (range 75–100) and Clinical Frailty Scale (CFS) of 6 (range 5-8), while informal caregivers had a median age of 59 years (range 49–77); most were female (n = 13, 87%). The median interview duration was 32 minutes for patients (range 18–47 minutes) and 40 minutes for informal caregivers (range 26–87 minutes).

The Thematic Analysis generated three main themes in terms of older patients' and informal caregivers' communication preferences during ward rounds:

1. Building relationships and conveying information: Patients prioritised establishing relationships with their doctors and being seen as human beings. Tailoring information requires doctors to know about the patient's needs and circumstances. For informal caregivers, receiving comprehensive information was more important, emphasising doctors' integration of their insights into the broader care plan.

2. Alleviating informal caregiver strain: Informal caregivers often faced a significant burden when their relatives were hospitalised, driven by their sense of responsibility for ensuring quality care while feeling overlooked and inherently being assigned the role of managing the discharge process. At times, according to informal caregivers patients withheld information from them, possibly to avoid being a burden. Lastly, informal caregivers frequently acted as advocates in an overloaded healthcare system, addressing the immediate healthcare problem and the ongoing functional decline.

3. Sharing the decision making: Patients' decision making preferences varied widely; however, for both patients and informal caregivers, it was imperative that the doctor actively included them in the decision making process. Informal caregivers mentioned that when doctors invited them in, the patient did not comply with healthcare professionals' orders. Sometimes, the informal caregivers would nudge the patients. Still, more frequently, informal caregivers had difficulties telling healthcare professionals about their concerns in front of the patient and preferred to find the doctor in the hallway.

Figure 11 Central illustration of Study II

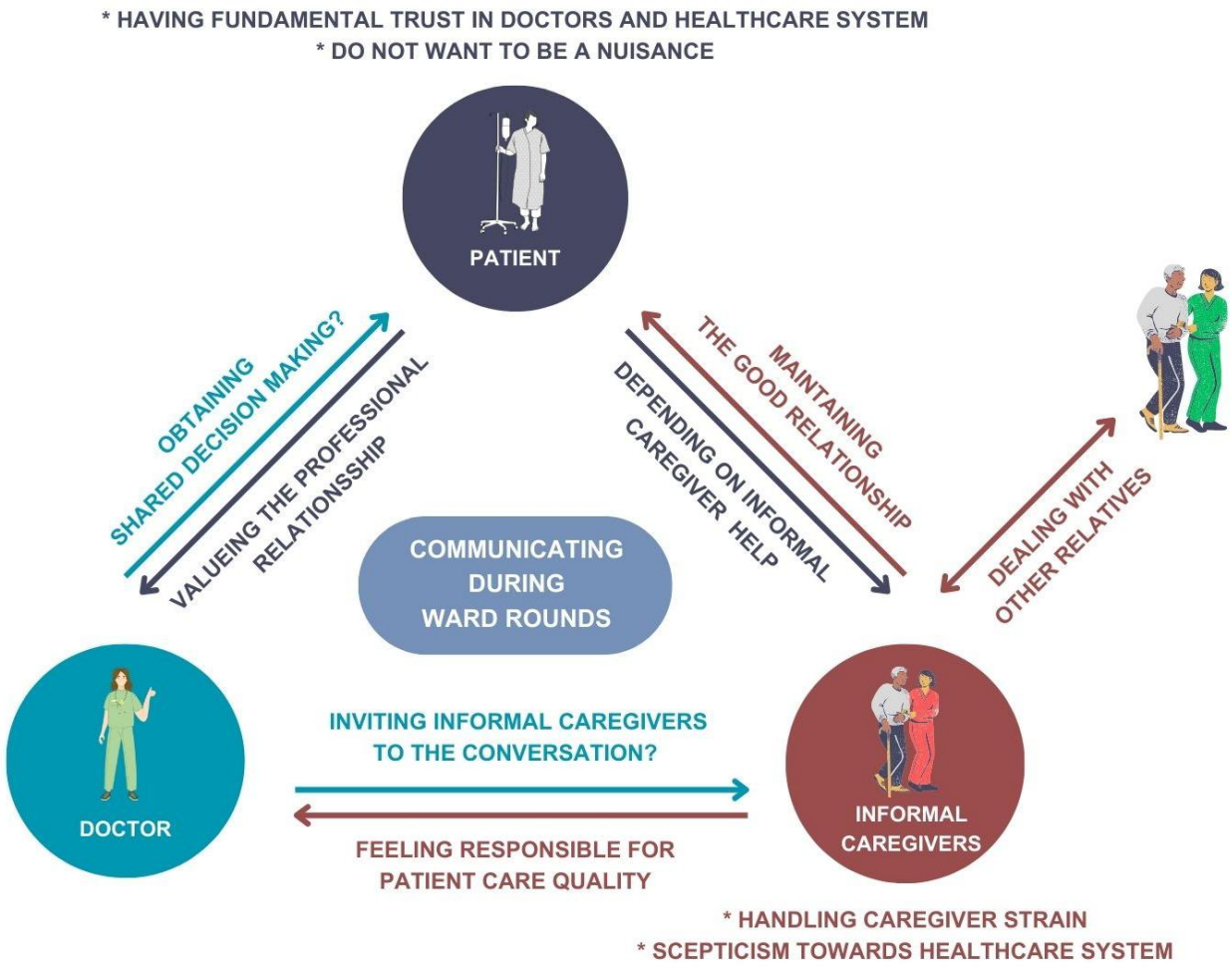


Figure 11 illustrates the patient-caregiver-doctor triad. The arrows refer to situations where potential dilemmas may arise. "*" referring to general observations among the participants.

Study III

A total of 8 geriatric medicine experts participated in the focus group informing the modified Delphi study. In the Delphi rounds, 30 geriatric medicine and five medical communication experts were invited to participate (See Table 2).

The Delphi study achieved response rates of 26 (74%), 21 (81%), 18 (86%), 13 (72%), and 11 (85%) across rounds 1 to 5, respectively. In total, 108 content items reached consensus for conducting ward rounds with older patients with frailty. These items

Table 2 Focus group and Delphi study invited participants

		Focus group interview n = 8	Delphi study expert panel n = 35
Peer nomination, n	Geriatric Medicine Medical Communication	18 -	- 5
Experts in, n (%)	Geriatric Medicine Medical Communication	8 (100) -	30 (86) 5 (14)
Gender, n (%)	Female Male	5 (63) 3 (37)	23 (66) 12 (34)
Workplace, n (%)	University hospital Regional hospital Other	5 (63) 3 (37) -	9 (26) 23 (66) (9)

were categorised into four main themes on managing older inpatients with frailty and knowledge, skills, and attitudes to enhance ward round quality:

1. Preparing for ward rounds: Emphasise a holistic review of patient history and functional status, integrate interdisciplinary resources, and invite informal caregivers to participate. Minimise noise to secure a conducive environment.

2. Conducting ward rounds: Following the Calgary-Cambridge Guide while considering the patient's decision making capabilities.

3. Competencies: Interpreting subtle patient cues and adapting communication to changes in cognition and alertness. Building a professional relationship with patients and informal caregivers and maintaining credibility by, for example, giving honest answers.

4. Circumstances related to the patient group: Anticipating discharge in due time and addressing potential patient deterioration. Managing ward rounds in patients with

cognitive impairment or delirium and reflecting on appropriately involving informal caregivers.

Developing the cognitive aid and its associated intervention

The cognitive aid was developed as part of the cognitive aid intervention and based on the findings from Studies I, II and III. Themes and subthemes from Study II guided the outline of the cognitive aid. The cognitive aid consisted of 4 domains, 1) preparation, 2) conducting of the ward round, 3) competencies required, and 4) special circumstances. Every domain was divided into elements (16 in total). A section called "what does it look like" was included to enhance applicability and "background" described the underlying rationale for each element.

Through an iterative process, findings from Studies I, II and III were extracted and incorporated into the cognitive aid by LA. Members the Senior Citizens' Council[v] in Randers were invited to review and provide feedback on the cognitive aid.[103] The final version without the background section was prepared in Adobe InDesign by Ejvind Andersen, MidtSim. The background section was omitted due to space and length constraints. A translated version is shown in Figure 12, and the original Danish version is found in Appendix 6.

Kern's six-step method for curriculum development guided the development of the cognitive aid intervention.[90] These steps and brief illustration of the iterative design process are illustrated in Figure 13. Aligned with Kern's model of curriculum development, the cognitive aid was developed from the targeted needs assessment and served to define and structure key learning content for the subsequent educational strategies. As illustrated in Figure 13, the cognitive aid is positioned between Step 2 (Targeted Needs Assessment) and Step 3 (Goals and Objectives),

[v] The Senior Citizens' Councils are statutory, elected bodies representing the interests of senior citizens at the municipal level in Denmark. They act as advisory entities, ensuring that older adults' perspectives are included in local policy decisions and initiatives related to ageing and senior welfare.[103]

reflecting its dual role in translating the identified needs and insights from Studies I–III into the formulation of learning objectives and educational activities. Three patient cases—Alfred, Birgit, and Christian—were developed from synthesising participant input in Study II to exemplify behaviour in the cognitive aid and guide simulation sessions. The process of curriculum development including development of patient cases is detailed in Appendix 7.

Figure 12 The cognitive aid

	Ward round preparation	
1	Surroundings	Make the best conditions for conducting the ward round
2	Preparation	Conduct a comprehensive review of the patient's medical history and life situation
3	Interdisciplinary collaboration	Identify current nursing and therapeutic issues
4	Purpose	Clarify your goal for the ward round.
	Ward round conduction	
5	Introduction	Introduce participants and describe today's purpose and goal for the ward round.
6	Problem-based agenda	Create the ward round agenda together with the patient and caregiver
7	Information of patients and caregivers	Inform the patient with regard to preferences and functional ability
8	Decision-making process	Engage in shared decision-making while considering the patient's preferences and decision-making capacity
9	Finalising the ward round	Finish the ward round by repeating the most important agreements and plans
	Competencies	
10	Building relationships	Use relationship-building to create a sense of security for the patient
11	Language	Adjust language and content to the patient
12	Involvement	Take responsibility for involving the patient
	Special circumstances	
13	Informal caregivers	Involve caregivers when possible
14	Patients with cognitive impairment	Speak in a friendly tone and adjust ward round content to patients' status
15	Patients with delirium	Minimise disturbances and use brief, clear communication
16	Challenging conversations in care	Deliver the message with empathy and determine the level of care based on a dignified life

midt
regionmidtjylland

WARD ROUNDS OF
OLDER PATIENTS
WITH FRAILTY

A cognitive aid

Version 1.0
Latest revision November 2023

MidtSim
En del af Koncern HR

Figure 12 The cognitive aid

		What does it look like?
1	Surroundings	Ask other patients' relatives, staff (and other patients) to leave the room. Ensure patients are wearing their glasses and hearing aid, if applicable. If the patient has a speech impairment, address it directly: "I noticed that you have difficulties finding the right words in your medical record, so I will make an effort to give you time to respond." Demonstrate that there is enough time to conduct the ward round by sitting down, listening, maintaining open body language (e.g., avoid crossing your arms), and allowing the patient time to answer. Clarify how much time is available for the ward round and communicate this to the patient.
2	Preparation	Create an overview of comorbidities and significant diagnoses. Review the treatment level and/or intensive care and assess whether the conditions for these are stable or dynamic. Examine aspects of the overall health situation, including mental health, social conditions, and memory (e.g., dementia or other cognitive impairments), and nutritional status.
3	Interproff. collaboration	Clarify habitual and current functional levels. Assess fluid and food intake, eliminations (including the need for a catheter), cognitive dysfunction/delirium, mobilisation, pain, and the need for IV access.
4	Purpose	Prepare the goal for the day's ward round, including a prioritised order of issues and treatment statuses to be discussed with or conveyed to the patient. Identify 1-3 main points and mention them to the patient to establish a shared agenda.
5	Introduction	Greet everyone in the room clearly and introduce the roles of all participants. Explain the purpose of the day's ward round by mentioning the key points identified during preparation.
6	Problem-based agenda	Ask the patient what they wish to discuss during the ward round and hospitalisation in general. Are there urgent matters causing confusion or insecurity? Inquire about the patient's concerns and problems, linking these to their life situation and the post-discharge period. Add any questions or concerns to the problem-based agenda. Use phrasing like, "What concerns do you have?" instead of, "Any concerns?"
7	Information for patient and relative	Determine how much the patient wants to know about his/her illness, ideally early in the hospitalisation, and document this in his/her medical records. Assess the presence of delirium by evaluating orientation and comparing it to habitual levels to decide whether the patient should be informed.
8	Shared decision-making	Clarify if the patient wishes to: 1) make their own decisions, 2) have the doctor decide, or 3) have relatives decide. Provide specific suggestions or limited choices. Ensure the patient understands and can handle the consequences of the plan.
9	Finishing the ward round	Repeat the most important agreements from the ward round and outline the next steps for the patient and the care team. Consider providing the key points in writing for the patient. Involve nursing staff and therapists in the agreed plan.
10	Building relationships	Be approachable, kind, and patient. Recognise that the first few seconds in the room are crucial for building rapport. Indicate that you are there to help the patient improve, for example: "I am here for you." Ensure the patient understands the reason for his/her admission, what will happen today, and the planned discharge date. Honor agreements. Familiarise yourself with the patient's social network, living situation, previous employment, and interests.
11	Language	Speak in plain Danish without medical jargon. Adjust your speaking pace but avoid being condescending or using "baby talk." Simplify complex medical issues if the patient wants this. Read the patient's signals and adapt the conversation's content to his/her condition and cognition. Assess their ability to understand the ward round's key points, for example by asking: "How much do you know about condition XX?"
12	Involvement	Give patients time to respond and start the conversation with open-ended questions. Embrace the silence, waiting up to 10-15 seconds before interrupting. As a moderator, the doctor sets the direction of the conversation. Explore what lies behind the patient's desire to steer the conversation in a seemingly inappropriate direction. Set clear boundaries (e.g., "We have 20 minutes for the ward round," or "We have 5 minutes left") to keep the discussion on track.
13	Caregivers	Clarify whether the patient's relatives should be informed and involved in decision-making. Allow relatives to speak privately with the doctor. Assess relatives' resources and potential problematic family dynamics. Ensure the patient and his/her relatives agree on the diagnostic and treatment options to maintain the patient's perspective.
14	Patients with cognitive impairment	Speak kindly and avoid humour or irony. Pay attention to non-verbal cues and signals or atypical verbal expressions. Consider whether the patient can process information, either in a simplified form or whether the ward round should omit patient-directed information altogether. Gather information from relatives about changes compared to habitual levels. If relatives are present in the room, inform them at the patient's level; otherwise, provide information outside the room.
15	Patients with delirium	Use concise, clear communication with calm body language and without humour or irony. Repeat relevant statements (use cognitive reorientation, e.g., "I see you are drinking a cup of coffee now"). Inform relatives without the patient present, as disturbances in the room can exacerbate the patient's delirium.
16	Challenging conversations in care	Provide honest answers, even if you don't know the answer. Be realistic without draining the patient's hope. Demonstrate empathy so that the patient feels understood and receive professional compassion. Discuss resuscitation naturally, being aware that patients might mistakenly conclude that death is imminent when discussing treatment levels. For example, say: "I need to ask you the following because it's required, not because you're going to die tomorrow." Use your own or colleagues' experiences to predict the patient's condition after possible resuscitation, ensuring dignity is considered.

Figure 13 How Kern's six-step approach was applied to cognitive aid intervention develpment[90]

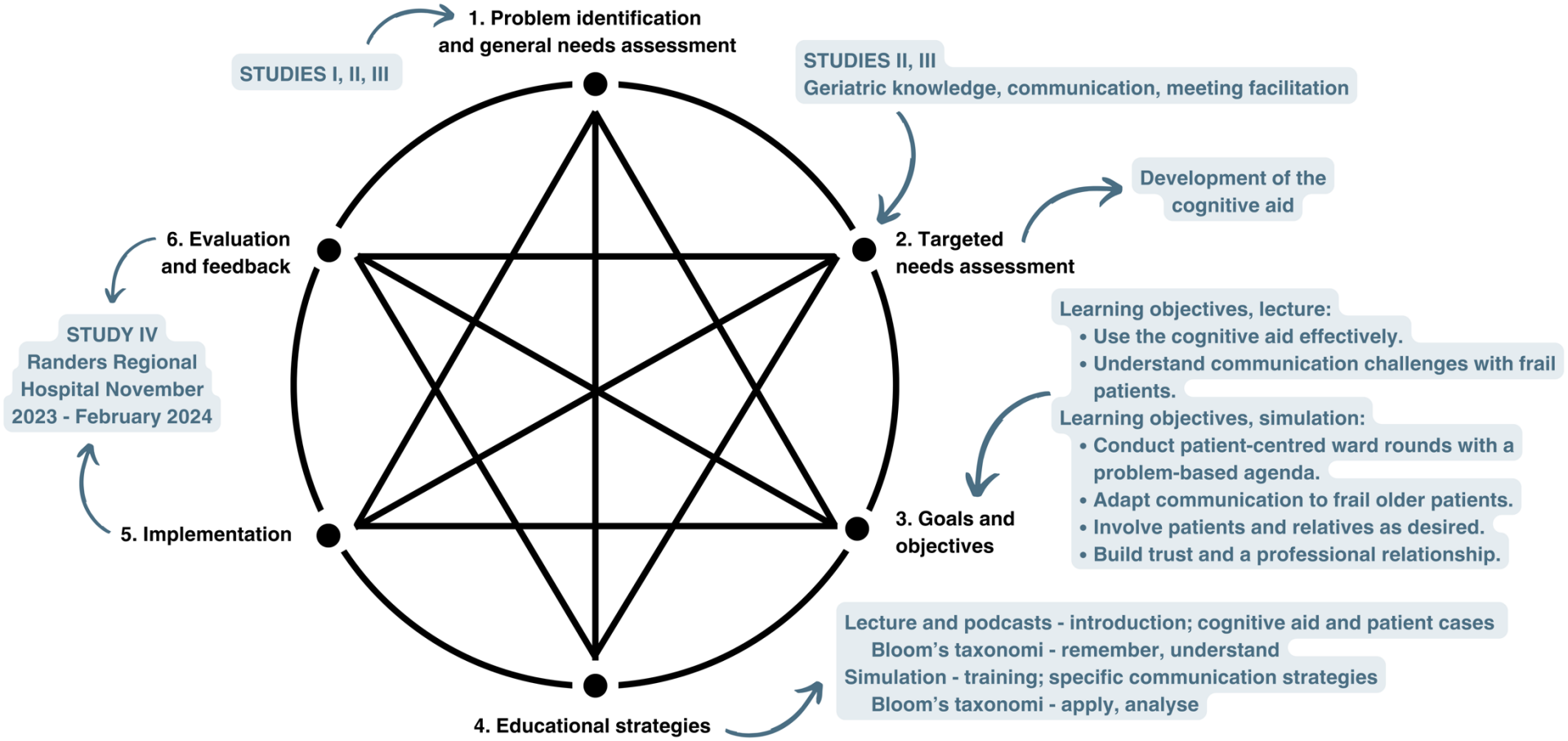


Figure 13 illustrates the iterative six-step process of curriculum development for the cognitive aid intervention.[90] Highlighted in blue is either input or outcome of process, e.g. Studies I, II, III to step 1. Bloom's taxonomy is a hierarchical framework for progressing cognitive skills frobasic to complex forms of thinking.[125] See Figure 14.

The cognitive aid intervention consisted of a 45-minute introduction to the cognitive aid, a one-hour simulation and two podcasts. The simulation sessions covered managing a patient with delirium, DNACPR[vi] discussions, and shared decision making. The simulation sessions were developed with help from Neel Toxværd, MidtSim. Podcasts were recorded on iPhone/iPad using a portable microphone and edited using Audacity[vii]. The first podcast introduced the cognitive aid based on the three patient cases (Storyline overview in Appendix 7), and the second podcast was an interview with two informal caregivers (see transcribed snippets from both podcasts in Appendix 8).

Figure 14 Bloom's taxonomy

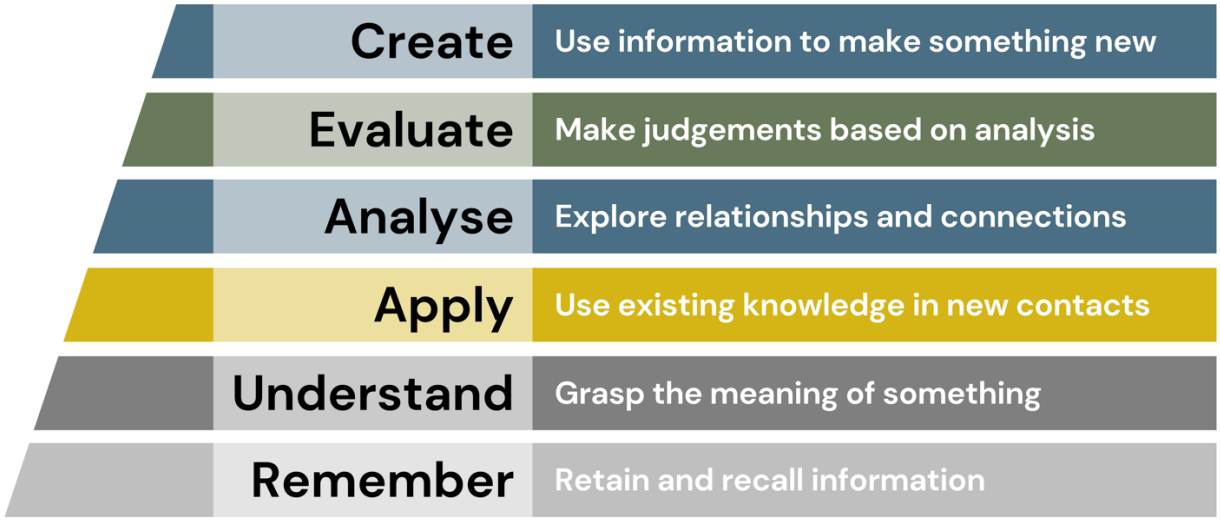


Figure 14 shows Bloom's taxonomy, which is a hierarchal framework for organising cognitive skills from lower-order (remember and understand) to higher-order (create, evaluate). Progression through the levels requires competency in the previous step.[125]

[vi] DNACPR - Do Not Attempt Cardio-Pulmonary Resuscitation
[vii] Audacity: Audacity is a free audio editing software used for editing audio, https://www.audacityteam.org

Study IV

Fourteen internal medicine residents participated in the feasibility study, evenly allocated to the control and intervention groups. They had a median of 2 (range 1-5) years of residency training. Patients were older (median age 85, range 70-97 years) and lived with severe frailty (Clinical Frailty Scale (CFS) 6, range 5-8). Three patients participated twice, but residents did not encounter the same patient in both periods. Recruitment was difficult, as patients were either too fatigued or ultimately unable to provide informed consent. Informal caregivers were present in only 3 of 28 ward rounds. Due to confidentiality and limited generalisability, informal caregivers were excluded from the analysis.

While the intervention components—comprising a lecture, simulation, and podcasts—were made available as planned, full implementation was not achieved, as not all participants engaged with the podcasts. Video ratings of ward round usage showed no difference, with median scores of 5 (out of 7) in both groups (Table 3). Residents' self-reported data confirmed they did not use the cognitive aid, citing its complexity and feeling competent in their clinical practice.

Patients expressed satisfaction with the ward rounds. The Communication Assessment Tool overall score (the percentage of "excellent" answers) was generally high, particularly for clear communication, inviting questions and uninterrupted speaking (Table 4). Lower Communication Assessment Tool overall scores were observed for providing desired information and discussing the next step. Interviews revealed that patients who struggled to understand or felt excluded from participation often attributed this to their limitations. Missing data occurred as one patient was too fatigued to answer the Communication Assessment Tool, while other participants left items unrated for reasons unrelated to applicability, such as not remembering specific details from ward rounds (Table 4). Since the cognitive aid was not implemented, evaluating its acceptability from the perspective of patients and informal caregivers

was not feasible. While patients typically expressed satisfaction, they were often reluctant to offer honest feedback—especially when they felt left out or had trouble grasping the information provided. In such cases, they tended to blame themselves for the misunderstanding.

Table 3 Video ratings on a 1-7 Likert scale, median values[a]

Items		Total group	Baseline		Follow-up	
			Control group	Intervention group	Control group	Intervention group
Average of all items		5	5	5	5	5
1	Optimising the environment	5	6	5	5	5
4	Purpose of the ward round	3	3	3	4	4
5	Introduction	4	5	4	4	5
6	Problem-based agenda	4	4	4	4	3
7	Informing the patient and ICs	5	4	5	5	5
8	Decision making process	5	5	5	5	5
9	Concluding the ward round	5	5	5	6	4
10	Building relationships	5	5	5	5	5
11	Doctor's language	6	6	6	6	6
12	Patient involvement	5	5	4	5	5
13	Involvement of ICs	5	5	6	6	2
16	Challenging conversations in care[b]	5	4	N/A	N/A	6

[a] Items 2, 3, 14, and 15 (*Preparation before ward round, Interdisciplinary collaboration, Patients with cognitive impairment, Patients with delirium*) were exempted from rating. [b] Item was rated when observed. ICs: Informal caregivers. N/A: Not applicable.

Table 4 Communication Assessment Tool scores for patients (n=27)

Communication Assessment Tool item	Overall score (% Excellent)	Non-applicable n (%)		Missing n (%)	
1 Greeted me in a way that made me feel comfortable	74.1	0	(0.0%)	0	(0.0%)
2 Treated me with respect	88.0	0	(0.0%)	2	(7.4%)
3 Showed interest in my ideas about my health	73.9	4	(14.8%)	0	(0.0%)
4 Understood my main health concerns	72.2	8	(29.6%)	1	(3.7%)
5 Paid attention to me (looked at me, listened)	79.2	1	(3.7%)	2	(7.4%)
6 Let me talk without interruptions	92.3	1	(3.7%)	0	(0.0%)
7 Gave me as much information as I wanted	68.0	2	(7.4%)	0	(0.0%)
8 Talked in terms I could understand	91.3	0	(0.0%)	4	(14.8%)
9 Checked to be sure I understood everything	83.3	7	(25.9%)	2	(7.4%)
10 Encouraged me to ask questions	88.2	8	(29.6%)	2	(7.4%)
11 Involved me in decisions as much as I wanted	83.3	13	(48.1%)	2	(7.4%)
12 Discussed next steps, including any follow up plans	61.9	4	(14.8%)	2	(7.4%)
13 Showed care and concern	76.9	0	(0.0%)	1	(3.7%)
14 Spent the right amount of time with me	77.8	0	(0.0%)	0	(0.0%)

Table 4 shows the Communication Assessment Tool scores. The overall score is the percentage of respondents scoring excellent, 5 on the Likert scale. The number of ‘non-applicable’ refers to participants stating that the question is not important. Missing answers relate to patients not responding to the question in general.

11. DISCUSSION

This chapter will discuss the findings of the PhD project in relation to the field and how they position themselves within the current literature. First, it will examine the perspectives of patients and informal caregivers in ward rounds and medical education. Then, it will discuss how skilled ward round communication is best achieved. Lastly, it will discuss how the findings can be applied in future medical education.

Patient and informal caregiver perspectives

How patient-centred care is effectuated in Danish ward round settings remains unclear for older patients with frailty and their informal caregivers. Specifically, there is a limited understanding of what patient-centred care entails for this patient group and their informal caregivers. Through an exploratory approach, this PhD aimed to study these aspects and provide insights into how patient-centred care practices can be secured and optimised. Understanding how patient-centred care is implemented in ward rounds illustrates care practices for older patients with frailty and their informal caregivers. It highlights the critical role of their perspectives in shaping healthcare education. Incorporating these insights into medical education frameworks can ensure that future healthcare professionals are better equipped to deliver patient-centred care in clinical practice.

Embedding patient perspectives in medical education

In a review from 2010, Towle et al. described a "*taxonomy of the continuum of patient involvement*" in medical education.[20] This taxonomy identified key elements of patient involvement, including the role, intensity of participation, and level of engagement, providing a structured framework for integrating patient perspectives in healthcare education. Towle and colleagues called for a more systematic approach to integrating patients into healthcare professions education, thus facilitating a conversation about

patient integration and a comprehensive research strategy. Given the importance of informal caregivers in this PhD study, they were incorporated into the taxonomy as stakeholders, as well as the patient representatives of the Senior Citizens' Councils. An overview of the taxonomy and the stakeholder involvement in this thesis (Table 5) illustrates that we met taxonomy levels 1, 3-5 in our study. Comparing this to the literature, Gordon and colleagues investigated end-user involvement in medical education in a systematic review from 2020.[126] They found that among 39 studies, most involved taxonomy levels 3 and 4.[20,126] However, the authors state that "*educational quality assessment of studies showed specific weaknesses in theoretical underpinning, curriculum outcomes, content or pedagogy*".[126]

Table 5 Mapping patient and stakeholder involvement in this PhD

Level	Degree to which the patient* is actively involved in the learning encounter	Involvement across studies in this PhD	Group
1	Paper-based or electronic case or scenario	IV - simulation, podcast 1	SP
2	Standardised or volunteer patient in a clinical setting	N/A	N/A
3	Patient* shares experiences with students within a faculty-directed curriculum	I - literature review II - interviews IV - podcast 2	PR P, ICs PR (IC)
4	Patient*-teacher(s) are involved in teaching or evaluating students	IV - CAT and interviews	P, ICs
5	Patient*-teacher(s) as equal partners in student education, evaluation, and curriculum development	IV - cognitive aid development	PR
6	Like (5), but at the institutional level	N/A	N/A

Table 5 illustrates the findings of the PhD compared to Towle et. al's taxonomy for involving patients in the learning encounter.[20] We equated informal caregivers and patient representatives to patients. *Patient, informal caregiver or patient representative. Abbreviations: P: Patients, PR: patient representatives, IC: Informal caregivers, SP: simulated patients, N/A: Not applied, CAT: Communication Assessment Tool

Table 5 shows that patients and informal caregivers were not directly involved as teachers or designers in this PhD study, nor were they engaged as equal partners, thus limiting their role in co-creating or delivering educational interventions. Co-creation, i.e., involving stakeholders in designing, implementing, and evaluating healthcare interventions, has been increasingly applied to improve care for older adults with frailty.[127] For patients with frailty, co-creation has been used mainly in co-designing quality improvement initiatives, such as developing Patient-Reported Outcome Measures (PROMs).[128–130] While Towle et al.'s taxonomy offers valuable guidance to mapping patient involvement in medical education, it scarcely addresses the challenges of embedding vulnerable patients, such as patients with frailty.[20] Vulnerability and feasibility issues arose when recruiting and interviewing patients for Study II and IV. Many patients refrained from participation, and interviews were fairly short due to fatigue. As such, achieving a full partnership with these patients as equal research partners was impossible. This was due to their lived experiences of vulnerability, as well as other chronic conditions. Similarly, a study by Hansen et al. found that while patients and informal caregivers provided valuable insights into the research process, involving these as equal research partners presented challenges due to frailty, cognitive impairments, and other chronic conditions.[130] Furthermore, as O'Donnell and colleagues argue, the co-design may overrepresent patients with a cognitive and socio-economic capacity, thus perhaps not genuinely representing the patients with frailty.[128]

Hansen et al. also found that supporting informal caregivers may foster patient involvement in research.[130] This relational aspect is supported by Pickard et al. in the article, "*New horizons in frailty: The contingent, the existential and the clinical*".[131] Here, the authors explored frailty through three interconnected perspectives: clinical, existential, and contingent, and thus examined frailty beyond its traditional clinical definitions. The clinical and existential perspectives referred to the medical condition and the personal and subjective experiences of living with frailty, respectively. The

contingent perspective also highlights that external, context-dependent factors shape frailty. From this, frailty is relational and deeply intertwined with the roles of informal caregivers, healthcare professionals, and the broader community. As suggested by Pickard et al., the multidimensional nature of frailty necessitates a nuanced approach to co-creation and medical education.[131] The existential perspective highlights the importance of understanding patients' personal, emotional, and social experiences, while the contingent perspective draws attention to the systemic and cultural challenges that shape their involvement.[131] Without addressing these complexities, co-creation efforts risk overlooking the voices of those most affected. Embedding patient perspectives into medical education requires a systematic approach and a commitment to addressing clinical, existential, and contingent dimensions of frailty. By integrating these perspectives, medical education can better prepare healthcare professionals to deliver patient-centred care, which respects the holistic needs of patients and their informal caregivers. To some extent, Study II depicts the existential and contingent perspectives of frailty: Study II explored communication-related aspects of frailty. Additionally, the inclusion of informal caregivers introduced a contingent perspective. However, an ethnographic study might be valuable in exploring contingent perspectives, particularly describing the contextual factors of hierarchy between patient and informal caregiver and patient and healthcare professionals.

Frailty and medical education

As mentioned, Studies II and IV revealed that involving frailty in medical education with patient inclusion was difficult. Likewise, Winter and Pearson described the existing challenges in embedding frailty in medical education.[132] They argue that the lack of shared understanding of frailty challenges the alignment of teaching and assessment.[132] Further, they highlight potential negative perceptions toward the term "frailty" and that it leads to avoidance in clinical settings and negative stereotypical views of frailty.[132] We did not assess residents' perceptions of "frailty", although exploring how the cognitive aid intervention might influence this perception would be

valuable. Winter and Pearson state that challenges with negative perceptions toward "frailty" may be addressed through initiatives such as studies where students are tasked with depicting the narratives of older patients. A study by Morgan and colleagues found that by engaging with patient stories, students reduced their sense of ageism[viii].[133,134] Lastly, Winter and Pearsons also describe the difficulties of clinical reasoning in patients with frailty and, in particular, clinical decision making, as these patients are excluded from clinical trials.[132] While Study III, The Delphi study, acknowledges these complexities under the items related to "patient characteristics," specifically in addressing atypical symptoms, a detailed exploration of these issues is beyond the scope of this thesis.

Informal caregiver role

As highlighted in the interview study (Study II), informal caregivers are pivotal in supporting and advocating for older patients with frailty. Their dual responsibilities include providing emotional and informational support while serving as patient advocates, especially during critical moments such as discharge planning. However, these roles often lead to significant stress, as informal caregivers feel responsible for ensuring that the patient understands the medical information and the quality of their care. From a hermeneutic perspective, caregivers are both participants in the communication process and co-creators of meaning in the patient's healthcare journey. Informal caregivers bridge the gap between healthcare professionals and patients by interpreting and reframing complex medical information, facilitating shared understanding. This interpretive role underscores the necessity of involving informal caregivers in communication processes to ensure that patients' needs and preferences are fully understood and addressed. In Denmark, however, informal caregivers have no legal rights to be involved unless they are appointed guardians.

[viii] Ageism is discrimination, prejudice, or stereotyping based on age, marginalising individuals or groups and negatively affecting their opportunities, quality of life, and societal inclusion.

Therefore, the Danish Patients Organisation calls for a legislative change to secure better conditions for informal caregivers and other patient organisations.[135] In countries with similar healthcare systems, such as Norway and Sweden, informal caregiver rights have already been established, where the informal caregivers have recognised roles and rights when their informal caregivers are admitted to the hospital.[136,137] As such, integrating informal caregiver support strategies into healthcare delivery may better foster holistic patient-centred care.

The review by Kim et al. on informal caregiver roles and experiences in healthcare emphasises the need to recognise and support informal caregivers.[42] Informal caregivers often navigate complex healthcare systems, balancing their advocacy for patients with the challenges of system navigation. As noted in the review, caregivers face barriers such as insufficient guidance and support, which hinder their ability to advocate and assist patients effectively. Addressing these challenges requires strategies and policies that empower informal caregivers to navigate healthcare systems more seamlessly, ensuring equitable and efficient access to care. This aligned with the findings in Study II. Furthermore, as Study IV accentuates, Lambotte et al. support this point, highlighting the critical need for improved support for informal caregivers.[138] Thus, the visibility of the caregivers' perspectives and lived experiences must be heightened for proper patient-centred care. In Study IV, informal caregivers were present in only 3 of 28 ward rounds and contacted in 6 (similar in both resident groups), indicating insufficient efforts to emphasise the importance of informal caregivers. This may partly be attributed to limited resident usage of Podcast 2, where the informal caregiver perspective was explored. Learning from this, greater emphasis should be placed on portraying the lived experiences of informal caregivers in medical education. In paediatrics, for example, initiatives such as the "Caring together, learning together" have successfully engaged families with disabled children or children with complex needs in the education of medical students in the Netherlands.[139] Here, trained parents act as parent educators throughout an educational course on complex

care networks and the patient journey. Similarly, trained caregiver educators could convey a sense of importance of including informal caregivers in ward rounds with older patients with frailty (level 4, Towle's taxonomy, see Table 5).[20] After all, as Eijkelboom and colleagues note in their article on patient involvement in medical education, the aim is to design "*learning environments that stimulate the integration of knowledge and attitude change and enable collaborative knowledge production*".[140]

Patient organisations

The patient organisations, Senior Citizens' Councils in Randers' and Aarhus' Municipalities, were utilised as stakeholders throughout the PhD study. The contributions of the Senior Citizens' Council in Randers' included stakeholder input to Studies I and II, revising the cognitive aid, and participating in the podcast about informal caregivers (Table 5). The Senior Citizens' Council in Aarhus contributed to the interview guide in Study II. A review from Dijk et al. provides insights into engaging patient organisations in medical undergraduate education.[141] The review emphasised the importance of meaningful engagement, ensuring patient involvement goes beyond tokenism and truly influences educational practices. This raises the question about whether patient organisations truly represent patients, as challenges noted by Dijk et al. encompass avoiding the over-representation of more resourceful individuals, which can lead to biases.[141] The contributions of the Senior Citizens' Councils provided important insights into the development of the cognitive aid. However, from a hermeneutic perspective, the co-construction of meaning relies on the authentic representation of lived experiences. While the Senior Citizens' Council's input was invaluable to this PhD study, it may not entirely capture the realities of the population they aim to represent. As such, inclusivity and diversity in patient involvement may be compromised, and there remains uncertainty about whether the cognitive aid will effectively work for the patients it is intended to support. In addition, patient organisation representatives often act as proxies (e.g., relatives or other informal caregivers), which may shape or skew the input provided. To address these issues of

inclusivity and diversity, the reviews by Dijk and colleagues and Eijkelboom and colleagues suggest strategies like providing adequate support and training for patient representatives and fostering a culture of inclusivity within educational institutions.[140,141] Similarly, Ocloo and Matthews explore the challenges and opportunities of patient and public involvement (PPI) in healthcare improvement, and as such, not in medical education.[19] However, the authors critique tokenistic practices where PPI is superficial and lacks genuine impact, emphasising the need for meaningful engagement.[19] They highlight the importance of co-production, where patients and public members act as equal partners in decision making. While the Senior Citizens' Council in Randers provided valuable input to the PhD thesis, their role did not extend to making decisions about the overall direction of the educational materials. According to Towle et al.'s taxonomy, equal partnership (Level 5) requires shared decision making power and a collaborative approach throughout the process, including curriculum development and evaluation.[20] In this case, the involvement of the Senior Citizens' Council was primarily consultative rather than collaborative, with the final decision making and integration of their input remaining the responsibility of the research team. This highlights the challenge of achieving true partnership in educational development, particularly when stakeholders are not directly embedded in all process stages. As such, the Senior Citizens' Council in Randers could have been more actively involved in the research process, for instance, by being included as equal partners in the research group from the start of the project. While this might have fostered a true partnership, it would not necessarily have ensured that the cognitive aid was more applicable in real-world healthcare settings.

Aligning patient-centred care with healthcare personnels' perspectives

In Study IV, the residents did not engage with the cognitive aid. While some participants acknowledged that the cognitive aid encouraged a holistic and potentially more patient-centred view, it is unlikely that the cognitive aid intervention resulted in

any significant behavioural changes.[ix] As mentioned in the background section, Mead and Bower described five dimensions of patient-centred care: *"the biopsychosocial perspective", "patient-as-person", "sharing power and responsibility", "therapeutic alliance", "doctor-as-person"*.[16] These dimensions highlight the complexity of patient-centred care, and as such, may explain why patient-centred care is the work-as-imagined, but not always work-as-done. Implementing patient-centred care may sometimes conflict with healthcare professionals' goals, mainly when organisational objectives prioritise efficiency and standardisation.[142] This tension arises because patient-centred care emphasises individualised care tailored to each patient's unique needs, which may require additional time and resources.[18,143] Healthcare professionals often face pressure to meet productivity targets, leading to potential conflicts between delivering personalised care and adhering to organisational efficiency demands.[142] Additionally, the shift towards patient-centred care necessitates changes in traditional roles and workflows, which may create resistance among staff accustomed to established practices.[142] Most patients in Study II were aware of the hierarchical relationship between the doctor and the patient, which may reflect generational factors. This connects to Mead and Bowers' dimension of patient-centred care, "sharing power and responsibility," as the awareness of hierarchy between doctors and patients highlights a potential barrier to achieving equal power dynamics, a core aspect of patient-centred care. Addressing these challenges requires aligning organisational policies with patient-centred care principles, providing adequate support and training for healthcare personnel, and fostering a culture that values patient-centred approaches alongside operational efficiency.

In the paediatric setting, implementing patient-centred care has been shown to lead to differing views between healthcare professionals and families. Smith and Kendal

[ix] Opportunities for behavioural change is discussed in the "Advancing ward round education and training" section.

found that while healthcare professionals aimed to deliver patient-centred care, challenges arose in aligning their approaches with the expectations and preferences of patients and families.[144] The study found that healthcare professionals often focus on clinical outcomes and efficiency, whereas families prioritise holistic care, which addresses emotional and social needs.[144] Similar findings were observed, particularly in Study II, where informal caregivers highlighted the importance of considering the bigger picture. At the same time, doctors often concentrated on the immediate cause of the acute hospital admittance. This misalignment can result in tensions, highlighting the necessity for improved communication and collaboration to ensure that care plans are genuinely patient- and family-centred. Similarly, Clay and Parsh have argued for a "Patient- and Family-Centred Care"-approach, building on the fact that a holistic view may benefit all medical disciplines and age groups.[145] Clay and Parsh argue for three strategies for successfully implementing Patient- and Family-Centred Care: 1) communication and collaboration, 2) promoting health literacy, and 3) including the patient and family. While Study II embedded 1) and 3) in its findings, health literacy was not mentioned here. However, Study III (Delphi study) included an item, "Understand the patient's prerequisites for understanding medical implications during ward round (health literacy)". Nonetheless, health literacy in older adults remains a barrier to patient-centred care.[146] Therefore, initiatives improving health literacy in a Danish setting should be further investigated in future research.

Operationalising patient-centred care

Making patient involvement and patient-centred care effective for older patients with frailty requires tailored strategies that respect their unique needs, vulnerabilities, and preferences. Study II highlighted the importance of building relationships and fostering shared decision making with respect for patient autonomy. This includes acknowledging that shared decision making is perhaps not for everyone, underlining the need for flexibility and actively including informal caregivers in ward rounds.

Recognising the critical role of informal caregivers, adopting a Patient- and Family-Centred Care approach would be beneficial.[145] To support these goals, ward rounds should be redesigned to allow for more time for patient interaction and informal caregiver involvement while embedding patient-centred goals—all with patient health literacy in mind. Healthcare professionals should actively encourage participation but acknowledge hierarchy by inviting patient input and validating their experience. Several studies have argued for digital aids in patient-centred care, such as visual aids or patient portals.[147–149] Indeed, providing caregivers with a tool to empower their presence could enhance the awareness of the critical role they play and might thus increase the likelihood of them being invited to participate in ward rounds. Furthermore, healthcare professionals should address the patient's emotional, social, and functional needs for a holistic encounter. Notably, many of these principles can apply to all patients, considering the broader need to reintegrate holistic care into medical education and practice; however, it is beyond the scope of this thesis.[150,151]

Operationalising shared decision making

While the cognitive aid in this project was not intended to be merely a shared decision making tool, there are interesting findings in the contextualisation of shared decision making from our patient group's perspective, most of which came from Study II, the interview study. Therefore, the cognitive aid prompts clinicians to clarify the patient's preferred level of involvement—whether they wish to make decisions themselves, defer to the clinician, or involve relatives—and to ensure the patient understands and can manage the consequences of the decision. Although somewhat simplistic, this approach is also in line with the NICE guidelines (NG197), which recommend eliciting patient preferences, presenting options clearly, and confirming comprehension to support high-quality, person-centred decisions.[59] Steffensen (2019) emphasises that shared decision making is often misunderstood as transferring full responsibility to the patient, which can lead to anxiety and disengagement—particularly among vulnerable group.[152] Indeed the notion that "[patients would like to] make their own decisions"

could in fact cause harmful reactions with patients. Steffensen stresses the need for clinicians to make clear that decision making is a shared responsibility, with the healthcare professional remaining accountable for the clinical aspects of care.[152] This concept could be embedded in future educational initiatives as a learning objective. Furthermore, the structure of the cognitive aid resonates somewhat with Elwyn et al.'s Three Talk Model, particularly through its emphasis on initiating collaboration (Team Talk), offering tailored choices (Option Talk), and supporting deliberation and agreement (Decision Talk), however, these tasks are not in chronological order in the CA.[153]

In the later years, there had been emphasis on a broader implementation of shared decision making than patient decision aids. A recent systematic review on tools supporting communication and decision making in life-prolonging treatments concluded that "*further high-quality studies are needed to increase knowledge about the feasibility and effectiveness of such tools, particularly in populations with advanced diseases other than cancer, as well as in frail older people*".[64] This calls for a further research on this topic but is beyond the scope of this PhD. Steffensen notes that "some patients have more resources than others, and it can be argued that shared-decision making is mainly for the resourceful".[152] Both Steffensen and NICE guidelines comment on health literacy, which is also common among older patients.[59,152,154] Lastly, being a ward round cognitive aid and as such, an aid covering many skills and attitudes, this embodies many of the "*skills, attitudes, organisational culture, leadership, and training*" dimensions that Steffensen and NICE both identify as critical to the meaningful integration of shared decision making into everyday clinical practice.[59,152] As such, future studies could investigate the barriers and facilitators of shared decision making in an older population living with frailty with findings from Study II and operationalisation of the cognitive aid as point of departure. There is international literature on the field, that could further guide the process of exploring shared decision making in this patient group.[17,155,156]

Communication strategies

Despite the importance of communication in delivering patient-centred care, strategies tailored to the needs of older patients with frailty and their informal caregivers remain unclear. This PhD explored practical approaches to improve communication during ward rounds and integrating these strategies into medical education.

Skilled communication

Study II underscored how skilled communication involves fostering equal relationships with patients and navigating emotionally complex topics like DNACPR discussions. Similarly, a doctor-patient communication review found that doctors with excellent interpersonal skills improve patient treatment, as these doctors can detect problems early, prevent medical crises, and decrease expensive interventions.[157] Skilled communication, as suggested by Young and Salmon in 2011, extended beyond structured frameworks and highlighted the need for creativity in communication, including intuitive, flexible approaches that adapt to the unique needs of each patient encounter.[89] However, in Study IV, raters of the recorded ward rounds noted that residents often fell short of expected standards. Although this was not part of the formal rating process, their observations suggest a misalignment between some of the residents' self-reported ward round skills and their actual performance. This misalignment may highlight the need to embed self-assessment within feedback-rich environments that support reflective learning and behavioural change.[158–160] As Eva and Regehr argue, self-assessment is most effective when learners receive structured feedback and have opportunities to calibrate their perceptions through guided reflections.[159] The residents included in Study IV did not receive such structured feedback and their misalignment with the rater's evaluation of their performance could possibly reflect this. Monitoring own performance is a key concept in self-regulated learning and according to this theory, learners need feedback loops to evaluate and

regulate own performance[161] While assessment could serve as a feedback loop it seems imperative that residents learn to incorporate the assessment into their learning and the residents in our study did not receive any guidance in this. These findings suggest that future ward round training should integrate structured feedback and guided reflection to help residents calibrate their self-perceptions, and that observational data should be used alongside self-assessment to inform assessment practices in this domain. The absence of feedback in Study IV is elaborated further later in this section.

Operationalisation of skilled communication

The Calgary-Cambridge Guide remains a core component of communication training in Danish medical schools.[57] However, the Calgary-Cambridge Guide assumes an engagement level and a patient agency that may not be feasible with all patients with frailty. Although the Calgary-Cambridge Guide addresses communication with older patients, it does not provide an operational framework for implementing these communication strategies.[57] Additionally, omitting informal caregivers and applying an extensive framework to a fast-paced clinical setting underscore the need for adaptations to the Calgary-Cambridge Guide. A checklist or guide like the Calgary-Cambridge Guide may not fully operationalise the nuanced and individualised nature of effective communication, especially with older patients. As such, the Calgary-Cambridge Guide does not describe the phenomenon, i.e., communication with older patients and their informal caregivers. Nevertheless, the inclusion of medical communication experts into the Delphi Study panel in Study II ensured that the curriculum complements the Calgary-Cambridge Guide, serving as an extension that builds upon its foundational principles while addressing its limitations.

Examples of these extensions in the cognitive aid item are operationalisations of communication practices. For instance, building relationships is emphasised through operative guidance, such as recognising "the first seconds are critical for building

relationships" and stating, "I am here for your sake". Further, exploring patients' social networks, housing, previous occupations, and interests adds a holistic and individualised layer beyond the Calgary-Cambridge Guide's general recommendations. Regarding patient involvement, investigating why patients redirect conversations before dismissing their input suggests a deeper understanding of patient motivations, thus fostering empathy and curiosity. Lastly, as previously implied, the findings in this PhD thesis acknowledge the integral role of informal caregivers in communication and care. Examples of operational guidance in the cognitive aid utilised in Study IV include "provide the informal caregiver with the opportunity to speak with the doctor alone" and "investigate the informal caregiver's resources". However, as previously mentioned, the informal caregiver involvement during this study was minor, likely because the cognitive aid did not explicitly state the importance or benefit of their participation in ward rounds.[x]

A call for holistic communication

Stringer et al. described the patient-caregiver-doctor triad in patients with severe and profound intellectual and developmental disabilities, highlighting the caregiver's role as a protector and the importance of relationships, trust, and holistic engagement.[162] The triangular interaction shown in Figure 15 shows the dynamic state of interactions between the patient, informal caregiver, and doctor.

Similarly, the triadic dynamic in this PhD study underscores the need for communication strategies that include informal caregivers while respecting the patient's autonomy, a concept central to what can be termed holistic communication. Indeed, holistic communication appeared as a central theme across all studies, encompassing verbal and nonverbal exchanges and the relational dynamics between patients and healthcare professionals.

---

[x] Educational initiatives supporting skilled communication are discussed later in this section.

Figure 15 The dynamic triangular interaction

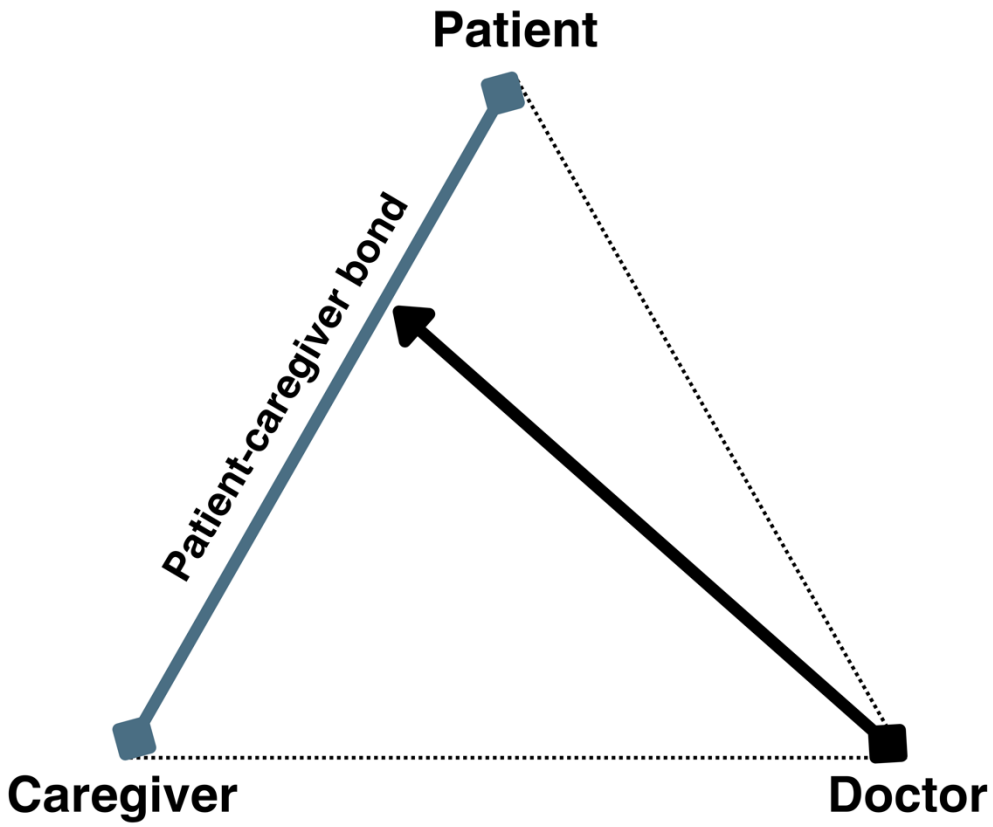


Figure 15 illustrates the dynamic triangular interaction as seen from the caregiver perspective for patients with severe intellectual disabilities (from Stringer et al., Figure 1).[162] Here, the patient-caregiver bond is profound and solid, as illustrated by the thick blue line.

Interestingly, findings in Study II suggest that patients often prioritised the perceived relationship with the doctor over the content of their words. This challenges Habermas' notion that communication aims primarily to achieve consensus through rational discourse. Patients may experience patient-centred care independently of the doctor's communicative actions in practice, provided the relational dynamic fosters a sense of collaboration and teamwork. This raises important theoretical questions about the alignment between the strategic elements of communication—such as building rapport or demonstrating empathy—and Habermas' concept of genuine

communicative action or if they fall into the category of strategic action aimed at achieving specific outcomes. These findings suggest broadening theoretical frameworks to encompass how patients and informal caregivers experience communication in practice. This perspective aligns with the beforementioned article, "*Exploring the Challenges of Frailty in Medical Education*", by Winter and Pearson from 2023.[132] They argue that conceptual uncertainty leads to varied interpretations and teaching approaches.[132]

Advancing ward round education and training

Operationalising ward round competencies

Milestones and Entrustable Professional Activities (EPAs) provide a structured framework to assess trainees' readiness for independent practice in areas such as medication management and patient safety. In ward rounds, these tools may help facilitate the progressive development of clinical, communication, and leadership skills, enhancing the quality and consistency of patient-centred care. In 2018, an EPA was validated for conducting internal medicine ward rounds in Germany.[163,164] This EPA consisted of 25 activities, such as patient and team communication and organisational competence and 85 exemplary facets of behaviour.[164] The authors exempted the level of supervision as found in traditional EPAs, and as such, this EPA acts as an observation checklist and an assessment tool.[164] Similarly, Study II delivered a comprehensive, hands-on guide to conducting ward rounds in older patients with frailty, resulting in 108 consensus-based items. Building on the German Internal Medicine EPA, these items could lay a foundation for a Danish EPA specific to ward rounds for older patients with frailty, addressing a gap in current training. However, supervision should be included to ensure gradual progression toward independence in conducting ward rounds in this patient group. As noted in the German Internal Medicine EPA study and mirroring our concerns regarding the 108 Delphi items, the complexity of ward rounds poses challenges in operationalising ward round competencies. This aligned with Study IV findings, as residents found the cognitive aid overwhelming due to the sheer volume of information. To mitigate this, artificial intelligence (AI) could help operationalise extensive material by processing data and delivering tailored recommendations.[165] As of January 2025, most *research* on AI-driven platforms and Large Language Models (LLMs) in medical education remains conceptual or focused on their ability to pass exams.[166] However, this is likely to change soon, as LLMs such as ChatGPT have the potential to offer personalised

learning.[167] One such learning experience was suggested by David A. Cook, who used ChatGPT 4.0 to create virtual patients to simulate real-world interactions and adapted to learners' needs in real-time.[168] According to Cook, this approach allowed learners to practice management reasoning and communication skills with tailored feedback, fostering deeper engagement and skill acquisition.[168] Similarly, utilising the findings from this PhD study and other relevant publications could drive a personalised approach to a database-driven and tailored educational experience, such as simulated patient scenarios or feedback of audio-recorded ward round conversations.

Furthermore, AI could advance behavioural checklists or Entrustable Professional Activities (EPAs), simulating complex situations and, thus, introducing reflections about, e.g. the dynamics of the patient-informal caregiver-doctor triad. Therefore, AI's ability to support learning aligns with Bloom's taxonomy (Figure 14), which emphasises progression from foundational knowledge to complex application and synthesis.[125]

The cognitive aid and its intervention addressed communication strategies for managing older patients with cognitive deficits, whether acute (delirium) and/or chronic (e.g., dementia). These aspects of communication are known to pose significant challenges for healthcare professionals due to increased workload, safety concerns, and knowledge deficits.[169–171] These challenges [communication with older patients with cognitive deficits] are not explicitly addressed in undergraduate medical training in Denmark, as the Calgary-Cambridge Guide is widely adopted, both in Aalborg University[57,172], Aarhus University[173], University of Copenhagen[174], and University of Southern Denmark[175].* Also, as mentioned, a recent Delphi study on communication curriculum content in Danish undergraduate medical education context suggested that communication with older patients were discarded from the final curriculum.[53]

The simulation session involving a patient with delirium was well received in Study IV. However, the limited scope of the cognitive aid left little room for detailed, operational

guidance on these strategies. Considering the growing body of literature in recent years, learners could benefit from additional interprofessional educational resources, such as podcasts or e-learning modules specifically focused on managing communication with patients experiencing cognitive challenges.[176,177] Finally, in Study III (the Delphi study), participants achieved consensus on what should be documented in the electronic healthcare journal. The study incorporated this focus based on geriatrician feedback indicating that residents often struggled with ward round documentation. Those findings are consistent with a review highlighting similar challenges.[178] The documentation guide for electronic healthcare journals can be found in Appendix 8.

Workplace-based learning and simulation

Workplace-based learning remains a cornerstone of medical education, particularly in graduate medical education.[70,179,180] Workplace-based learning allows learners to develop clinical skills in complex real-world contexts. Traditionally, direct supervision has been suggested as the go-to teaching method in workplace-based learning and ward round training.[15] According to the Danish Health Authority, ward round competency is achieved through various learning methods, including daily clinical work under supervision, structured clinical observation, case-based discussions, and self-study.[77] However, a Danish Young Doctors' Association study in 2019 found that supervision was suboptimal and inconsistently integrated into work planning.[181] A study from the UK reported similar findings.[182] Likewise, in Study IV, residents expressed a need for more feedback as a motivational factor for engaging with the cognitive aid. To address these challenges, simulation has been considered a supplement to workplace-based learning for developing skills such as communication or geriatric medicine.[183–185] Residents in Study IV regarded the simulation session most beneficial, as it focused on complex communication skills, including communication with patients experiencing delirium and discussions to establish treatment levels. The feedback provided to residents may also have explained the positive reviews. It may be

beneficial for simulation-based training to include triadic communication, helping healthcare professionals balance the needs and perspectives of all parties involved. This triadic communication is widely used in paediatric settings, given the parents' essential role in patient care.[186] However, integrating high-fidelity simulation into the training required considerable resources, particularly for debriefers and simulated patients. In scenarios involving triadic communication, at least two individuals are required, or three if the simulated patient does not also serve as the debriefer. To address these resource demands, virtual patients could be a feasible alternative.[187] Virtual patients gained significant attention during the COVID-19 pandemic with restrictions to in-person training.[188] However, Bearman and Ajjawi caution that educational activities, such as simulation with virtual patients, risk superficial inclusion and lack of genuine understanding or improvement in practice.[189] To avoid this, simulation-based communication training must reflect the interpersonal dynamics rather than just focusing on procedural or scripted interactions. Previously, complex scenarios involving virtual patients were considered too challenging to implement. However, advancements in technology are increasingly bridging this gap.[187] This includes effective debriefing, which fosters critical thinking and reflection. While computer-based debriefing is still in its early stages, it could help address resource limitations positively.[190]

Implementation and behavioural change

The implementation of the cognitive aid in clinical settings revealed several barriers. Marshall et al. (2017) emphasise that successful cognitive aids require usability, contextual fit, and adequate training.[191] Although their work focuses on high-stakes environments, they note that cognitive aids introduced without adequate familiarisation are often disregarded—despite their potential value.[191] In our case, the cognitive aid was introduced through a 1 hour and 45-minute session in total including simulation, and this may not have provided sufficient support for practical integration. According to Marshall et al., successful implementation of cognitive aids depends not

only on their content but also on contextual usability, alignment with clinical workflows, and sufficient training to support uptake.[191] In our study, some residents noted that they were only infrequently assigned to the ward round role, which may have limited their opportunity to apply and internalise the tool. This underscores the importance of ongoing reinforcement; literature from continuing professional development emphasises that spaced learning—where educational content is revisited over time—can enhance knowledge retention and behaviour change more effectively than one-time training sessions.[192]

Further, cognitive aids have often been perceived by doctors as time-consuming or unnecessary, leading to resistance to behavioural change.[193] This resistance or the reason why the residents didn't use the cognitive aid can be explained using the Behaviour Change Wheel (BCW) framework, which provides a structured approach to understanding and facilitating behaviour change.[194] The BCW identifies three key interacting components influencing behaviour: Capability, Opportunity, and Motivation (COM-B).[194] These components are divided into subthemes, such as physical, social, or physiological components (Figure 16).

Capability was a key factor in Study IV, as residents reported finding the cognitive aid overly complex and challenging to integrate into their workflow. As the cognitive aid was developed with input from patients and informal caregivers, residents were not involved as co-creators in its design, although they were stakeholders, too. Ideally, their inclusion would have been beneficial, but time constraints during the PhD prevented this from occurring. Some residents mistakenly assumed that the podcasts were optional, while others were not accustomed to listening to podcasts in general and were therefore unfamiliar with this format as a means of learning. These findings are consistent with the 2013 study by Matava et al. on podcast use.[195]

Figure 16 The COM-B model from the Behavioural Change Wheel.

Figure 16 illustrates the COM-B model (Capability, Opportunity, Motivation, and Behaviour) as a framework for understanding and changing behaviour. The COM-B model is often used in healthcare interventions and behaviour change programs.[194]

The second factor, opportunity, was also important, as residents expressed that the cognitive aid was too basic and insufficiently tailored to their expertise, with a few believing they were already proficient in conducting ward rounds. However, as Rahmani and colleagues argue, ward round competence is a skill that requires lifelong learning and continuous development.[196] They emphasise that even fully qualified doctors may lack proficiency in this area, underscoring the need for ongoing education and training.[196] The podcasts and simulation activities included in the intervention were generally considered valuable and thought-provoking by the participants,

suggesting that these components could be emphasised in future iterations of the cognitive aid intervention. Although not all participants engaged with both podcast episodes, a scoping review by Kelly et al. (2023) highlights the growing use of podcasts in medical education as accessible and flexible learning tools.[197] Podcasts have the potential to support asynchronous learning, mainly addressing learning outcomes on Kirkpatrick levels 1 to 3.[119,197] The podcasts were intended to prepare residents for the use of the cognitive aid and to engage with an informal caregiver perspective by encouraging reflection, contextual understanding, and patient-centred thinking. They were grounded in a constructivist orientation, although the application of a specific learning theory during their development might have enhanced their coherence. As McNamara and Drew (2019) point out, educational podcasts are often created without clear reference to underlying learning theories, which may limit their educational coherence and effectiveness. [198] However, according to Mayer's Cognitive Theory of Multimedia Learning, which outlines fifteen evidence-based principles for effective instructional design, the podcasts adhered to several principles, including segmenting—by breaking content into manageable parts—and personalisation—by using a conversational tone to enhance learner engagement.[199] In future iterations, more explicit alignment with relevant educational theories, such as the Cognitive Theory of Multimedia Learning, and the integration of e-learning elements may enhance effectiveness.[199] Also, future versions of the intervention might benefit from design strategies such as spaced release of content, embedded reflective prompts, or guided reflection—approaches that have been shown to enhance learner engagement and retention in both podcast-based and broader multimedia learning environments.[192,198,199] While our initial implementation faced challenges, we propose that with clearer guidance and integration into the curriculum, podcasts could serve as an effective educational tool.[197]

Finally, motivation could potentially be enhanced by involving doctors in the design process of the cognitive aid or by incorporating mechanisms for feedback. This

feedback could be delivered through in-person reviews or video recordings analysed with a supervisor.[70] These findings underscore the importance of integrating structured feedback into ward round training.[159] Embedding self-assessment within feedback-rich environments may help residents calibrate their self-perceptions and improve clinical performance.[158,160] Future educational interventions should therefore combine observational data with guided reflection to support self-regulated learning and behavioural change.[8] Such approaches align with findings by Johnson and May, whose systematic review identified feedback as a key factor in promoting behaviour change among healthcare professionals.[200] Additionally, targeting doctors at earlier stages of their training may be beneficial, as trainees are often more open and motivated to adopt new practices and change their behaviour.[201]

The limited use of the cognitive aid by residents in this study may also be understood through the lens of self-determination theory (Deci et al., 1991), which emphasises the importance of autonomy, competence, and relatedness in fostering internal motivation.[202] Although the intervention aimed to support residents in conducting more structured and patient-centred ward rounds, it may have inadvertently challenged their sense of autonomy or clinical identity.[202] If residents perceived the cognitive aid as externally imposed or disconnected from their routine practice, their intrinsic motivation to engage with it could have been diminished.[202] Furthermore, residents may not have perceived a strong sense of competence in applying the aid, particularly if it was not integrated into the broader culture of ward rounds or reinforced by senior role models. This interpretation aligns with ten Cate et al.'s (2024) conceptualisation of medical competence as a multilayered construct, where effective performance is shaped not only by knowledge and skills, but also by professional identity formation, context, and motivation.[203] The absence of consistent uptake may thus reflect a misalignment between the intervention and the situated, relational, and developmental aspects of residents' competence in clinical settings." Within other educational concepts such as Adaptive expertise studies, Gamborg et al.

has shown that supervision during clinical tasks may foster a behavioural change. In order to further implement the cognitive aid supervisors could play an important role.[204]

In future iterations of the intervention, implementation planning may be guided by the Behaviour Change Wheel (BCW) in combination with the Theoretical Domains Framework, offering a structured approach to identifying behavioural determinants and selecting appropriate strategies.[194,205]

Ward round assessment

In their review on end-user involvement in Medical Education from 2020, Gordon and colleagues reported that none of the studies assessed outcomes corresponding to levels 3 or 4 of Kirkpatrick's hierarchy.[126] Thus, none of the included studies focused on applying skills in practice and implementing practice changes across an organisation. The reason for this might be the following: The assessment of ward rounds raises an important question: Who defines what constitutes a "good" ward round? In study IV, raters of the ward round videos expressed concerns that the residents did not meet expected standards, reflected in the median scores of 5 out of 7 across all cognitive aid items. Furthermore, raters provided informal feedback on resident performance during the review process, indicating that many of the videorecorded ward rounds did not meet the standards expected from residents. However, this external evaluation did not align with patient satisfaction scores, which remain high despite instances of suboptimal practices. However, some patients attributed shortcomings to themselves rather than criticising the resident. Generational factors likely contribute to patients' reluctance to provide negative feedback.[206] Moreover, frailty seems to play a role, as some patients may be too exhausted to express their opinions, regardless of age.[11] We also observed that although mentally capable, patients often had difficulty distinguishing between doctors, further complicating the situation. Some challenges were noticed when the patients used the Communication Assessment Tool.[120] First,

the Danish translation of the top score "*excellent*" was "*fremragende*", which may have appeared unfamiliar, as it might not be commonly used in participants' everyday language. As a result, some patients selected the second highest answering option, "very good" ("meget god"), even when they believed the communication could not be improved.

Additionally, the number of questions (n=14) seemed overwhelming, with nearly one-third of participants unable to answer certain questions due to memory lapses. Building on this, we read the questionnaire aloud to accommodate the patients' fatigue and sensory impairments, as we anticipated that completing it independently would be difficult. Thus, we do not recommend using this assessment tool for this patient group to assess ward round quality. An alternative would be to include patients in identifying PROMs for assessing ward rounds, as seen in other areas of the healthcare system.[207,208]

The area where patients' opinions differed the most was in terms of involvement. Previous research has shown that involvement in this context can mean "being informed" and having an active role in decision making and that some patients may not want to be involved at all.[62,209] As a result, it may be challenging to establish a clear standard for optimal patient involvement for this group. This is also reflected in the Communication Assessment Tool item on patient involvement, where nearly half of the patients found the question irrelevant. Patients also face an ethical dilemma due to the power dynamic between them and the doctors, as described in previous studies.[210–212] Some patients felt uncomfortable giving feedback to a highly educated professional in our study. Patients are often in a vulnerable position, dependent on doctors for their health and well-being. Asking them to assess the individuals they rely on creates ethical tension. As such, patients may feel uncomfortable providing negative feedback due to fear of jeopardising their care or damaging the relationship with their healthcare provider. Additionally, there is an ethical concern about asking

patients who are frail to take on the extra task of evaluating doctors while they are hospitalised. As seen in other vulnerable populations, rigorous preparations and information must be included when involving them in such activities.[213] However, Mollard, Hatton-Bowers, and Tippens state that vulnerable populations are often framed through a deficit lens, focusing on their weaknesses, risks, and perceived failures. This narrative can overshadow the social and structural factors contributing to their circumstances and overlook their inherent strengths and resilience. Therefore, it is essential to maintain the patient perspective, ideally adopting a strengths-based approach.

Using informal caregivers as assessors in adult medical education is not well investigated.[126] The setup of this study reflects real-world clinical practice, which is why informal caregivers were not present in many ward rounds. This is unfortunate, considering the importance of caregivers in ensuring good care and discharge planning.[214,215] We did not observe that any of the informal caregivers had difficulties expressing their opinions, and one might speculate that if caregivers were more involved in evaluating educational initiatives, they could play a more significant role in raising doctors' awareness. However, as Al-Jawad, Winter, and Jones states, "*Conversations with [informal caregivers] require a careful balancing of patient autonomy and recognition of the network of support that many people rely on*".[216] Returning to the question of who defines the *optimal* ward round: placing too much emphasis on informal caregivers risks diverting attention away from the patients.

From an organisational perspective, the definition of a "good" ward round must prioritise efficiency—short and effective rounds, reducing length of stay while maintaining patient safety and quality of care. Similarly, utilising multidisciplinary evaluation from e.g. nurses could facilitate both interdisciplinary ward rounds and perhaps a more holistic patient view, as described in the best practice in geriatrics, the Comprehensive Geriatric Assessment (CGA).[25,217] Given the circumstances and ethical

dilemmas involving patients in ward round quality assessment, future evaluations may benefit from integrating multiple viewpoints, such as informal caregivers and nurses, to establish a more holistic understanding of the ward round quality.

12. METHODOLOGICAL REFLECTIONS

Synergies between the studies

Using various research methods allowed for complementary insights into conducting ward rounds with patients with frailty. Also, it allowed for a progression toward a larger purpose of developing an educational activity. As such, we could apply Kern's six-step approach to building curricula (see Appendix 7): **Step 1**: Studies I to III (see Box 5) provided nuances to the problem identification and general needs assessment. **Step 2**: Study III and the round 1 question, "What would be beneficial for internal medicine residents to learn while conducting ward rounds with older patients with frailty," provided the targeted needs assessment. **Step 3**: Studies II and III provided goals and objectives of the cognitive aid and its intervention, while **Step 4**, educational strategies, was decided upon in the research group with stakeholder input. **Steps 5-6**: Study IV explored the implementation, evaluation and feedback.

Box 5 Overview of PhD studies

Study I	Study II	Study III	Study IV
Scoping review	Interview Study	Delphi Study	Feasibility Study

Researcher position

Being the principal investigator, I took a reflective stance, particularly during qualitative data collection and analysis. As a Geriatric Medicine resident, acknowledgement of

my pre-assumptions had to be considered. I was aware of potential power balance issues and a sense of authority that some may experience, and I always wore regular clothes when interviewing informants. However, I found patients more likely to participate in Studies II and IV because they knew I was a doctor, and of course, I introduced myself upon entering the patient room. Before Study II, the qualitative study, I completed a personal reflexivity task as suggested by Braun and Clarke (p.16-18):[105] I'm a socially privileged white woman, guided by a belief that the best society is one where inequalities between rich and poor are minimised and that individuals have a fundamental responsibility to support the society's most vulnerable members. This perspective is rooted in principles of compassion, and while I am a member of the Danish National Church, I'm not a practising Christian. This standpoint carries the potential drawback of placing an excessive sense of responsibility on those closest to the vulnerable person. As an outsider researcher, I may have missed out on nuances during the interviews. In some instances, participants might have withheld information, potentially afraid of negative consequences, as I was a healthcare professional and considered part of the healthcare system.

End-users of the intervention

While the cognitive aid was designed to improve ward round communication with older patients with frailty, the primary end-users of the tool were internal medicine residents. Patients and informal caregivers contributed valuable insights during its development and may benefit from improved communication, but they are not the users of the tool itself. This distinction has implications for the study's design and evaluation. This distinction has implications for the study's design and evaluation. If Study IV had focused exclusively on residents as end-users, the methodology would have centred on changes in resident behaviour, perceived utility, and integration of the tool into clinical routines—aligning directly with educational evaluation frameworks such as Kirkpatrick's model (Levels 1–3).[10] The inclusion of patients and informal

caregivers, however, was a deliberate choice to reflect the broader educational aim of embedding their perspectives into clinical training at Kirkpatrick level 4.[10] This dual focus, though methodologically complex, was intended to provide a more holistic understanding of ward round quality and the relational dynamics that shape learning in practice. The lack of cognitive aid use underscores the need for further exploration of residents' views on their own learning, potentially through qualitative approaches, to better understand if and how such a tool could be integrated into residency training.

Limitations

The ward round is a complex healthcare scenario, which can be explored from multiple angles and perspectives. In this research, we aimed to bring the perspectives of the patient and informal caregiver into the foreground. However, a stronger interdisciplinary focus could have enriched our approach. While some articles in Study I were with nurses, and a few nurses contributed as part of the medical communication expert group, the broader perspectives of nurses and therapists were underrepresented. Therefore, engaging interdisciplinary team members in the next iteration of the cognitive aid will be a priority.

The median interview length of Study II was 32 minutes, ranging from 18 to 47 minutes. The shorter interview durations were influenced by patient fatigue, as some interviews had to be shortened as the patients became very tired. Naturally, this impacted the depth of exploration we could achieve and may have overlooked some nuances. In addition, there is always the possibility of not gathering every experience through the interviews in qualitative research. However, information redundancy occurred after including 15 patients, meaning that "*no new information, codes, or themes are yielded from data*".[104] Therefore, we concluded that we had included a sufficient number of patients to answer our research question.

By using convenience sampling, we likely favoured the fitter patients, while ethical considerations led to the omission of the cognitively impaired. Including patients with mild cognitive impairment in this study could have provided valuable insights into other aspects of ward round communication. This remains an area for future investigation.

As mentioned, Studies I-III provided the foundation for the medical educational intervention, including the cognitive aid. Initially, we considered a communication checklist but shifted towards a cognitive aid, recognising that a checklist could oversimplify the depth required for communication during ward rounds. Also, we could not design a checklist embedding all potential behaviours and gestures necessary for ward round interactions. We also considered developing a behavioural catalogue like the NOTSS[xi], with observable behaviour to assess ward round competency.[218] We positioned the cognitive aid as a reflective instrument rather than an assessment tool. As such, this decision presented some limitations. Certain cognitive aid items could not be assessed, as they either did not occur during the video-recorded ward rounds (e.g., interacting with interdisciplinary team members) or were incompatible with the inclusion criteria for study participants (communicating with cognitively impaired patients). Furthermore, while Likert scale data are ordinal, we used this as interval data and computed aggregated means for descriptive purposes, given the 7-point scale and the focus on group-level trends. However, this approach aligns with common practice in educational research.[219]

The sample size in Study IV was limited, with only 14 of 20 potential residents participating. Additionally, only 5 out of the seven residents in the control group provided self-reported data. Despite these limitations, as a feasibility study, it provides insights into the potential for conducting such research in this context. As previously

[xi] NOTSS - a behavioural rating system designed to assess and provide feedback on the non-technical skills of surgeons, including communication, teamwork, decision making, and situational awareness.[218]

observed, those who provide feedback in studies like this may represent a more engaged subset.[220]

13. CONCLUSION

This PhD thesis explored ward rounds for older patients with frailty and how patient and informal caregiver perspectives could advance medical education. Across Studies I, II, and III, ward rounds within this patient group were holistically described, addressing the knowledge, skills, and attitudes needed to optimise care. Study IV focused on the implementation and acceptability of a cognitive aid designed to support these findings. Collectively, these studies underscored the importance of *skilled communication* that integrates the perspectives of patients, informal caregivers, and healthcare professionals, as well as the critical role of informal caregivers in providing crucial insights into the broader context of care.

Study I, the scoping review, identified effective communication strategies with older patients while highlighting barriers such as the impact of frailty on patient involvement and the power imbalance between doctors and patients. Study II, based on qualitative interviews, emphasised how older patients with frailty value relationship-building and trust with doctors. Informal caregivers often reported feeling omitted from ward rounds, and when feeling responsible for ensuring care quality, this resulted in an emotional burden. Study III, the Delphi study, reached an expert consensus on 108 content items for conducting ward rounds with older patients with frailty. These items encompassed a holistic approach, effective communication, interdisciplinary collaboration, and adapting care to patients' cognitive and physical needs. These findings led to the development of a cognitive aid, co-designed with the Randers Municipality Senior Citizens' Council. Study IV, the feasibility study, found that residents did not use the cognitive aid while the intervention was implemented. Furthermore, informal caregivers were too scarcely present during ward rounds and were excluded from the analysis. Following the non-use of the cognitive aid, its impact on patient participation, satisfaction, and comprehension of information could not be explored. However, the study found that involving patients in giving feedback on

educational initiatives was difficult, as they often hesitated to provide critical feedback and blamed themselves for any shortcomings. In terms of the thesis's overall contribution, Study IV positions as a lessons learned study about implementation and acceptability in a real-world context. In retrospect, a single-group design may likely have aligned more closely with the feasibility aims by allowing a larger intervention sample and deeper exploration of barriers to uptake.

Perspectives

Ward rounds for older patients with frailty do not follow a "one-size-fits-all" approach. Learning what constitutes patient-centred care in this population involves taking in patients' lived experiences and existential challenges. Thus, frailty goes beyond clinical definitions—it involves personal, emotional, and social dimensions.[131] This multidimensional understanding of frailty must be embedded into educational frameworks to ensure learners recognise frailty as a dynamic and situational state requiring holistic, context-sensitive approaches. Thus, a larger focus on patient-centred care involving families might be more advantageous. Informal caregivers act as the patient's "living medical record," providing insights into "the bigger picture," which is often the case when an older patient with frailty is admitted. As healthcare professionals, we must embed this knowledge to understand the patient's context and network. When we opt out, this significantly exacerbates the burden experienced by informal caregivers, who often perceive themselves as responsible for ensuring the quality of care.

This PhD lays the foundation for developing the competencies needed to conduct ward rounds for older patients with frailty—perhaps even for approaching all patients. Patient-centred care, after all, entails that no patient is merely one more on the day's ward round list. The PhD study has sought to highlight the skills, knowledge, and attitudes while also portraying a range of dilemmas that make ward rounds more complex without necessarily providing a single correct answer.

Study IV highlighted an important perspective: Although embedding patient and informal caregiver perspectives into medical education is essential, this might overlook an important aspect: the learners themselves. The cognitive aid was developed with input from patients, informal caregivers, medical communication experts and geriatric specialists; however, the learners' perspectives were not included. This probably had the effect that the desired behavioural change in Study IV did not occur. Including residents in this development phase may have changed the cognitive aid design and the residents' limited perception of feasible opportunities to change their behaviour.

Future research

Despite their importance, I was surprised to learn that ward rounds are understudied in healthcare. To address this knowledge gap, a Danish national cross-sectional study examining the collaboration and learning opportunities inherent in ward rounds could be advantageous.

With the growing number of older patients with frailty, more healthcare professionals need to learn to navigate these complex interactions in clinical settings. First, the aim is to strengthen the interdisciplinary approach by co-developing an interprofessional cognitive aid or e-learning module with stakeholders involved in ward rounds. Utilising quality improvement approaches, such as the Improvement guide (or Plan-Do-Study-Act) from the National Institute of Healthcare Improvement, merges the implementation process with productivity measures.[221] Second, in the context of medical education, I propose co-creating a cognitive aid or similar, inspired by Entrustable Professional Activities (EPAs), to establish a progressive learning framework. This would address the current situation, where educational guideline expectations are identical for novice learners and for those nearly qualified consultants. Using an exploratory study design, co-designing with learners and supervisors and gaining their perspectives could be engaging. Lastly, integrating AI-

assisted learning modules could be explored to enhance the acquisition of ward round competencies, preferably to investigate Kirkpatrick Level 3 (behaviour). This could include creating a database of ward round knowledge derived from this study or scenarios with virtual patients (and virtual informal caregivers). Large Language Models hold the potential to shape educational content tailored to the individual learner's needs. At the same time, it would also be interesting to investigate their limitations and applicability in medical education.

Future studies could also address the broader educational gap in teaching communication with older patients who have cognitive impairments. A proposed direction would be to develop and evaluate a curriculum specifically focused on this area, particularly in the undergraduate medical education context. Such research should involve the perspectives of patients with cognitive impairments, their informal caregivers, and relevant healthcare professionals to ensure the curriculum is grounded in real-world needs and experiences.

14. REFERENCES

1. Cook DA, Bordage G, Schmidt HG. Description, justification and clarification: A framework for classifying the purposes of research in medical education. *Med Educ*. 2008;42(2):128-133. doi:10.1111/j.1365-2923.2007.02974.x

2. Rechel B, Grundy E, Robine JM, et al. Ageing in the European Union. *The Lancet.Lancet Publishing Group*. 2013;381(9874):1312-1322. doi:10.1016/S0140-6736(12)62087-X

3. Statistics Denmark - Hospital admissions (LPR3) by emergency/non-emergency, region, age, and time in 2023 [in Danish]. 2023. Accessed April 17, 2025. https://www.statistikbanken.dk/statbank5a/default.asp?w=2560

4. Oksuzyan A, Höhn A, Pedersen JK, Rau R, Lindahl-Jacobsen R, Christensen K. Preparing for the future: The changing demographic composition of hospital patients in Denmark between 2013 and 2050. *PLoS One*. 2020;15(9 September). doi:10.1371/journal.pone.0238912

5. Tanderup A, Lassen AT, Rosholm JU, Ryg J. Disability and morbidity among older patients in the emergency department: a Danish population-based cohort study. *BMJ Open*. 2018;8(12). doi:10.1136/bmjopen-2018-023803

6. Nobili A, Garattini S, Mannucci PM. Multiple Diseases and Polypharmacy in the Elderly: Challenges for the Internist of the Third Millennium. *J Comorb*. 2011;1(1). doi:10.15256/joc.2011.1.4

7. Keeble E, Roberts HC, Williams CD, Van Oppen J, Conroy SP. Outcomes of hospital admissions among frail older people: A 2-year cohort study. *British Journal of General Practice*. 2019;69(685):E555-E560. doi:10.3399/bjgp19X704621

8. Rockwood K, Theou O. Using the Clinical Frailty Scale in Allocating Scarce Health Care Resources. *Canadian Geriatrics Journal*. 2020;23(3):254-259. doi:10.5770/cgj.23.463

9. O'Caoimh R, Morrison L, Costello M, et al. Frailty in an Adult Acute Hospital Population: Predictors, Prevalence, and Outcomes. *Int J Environ Res Public Health*. 2024;21(3). doi:10.3390/ijerph21030273

10. OECD - Hospital Beds. 2021. Accessed April 17, 2025. https://www.oecd.org/en/data/indicators/hospital-beds.html

11. Dent E, Martin FC, Bergman H, Woo J, Romero-Ortuno R, Walston JD. Management of frailty: opportunities, challenges, and future directions. *The Lancet*. 2019;394(10206):1376-1386. doi:10.1016/S0140-6736(19)31785-4

12. Danish Health Authority. *The Health Structure Commission's Report – A Decision-Making Basis for a More Equitable, Coherent, and Sustainable Healthcare System [in Danish]*.; 2024. www.ism.dk

13. Danish Health Authority. *The Medical Specialist of the Future — Reforming Postgraduate Medical Education [in Danish]*.; 2023. www.sst.dk

14. Noorani M. The ward round: friend or foe in postgraduate training? A grounded theory study of residents' perspectives. *Med Educ Online*. 2022;27(1). doi:10.1080/10872981.2022.2101180

15. Royal College of Physicians. *Modern Ward Rounds: Good Practice for Multidisciplinary Inpatient Review*.; 2021.

16. Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med*. 2000;(51):1087-1110. www.elsevier.com/locate/socscimed

17. Pel-Littel RE, Snaterse M, Teppich NM, et al. Barriers and facilitators for shared decision making in older patients with multiple chronic conditions: a systematic review. *BMC Geriatr*.*BioMed Central Ltd*. 2021;21(1). doi:10.1186/s12877-021-02050-y

18. Berghout M, Van Exel J, Leensvaart L, Cramm JM. Healthcare professionals' views on patient-centered care in hospitals. *BMC Health Serv Res*. 2015;15(1). doi:10.1186/s12913-015-1049-z

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

20. Towle A, Brinbridge L, Godolphon W, et al. Active patient involvement in the education of health professionals. *Med Educ*. 2010;44:64-74.

21. Perversi P, Yearwood J, Bellucci E, et al. Exploring reasoning mechanisms in ward rounds: A critical realist multiple case study. *BMC Health Serv Res*. 2018;18(1). doi:10.1186/s12913-018-3446-6

22. Kildebro N, Fergo C, Rosenberg J. [Difficulties in the IT-solutions of the Danish healthcare system]. *Ugeskr Læger*. 2014;176:V66858.

23. Forciea M. Geriatric Medicine: History of a Young Specialty. *AMA J Ethics*. 2014;16(5):385-389. doi:10.1001/virtualmentor.2014.16.5.mhst1-1405

24. COST-PROGRAMMING. Accessed June 28, 2024. https://cost-programming.eu

25. Ellis G, Langhorne P. Comprehensive geriatric assessment for older hospital patients. *Br Med Bull*. 2005;71(1):45-59. doi:10.1093/bmb/ldh033

26. Leng S, Chen X, Mao G. Frailty syndrome: an overview. *Clin Interv Aging*. Published online March 2014:433. doi:10.2147/CIA.S45300

27. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K. Frailty in elderly people. *The Lancet*. 2013;381(9868):752-762. doi:10.1016/S0140-6736(12)62167-9

28. Fournaise A, Nissen SK, Lauridsen JT, et al. Translation of the updated clinical frailty scale 2.0 into Danish and implications for cross-sectoral reliability. *BMC Geriatr*. 2021;21(1):269. doi:10.1186/s12877-021-02222-w

29. The Danish Clinical Quality Program. DANFRAIL database. 2022. Accessed November 1, 2024. https://www.rkkp.dk/nyheder/hospitaler-bor-screene-aldre-for-skrobelighed/

30. Mudge AM, Hubbard RE. Frailty: mind the gap. *Age Ageing*. 2018;47(4):508-511. doi:10.1093/ageing/afx193

31. Dall TM, Gallo PD, Chakrabarti R, West T, Semilla AP, Storm M V. An Aging Population And Growing Disease Burden Will Require A Large And Specialized Health Care Workforce By 2025. *Health Aff*. 2013;32(11). doi:10.1377/hlthaff.2013.0714

32. Hansson A, Svensson A, Ahlström BH, Larsson LG, Forsman B, Alsén P. Flawed communications: Health professionals' experience of collaboration in the care of frail elderly patients. *Scand J Public Health*. 2018;46(7). doi:10.1177/1403494817716001

33. Tanderup A, Lassen AT, Rosholm JU, Ryg J. Disability and morbidity among older patients in the emergency department: a Danish population-based cohort study. *BMJ Open*. 2018;8(12). doi:10.1136/bmjopen-2018-023803

34. Schoevaerdts D, Sibille FX, Gavazzi G. Infections in the older population: what do we know? *Aging Clin Exp Res*.*Springer Science and Business Media Deutschland GmbH*. 2021;33(3):689-701. doi:10.1007/s40520-019-01375-4

35. Kemp K, Mertanen R, Lääperi M, Niemi-Murola L, Lehtonen L, Castren M. Nonspecific complaints in the emergency department - A systematic review. *Scand J Trauma Resusc Emerg Med*.*BioMed Central Ltd*. 2020;28(1). doi:10.1186/s13049-020-0699-y

36. Local Government Denmark. [Shorter hospital stays require strengthening of primary healthcare services]. *Momentum*. May 2024.

37. Roth DL, Fredman L, Haley WE. Informal Caregiving and Its Impact on Health: A Reappraisal From Population-Based Studies. *Gerontologist*. 2015;55(2):309-319. doi:10.1093/geront/gnu177

38. Bauer JM, Sousa-Poza A. Impacts of Informal Caregiving on Caregiver Employment, Health, and Family. *J Popul Ageing*. 2015;8(3):113-145. doi:10.1007/s12062-015-9116-0

39. Bookman A, Harrington M. Family Caregivers: A Shadow Workforce in the Geriatric Health Care System? *J Health Polit Policy Law*. 2007;32(6):1005-1041. doi:10.1215/03616878-2007-040

40. Kazemi A, Azimian J, Mafi M, Allen KA, Motalebi SA. Caregiver burden and coping strategies in caregivers of older patients with stroke. *BMC Psychol*. 2021;9(1):51. doi:10.1186/s40359-021-00556-z

41. del-Pino-Casado R, Priego-Cubero E, López-Martínez C, Orgeta V. Subjective caregiver burden and anxiety in informal caregivers: A systematic review and meta-analysis. *PLoS One*.*Public Library of Science*. 2021;16(3 March). doi:10.1371/journal.pone.0247143

42. Kim B, Wister A, O'dea E, Mitchell BA, Li L, Kadowaki L. Roles and experiences of informal caregivers of older adults in community and healthcare system navigation: a scoping review. *BMJ Open*. 2023;13(12):e077641. doi:10.1136/bmjopen-2023-077641

43. Epstein RM, Street RL. The Values and Value of Patient-Centered Care. *The Annals of Family Medicine*. 2011;9(2):100-103. doi:10.1370/afm.1239

44. Zill JM, Scholl I, Härter M, Dirmaier J. Which dimensions of patient-centeredness matter? - Results of a web-based expert Delphi survey. *PLoS One*. 2015;10(11). doi:10.1371/journal.pone.0141978

45. Charmel PA, Frampton SB. Building the business case for patient-centered care. *Healthc Financ Manage*. 2008;62(3):80-85.

46. Rathert C, Wyrwich MD, Boren SA. Patient-centered care and outcomes: A systematic review of the literature. *Medical Care Research and Review*. 2013;70(4):351-379. doi:10.1177/1077558712465774

47. Bejarano G, Csiernik B, Young JJ, Stuber K, Zadro JR. Healthcare students' attitudes towards patient centred care: a systematic review with meta-analysis. *BMC Med Educ*. 2022;22(1). doi:10.1186/s12909-022-03371-1

48. Levinson W. Patient-centred communication: A sophisticated procedure. *BMJ Qual Saf*. 2011;20(10):823-825. doi:10.1136/bmjqs-2011-000323

49. Hashim MJ. *Patient-Centered Communication: Basic Techniques*. Vol 95.; 2017. www.aafp.org/afp

50. Travaline JM, Ruchinskas R, D'Alonzo GE. Patient-Physician Communication: Why and How. *Journal of American Osteopathicpathic Association*. 2005;105(1). http://jaoa.org

51. Kee JWY, Khoo HS, Lim I, Koh MYH. Communication Skills in Patient-Doctor Interactions: Learning from Patient Complaints. *Health Professions Education*. 2018;4(2):97-106. doi:10.1016/j.hpe.2017.03.006

52. Sharkiya SH. Quality communication can improve patient-centred health outcomes among older patients: a rapid review. *BMC Health Serv Res*. 2023;23(1). doi:10.1186/s12913-023-09869-8

53. Engel KG, Pedersen K, Johansen MD, Schoennemann KR, Kjaer LB, Nayahangan LJ. Consensus on communication curriculum content in Danish undergraduate medical education: A Delphi study. *Med Teach*. 2022;44(11):1221-1227. doi:10.1080/0142159X.2022.2072280

54. Kamper RS, Nygaard H, Ekmann A, et al. Feasibility of Assessing Older Patients in the Acute Setting: Findings From the Copenhagen PROTECT Study. *J Am Med Dir Assoc*. 2023;24(12):1898-1903. doi:10.1016/j.jamda.2023.07.002

55. Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: A review with suggestions for implementation. *Med Teach*. 2013;35(5):395-403. doi:10.3109/0142159X.2013.769677

56. Thompson TL, Grant Harrington N. *The Routledge Handbook of Health Communication*. Third. Routledge; 2022.

57. Silverman J, Kurtz S, Draper J. *Skills for Communicating with Patients*. Third. Radcliffe Publishing Ltd; 2013. doi:10.1201/9781910227268

58. Charles C, Gafni A, Whelan T. Shared decision-making in the medical encounter: What does it mean? (or it takes at least two to tango). *Soc Sci Med*. 1997;44(5):681-692. doi:10.1016/S0277-9536(96)00221-3

59. *Shared Decision Making - NICE Guideline [NG197]*.; 2021. www.nice.org.uk/guidance/ng197

60. Bombard Y, Baker GR, Orlando E, et al. Engaging patients to improve quality of care: A systematic review. *Implementation Science*.*BioMed Central Ltd*. 2018;13(1). doi:10.1186/s13012-018-0784-z

61. Kwame A, Petrucka PM. A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. *BMC Nurs*.*BioMed Central Ltd*. 2021;20(1). doi:10.1186/s12912-021-00684-2

62. Ekdahl AW, Andersson L, Friedrichsen M. "They do what they think is the best for me." Frail elderly patients' preferences for participation in their care during hospitalization. *Patient Educ Couns*. 2010;80(2). doi:10.1016/j.pec.2009.10.026

63. Dahl Steffensen K, Mølri Knudsen B, Finderup J, Willemann Würgler M, Olling K. Implementation of patient-centred care in Denmark: The way forward with shared decision-making. *Z Evid Fortbild Qual Gesundhwes*. 2022;171:36-41. doi:10.1016/j.zefq.2022.04.005

64. Thodé M, Pasman HRW, Van Vliet LM, et al. Feasibility and effectiveness of tools that support communication and decision making in life-prolonging treatments for patients in hospital: A systematic review. *BMJ Support Palliat Care*.*BMJ Publishing Group*. 2022;12(3):262-269. doi:10.1136/bmjspcare-2020-002284

65. Mejia AM, Smith GE, Wicklund M, Armstrong MJ. Shared decision making in mild cognitive impairment. *Neurol Clin Pract*.*Lippincott Williams and Wilkins*. 2019;9(2):160-164. doi:10.1212/CPJ.0000000000000576

66. International Patient Decision Aid Standards (IPDAS). 2025. Accessed April 21, 2025. https://decisionaid.ohri.ca/IPDAS/index.html

67. O'Hare JA. Anatomy of the ward round. *Eur J Intern Med*. 2008;19(5):309-313. doi:10.1016/j.ejim.2007.09.016

68. Krautter M, Koehl-Hackert N, Nagelmann L, et al. Improving ward round skills. *Med Teach*. 2014;36(9):783-788. doi:10.3109/0142159X.2014.909585

69. Khalaf Z, Khan S. Education During Ward Rounds: Systematic Review. *Interact J Med Res*. 2022;11(2):e40580. doi:10.2196/40580

70. Christensen MK, Kjær LB. *Medicinsk Didaktik*. 1st ed. FADL's forlag; 2023.

71. Tolsgaard MG, Rasmussen MB, Bjørck S, Gustafsson A, Ringsted C V. Medical students' perception of dyad practice. *Perspect Med Educ*. 2014;3(6):500-507. doi:10.1007/s40037-014-0138-8

72. Danish Health Authority. Specialist Education Programs in Medical Specialties [in Danish]. October 2024. Accessed April 21, 2025. sst.dk

73. Hennus MP, van Dam M, Gauthier S, Taylor DR, ten Cate O. The logic behind entrustable professional activity frameworks: A scoping review of the literature. *Med Educ*. 2022;56(9):881-891. doi:10.1111/medu.14806

74. Chen HC, Van Den Broek WES, Ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. *Academic Medicine*.*Lippincott Williams and Wilkins*. 2015;90(4):431-436. doi:10.1097/ACM.0000000000000586

75. Edgar L, Sydney McLean C, Sean Hogan MO, Hamstra S, Holmboe ES. *The Milestones Guidebook*.; 2020.

76. Jardine D, Deslauriers J, Kamran SC, Khan N, Hamstra S, Edgar L. *Milestones Guidebook for Residents and Fellows*.; 2017.

77. Danish Health Authority. [Curriculum guidelines for medical specialties]. 2024. Accessed November 5, 2024. https://www.sst.dk/da/viden/uddannelse/uddannelse-af-speciallaeger/maalbeskrivelser

78. Danish Health Authority. *The seven roles of physicians [in Danish]*.; 2013. Accessed November 5, 2024. https://www.sst.dk/-/media/Udgivelser/2013/Publ2013/De-syv-lægeroller.ashx

79. The Royal College of Physicians and Surgeons in Canada. *CanMEDS Framework 2005*.; 2005.

80. Danish Health Authority. *[The seven roles of physicians]*.; 2013. Accessed December 21, 2024. https://www.sst.dk/-/media/Udgivelser/2013/Publ2013/De-syv-lægeroller.ashx

81. Frank JR, Snell L, Sherbino J. *CanMEDS 2015 Physician Competency Framework*.; 2015.

82. Danish Health Authority. *[Executive order on the training of medical specialists]*. Ministry of the Interior and Health; 2018. Accessed November 5, 2024. https://www.retsinformation.dk/eli/lta/2018/96

83. Danish Society for Internal Medicine. Courses for Internal Medicine Residents [in Danish].

84. Van Der Lee N, Fokkema JPI, Westerman M, et al. The CanMEDS framework: Relevant but not quite the whole story. *Med Teach*. 2013;35(11):949-955. doi:10.3109/0142159X.2013.827329

85. Davidsen AS. Phenomenological Approaches in Psychology and Health Sciences. *Qual Res Psychol*. 2013;10(3):318-339. doi:10.1080/14780887.2011.608466

86. Zahavi D. *Phenomenology The Basics*. Routledge; 2018. doi:10.4324/9781315441603

87. Barnlund DC. A Transactional Model of Communication. In: *Language Behavior*. Vol 41. De Gruyter Mouton; 1970:43-61. doi:10.1515/9783110878752.43

88. Habermas Jürgen. The theory of communicative action. Thomas McCarthy., ed. *Beacon Press*. Preprint posted online 1984.

89. Salmon P, Young B. Creativity in clinical communication: From communication skills to skilled communication. *Med Educ*. 2011;45(3):217-226. doi:10.1111/j.1365-2923.2010.03801.x

90. Thomas PA, Kern DE, Hughes MT, Chen BY. *Curriculum Development for Medical Education: A Six-Step Approach*. 3rd ed. Johns Hopkins University Press; 2016.

91. Tan C, Ng CSL. Constructivism in Education. In: *Oxford Research Encyclopedia of Education*. Oxford University Press; 2021. doi:10.1093/acrefore/9780190264093.013.92

92. Thomas A, Menon A, Boruff J, Rodriguez AM, Ahmed S. Applications of social constructivist learning theories in knowledge translation for healthcare professionals: A scoping review. *Implementation Science*. 2014;9(1). doi:10.1186/1748-5908-9-54

93. Rees CE, Crampton PES, Monrouxe L V. Re-visioning Academic Medicine through a Constructionist Lens. *Academic Medicine.Lippincott Williams and Wilkins*. 2020;95(6):846-850. doi:10.1097/ACM.0000000000003109

94. Young ME, Ryan A. Postpositivism in Health Professions Education Scholarship. *Academic Medicine.Wolters Kluwer Health*. 2020;95(5):695-699. doi:10.1097/ACM.0000000000003089

95. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol*. 2005;8(1):19-32. doi:10.1080/1364557032000119616

96. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implementation Science*. 2010;5(1):69. doi:10.1186/1748-5908-5-69

97. Peters M, Godfrey C, McInerney P, Munn Z, Trico A, Khalil H. Chapter 11: Scoping Reviews. In: *JBI Manual for Evidence Synthesis*. JBI; 2020. doi:10.46658/JBIMES-20-12

98. Colquhoun HL, Levac D, O'Brien KK, et al. Scoping reviews: time for clarity in definition, methods, and reporting. *J Clin Epidemiol*. 2014;67(12):1291-1294. doi:10.1016/j.jclinepi.2014.03.013

99. Wohlin C. Guidelines for snowballing in systematic literature studies and a replication in software engineering. In: *Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering - EASE '14*. ACM Press; 2014:1-10. doi:10.1145/2601248.2601268

100. Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia. Available at www.covidence.org.

101. Orimo H, Ito H, Suzuki T, Araki A, Hosoi T, Sawabe M. Reviewing the definition of "elderly." *Geriatr Gerontol Int*. 2006;6(3):149-158. doi:10.1111/j.1447-0594.2006.00341.x

102. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2). doi:10.1191/1478088706qp063oa

103. Danske Ældreråd. Statutory elected Senior Citizens´ Councils. Accessed December 9, 2024. https://danske-aeldreraad.dk/statutory-elected-senior-citizens-councils/

104. Braun V, Clarke V. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qual Res Sport Exerc Health*. 2021;13(2):201-216. doi:10.1080/2159676X.2019.1704846

105. Braun V, Clarke V. *Thematic Analysis : A Practical Guide*. (Braun V, Clarke V, eds.). SAGE Publications Ltd; 2022.

106. Gildberg FA, Hounsgaard L. *Kvalitative analysemetoder i sundhedsforskning*. 1. udgave. (Gildberg FA, Hounsgaard L, eds.). Klim; 2018.

107. NVivo. *QSR International Pty Ltd*.

108. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007;19(6):349-357. doi:10.1093/intqhc/mzm042

109. Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi survey technique. *J Adv Nurs*. 2000;32(4). doi:10.1046/j.1365-2648.2000.t01-1-01567.x

110. Hsu CC, Sandford BA. The Delphi Technique: Making Sense of Consensus. *Practical Assessment, Research, and Evaluation*. 2007;12:10. doi:10.7275/pdz9-th90

111. Krueger RA, Casey MA. Chapter 4: Participants in a Focus Group. In: *Focus Groups: A Practical Guide for Applied Research*. 4th edition. SAGE publications, Inc.; 2009:63-84.

112. Jorm AF. Using the Delphi expert consensus method in mental health research. *Australian & New Zealand Journal of Psychiatry*. 2015;49(10):887-897. doi:10.1177/0004867415600891

113. Manyara AM, Purvis A, Ciani O, Collins GS, Taylor RS. Sample size in multistakeholder Delphi surveys: at what minimum sample size do replicability of results stabilize? *J Clin Epidemiol*. 2024;174. doi:10.1016/j.jclinepi.2024.111485

114. Diamond IR, Grant RC, Feldman BM, et al. Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *J Clin Epidemiol*. 2014;67(4):401-409. doi:10.1016/j.jclinepi.2013.12.002

115. Bowen JD, Kreuter M, Spring B, et al. How We Design Feasibility Studies. *Am J Prev Med*. 2009;36(5):452-457. doi:10.1016/j.amepre.2009.02.002

116. Eldridge SM, Lancaster GA, Campbell MJ, et al. Defining feasibility and pilot studies in preparation for randomised controlled trials: Development of a conceptual framework. *PLoS One*. 2016;11(3). doi:10.1371/journal.pone.0150205

117. Taherdoost H. *Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research*. Vol 5.; 2016. https://ssrn.com/abstract=3205035

118. Teresi JA, Yu X, Stewart AL, Hays RD. Guidelines for Designing and Evaluating Feasibility Pilot Studies. *Med Care*. 2022;60(1):95-103. doi:10.1097/MLR.0000000000001664

119. Kirkpatrick D, Kirkpatrick J. *Evaluating Training Programs : The Four Levels*. Berrett-Koehler Publishers, Incorporated; 2006. http://ebookcentral.proquest.com/lib/asb/detail.action?docID=335391

120. Iversen ED, Steinsbekk A, Falbe Vind B, Bangsgaard A, Cold S, Ammentorp J. Translation and cultural adaptation of the Communication Assessment Tool (CAT), developing a Danish and Norwegian version. *International Journal for Quality in Health Care*. Published online March 28, 2019. doi:10.1093/intqhc/mzz020

121. Makoul G, Krupat E, Chang CH. Measuring patient views of physician communication skills: Development and testing of the Communication Assessment Tool. *Patient Educ Couns*. 2007;67(3):333-342. doi:10.1016/j.pec.2007.05.005

122. Cesari M, Araujo de Carvalho I, Amuthavalli Thiyagarajan J, et al. Evidence for the Domains Supporting the Construct of Intrinsic Capacity. *The Journals of Gerontology: Series A*. 2018;73(12):1653-1660. doi:10.1093/gerona/gly011

123. Doekhie KD, Strating MMH, Buljac-Samardzic M, van de Bovenkamp HM, Paauwe J. The different perspectives of patients, informal caregivers and professionals on patient involvement in primary care teams. A qualitative study. *Health Expectations*. 2018;21(6):1171-1182. doi:10.1111/hex.12824

124. Gjerberg E, Lillemoen L, Forde R, Pedersen R. End-of-life care communications and shared decision-making in Norwegian nursing homes - Experiences and perspectives of patients and relatives. *BMC Geriatr*. 2015;15(1). doi:10.1186/s12877-015-0096-y

125. Krathwohl DR. A Revision of Bloom's Taxonomy: An Overview. *Theory Pract*. 2002;41(4):212-218. doi:10.1207/s15430421tip4104_2

126. Gordon M, Gupta S, Thornton D, Ried M, Mallen E, Melling A. Patient/service user involvement in medical education: A best evidence medical education (BEME) systematic review: Guide No. 58. *Med Teach*. 2020;42:4-16.

127. Vargas C, Whelan J, Brimblecombe J, Allender S. Co-creation, co-design and co-production for public health: a perspective on definitions and distinctions. *Public Health Res Pract*. 2022;32(2). doi:10.17061/phrp3222211

128. O'Donnell D, Ní Shé É, McCarthy M, et al. Enabling public, patient and practitioner involvement in co-designing frailty pathways in the acute care setting. *BMC Health Serv Res*. 2019;19(1). doi:10.1186/s12913-019-4626-8

129. Travers J, Romero-Ortuno R, Ní Shé É, Cooney MT. Involving older people in co-designing an intervention to reverse frailty and build resilience. *Fam Pract*. 2022;39(1):200-206. doi:10.1093/fampra/cmab084

130. Hansen TK, Jensen AL, Damsgaard EM, Rubak TMM, Jensen MEJ, Gregersen M. Involving frail older patients in identifying outcome measures for transitional care—a feasibility study. *Res Involv Engagem*. 2021;7(1):36. doi:10.1186/s40900-021-00288-9

131. Pickard S, Cluley V, Danely J, et al. New horizons in frailty: The contingent, the existential and the clinical. *Age Ageing*. 2019;48(4):466-471. doi:10.1093/ageing/afz032

132. Winter R, Pearson GME. Exploring the Challenges of Frailty in Medical Education. *Journal of Frailty and Aging*. 2023;12(2):134-138. doi:10.14283/jfa.2023.12

133. Morgan S, Pasco JC, Demers L, Young ME, Jindal SK. Combating ageism in medical education with narrative medicine. *Gerontol Geriatr Educ*. Published online January 13, 2024:1-12. doi:10.1080/02701960.2024.2302594

134. World Heath Organization. *Ageism Is a Global Challenge: UN*.; 2021. Accessed December 21, 2024. https://www.who.int/news/item/18-03-2021-ageism-is-a-global-challenge-un

135. Danish Patients. [There is an absence of legislation addressing the rights of relatives]. Presented at: January 22, 2024. Accessed October 31, 2024. https://danskepatienter.dk/files/media/document/Lovgivning%20om%20pårørendes%20rettigheder_2023.pdf

136. The Norwegian Directory of Health. *[Norwegian Patient and User Rights Act]*. Accessed November 3, 2024. https://lovdata.no/dokument/NL/lov/1999-07-02-63?q=bruker

137. Socialstyrelsen. *[Integrate the perspective of relatives within healthcare and social services: Understanding and addressing the situation and needs of relatives]*.; 2023. www.socialstyrelsen.se,

138. Lambotte D, Kardol MJM, Schoenmakers B, et al. Relational aspects of mastery for frail, older adults: The role of informal caregivers in the care process. *Health Soc Care Community*. 2019;27(3):632-641. doi:10.1111/hsc.12676

139. Croix Anne de la, Broeksma Louti. Samen zorgen, samen leren [Caring Together, learning together]. https://www.samenzorgensamenleren.nl.

140. Eijkelboom C, Brouwers M, Frenkel J, et al. Twelve tips for patient involvement in health professions education. *Patient Educ Couns.Elsevier Ireland Ltd*. 2023;106:92-97. doi:10.1016/j.pec.2022.09.016

141. Dijk SW, Duijzer EJ, Wienold M. Role of active patient involvement in undergraduate medical education: A systematic review. *BMJ Open.BMJ Publishing Group*. 2020;10(7). doi:10.1136/bmjopen-2020-037217

142. Grover S, Fitzpatrick A, Azim FT, et al. Defining and implementing patient-centered care: An umbrella review. *Patient Educ Couns.Elsevier Ireland Ltd*. 2022;105(7):1679-1688. doi:10.1016/j.pec.2021.11.004

143. van Seben R, Smorenburg SM, Buurman BM. A qualitative study of patient-centered goal-setting in geriatric rehabilitation: patient and professional perspectives. *Clin Rehabil*. 2019;33(1):128-140. doi:10.1177/0269215518791663

144. Smith J, Kendal S. Parents' and Health professionals' Views of Collaboration in the Management of Childhood Long-term Conditions. *J Pediatr Nurs*. 2018;43:36-44. doi:10.1016/j.pedn.2018.08.011

145. Clay AM, Parsh B. Patient-and Family-Centered Care: It's Not Just for Pediatrics Anymore. *American Medical Association Journal of Ethics*. 2016;18(1):40-44.

146. Speros C. More than Words: Promoting Health Literacy in Older Adults. *OJIN: The Online Journal of Issues in Nursing*. 2009;14(3). doi:10.3912/OJIN.Vol14No03Man05

147. Tang C, Lorenzi N, Harle CA, Zhou X, Chen Y. Interactive systems for patient-centered care to enhance patient engagement. *Journal of the American Medical Informatics Association*. 2016;23(1):2-4. doi:10.1093/jamia/ocv198

148. Granström E, Wannheden C, Brommels M, Hvitfeldt H, Nyström ME. Digital tools as promoters for person-centered care practices in chronic care? Healthcare professionals' experiences from rheumatology care. *BMC Health Serv Res*. 2020;20(1):1108. doi:10.1186/s12913-020-05945-5

149. Gothenburg University of. Practice Tools for Person-Centred Care. https://www.gu.se/en/gpcc/practice-tools-for-person-centred-care.

150. Rocca E, Anjum RL. Complexity, Reductionism and the Biomedical Model. In: *Rethinking Causality, Complexity and Evidence for the Unique Patient*. Springer International Publishing; 2020:75-94. doi:10.1007/978-3-030-41239-5_5

151. Moore HL, Farnworth A, Watson R, Giles K, Tomson D, Thomson RG. Inclusion of person-centred care in medical and nursing undergraduate curricula in the UK: Interviews and documentary analysis. *Patient Educ Couns*. 2021;104(4):877-886. doi:10.1016/j.pec.2020.09.030

152. Steffensen KD. The promise of shared decision making in healthcare. *AMS Review*.*Springer*. 2019;9(1-2):105-109. doi:10.1007/s13162-019-00137-9

153. Elwyn G, Frosch D, Thomson R, et al. Shared Decision Making: A Model for Clinical Practice. *J Gen Intern Med*. 2012;27(10):1361-1367. doi:10.1007/s11606-012-2077-6

154. Sørensen K, Pelikan JM, Röthlin F, et al. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *The European Journal of Public Health*. 2015;25(6):1053-1058. doi:10.1093/eurpub/ckv043

155. van de Pol MHJ, Fluit CRMG, Lagro J, Slaats YHP, Olde Rikkert MGM, Lagro-Janssen ALM. Expert and patient consensus on a dynamic model for shared decision-making in frail older patients. *Patient Educ Couns*. 2016;99(6):1069-1077. doi:10.1016/j.pec.2015.12.014

156. Hoffmann T, Jansen J, Glasziou P. The importance and challenges of shared decision making in older people with multimorbidity. *PLoS Med*. 2018;15(3):e1002530. doi:10.1371/journal.pmed.1002530

157. Fong Ha J, Surg Anat D, Longnecker N. *Doctor-Patient Communication: A Review*.; 2010.

158. Zheng B, He Q, Lei J. Informing factors and outcomes of self-assessment practices in medical education: a systematic review. *Ann Med*. 2024;56(1). doi:10.1080/07853890.2024.2421441

159. Eva KW, Regehr G. Self-Assessment in the Health Professions: A Reformulation and Research Agenda. *Academic Medicine*. 2005;80(Supplement):S46-S54. doi:10.1097/00001888-200510001-00015

160. Sargeant JM, Mann K V., Van Der Vleuten CP, Metsemakers JF. Reflection: A link between receiving and using assessment feedback. *Advances in Health Sciences Education*. 2009;14(3):399-410. doi:10.1007/s10459-008-9124-4

161. Zimmerman BJ. *Becoming a Self-Regulated Learner: An Overview*. Vol 41.; 2002.

162. Stringer K, Terry AL, Ryan BL, Pike A. Patient-centred primary care of adults with severe and profound intellectual and developmental disabilities: Patient-caregiver-physician relationship. *Can Fam Physician*. 2018;64(Suppl 2):S63-S69.

163. Wölfel T, Beltermann E, Lottspeich C, Vietz E, Fischer MR, Schmidmaier R. Medical ward round competence in internal medicine - An interview study towards an interprofessional development of an Entrustable Professional Activity (EPA). *BMC Med Educ*.*BioMed Central Ltd*. 2016;16(1). doi:10.1186/s12909-016-0697-y

164. Schmelter V, März E. Ward rounds in internal medicine: Validation of an Entrustable Professional Activity (EPA) observation checklist. *GME Journal for Medical Education*. 2018;35(2).

165. Zhang W, Cai M, Lee HJ, Evans R, Zhu C, Ming C. AI in Medical Education: Global situation, effects and challenges. *Educ Inf Technol (Dordr)*. 2024;29(4):4611-4633. doi:10.1007/s10639-023-12009-8

166. Aster A, Laupichler MC, Rockwell-Kollmann T, Masala G, Bala E, Raupach T. ChatGPT and Other Large Language Models in Medical Education — Scoping Literature Review. *Med Sci Educ*.*Springer*. Preprint posted online 2024. doi:10.1007/s40670-024-02206-6

167. Li Z, Li F, Fu Q, et al. Large language models and medical education: a paradigm shift in educator roles. *Smart Learning Environments*.*Springer*. 2024;11(1). doi:10.1186/s40561-024-00313-w

168. Cook DA. Creating virtual patients using large language models: scalable, global, and low cost. *Med Teach*. Published online 2024. doi:10.1080/0142159X.2024.2376879

169. Bélanger L, Ducharme F. Patients' and nurses' experiences of delirium: A review of qualitative studies. *Nurs Crit Care*.*John Wiley and Sons Inc*. 2011;16(6):303-315. doi:10.1111/j.1478-5153.2011.00454.x

170. Banovic S, Zunic L, Sinanovic O. Communication Difficulties as a Result of Dementia. *Materia Socio Medica*. 2018;30(2):221. doi:10.5455/msm.2018.30.221-224

171. Nydahl P, Chahdi M, Debue AS, et al. You are safe here: A flyer with re-orientating messages for families of patients with delirium in the intensive care unit. *Nurs Crit Care*. Published online November 1, 2024. doi:10.1111/nicc.13169

172. Ammentorp J, Bassett B, Dinesen J, Lau M. *Den gode patientsamtale*. 2nd ed. Munksgaard; 2023.

173. Kjær LBinow. *Lægens roller : en guide til professionel udvikling for medicinstuderende og yngre læger.* 2. udgave. (Kjær LBinow, ed.). FADL; 2022.

174. Overbeck Gritt. *Patientkontakt : en guide til mødet med patienter.* 1. udgave. (Overbeck Gritt, ed.). FADL; 2024.

175. Lindhardt CL, Thygesen MK. Communication Training at Medical School: A Quantitative Analysis. *IgMin Research*. 2024;2(10):862-869. doi:10.61927/igmin261

176. Bianchi LA, Harris R, Fitzpatrick JM. Barriers to healthcare professionals recognizing and managing delirium in older adults during a hospital stay: A mixed-methods systematic review. *J Adv Nurs*.*John Wiley and Sons Inc*. 2024;80(7):2672-2689. doi:10.1111/jan.16018

177. Schlögl M. The Power of Humble Inquiry in Delirium Care: Enhancing Communication and Collaboration for Improved Patient Outcomes. *Delirium Communications*. Published online January 19, 2024. doi:10.56392/001c.89969

178. Wiebe N, Otero Varela L, Niven DJ, Ronksley PE, Iragorri N, Quan H. Evaluation of interventions to improve inpatient hospital documentation within electronic health records: a systematic review. *Journal of the American Medical Informatics Association*. 2019;26(11):1389-1400. doi:10.1093/jamia/ocz081

179. Illeris K. Workplace learning and learning theory. *Journal of Workplace Learning*. 2003;15(4):167-178. doi:10.1108/13665620310474615

180. Billett S. Learning through work: workplace affordances and individual engagement. *Journal of Workplace Learning*. 2001;13(5):209-214. doi:10.1108/EUM0000000005548

181. Danish Young Doctors' Association. *[Young Doctors' Work Environment 2019].*; 2019. Accessed November 5, 2024. https://laeger.dk/media/imtjc1v5/yl_arbejdsmiljoeundersoegelse_2019_0.pdf

182. Bell CL, Allan JL, Ross S, Powell DJH, Johnston DW. How can we better prepare new doctors for the tasks and challenges of ward rounds?: An observational study of junior doctors' experiences. *Med Teach*. 2021;43(11):1294-1301. doi:10.1080/0142159X.2021.1940912

183. Blackmore A, Kasfiki EV, Purva M. Simulation-based education to improve communication skills: a systematic review and identification of current best practice. *BMJ Simul Technol Enhanc Learn*. 2018;4(4). doi:10.1136/bmjstel-2017-000220

184. Teodorczuk A, Abdool PS, Yap CX, Fisher JM. New horizons in undergraduate geriatric medicine education. *Age Ageing*. 2024;53(5). doi:10.1093/ageing/afae050

185. Dale MacLaine T, Lowe N, Dale J. The use of simulation in medical student education on the topic of breaking bad news: A systematic review. *Patient Educ Couns*. 2021;104(11):2670-2681. doi:10.1016/j.pec.2021.04.004

186. Jeppesen E, Schmidt AA, Skjødt CK, et al. Educational programmes for paediatric healthcare professionals in patient- and family-centred care. A scoping review. *Eur J Pediatr*.*Springer Science and Business Media Deutschland GmbH*. 2024;183(5):2015-2028. doi:10.1007/s00431-024-05455-0

187. Baumann-Birkbeck L, Florentina F, Karatas O, et al. Appraising the role of the virtual patient for therapeutics health education. *Curr Pharm Teach Learn*. 2017;9(5):934-944. doi:10.1016/j.cptl.2017.05.012

188. Kuchyn IL, Vlasenko OM, Melnyk VS, Stuchynska N V., Kucherenko II, Mykytenko P V. Simulation training and virtual patients as a component of classroom training of future doctors under Covid-19 conditions. *Wiad Lek*. 2022;75(5):1118-1123. doi:10.36740/WLek202205112

189. Bearman M, Ajjawi R. Avoiding tokenism in health professional education. *Med Educ*. 2013;(47):3. doi:10.1111/medu.12109

190. Luctkar-Flude M, Tyerman J, Verkuyl M, et al. Effectiveness of Debriefing Methods for Virtual Simulation: A Systematic Review. *Clin Simul Nurs*. 2021;57:18-30. doi:10.1016/j.ecns.2021.04.009

191. Marshall SD. Helping experts and expert teams perform under duress: an agenda for cognitive aid research. *Anaesthesia.Blackwell Publishing Ltd*. 2017;72(3):289-295. doi:10.1111/anae.13707

192. Phillips JL, Heneka N, Bhattarai P, Fraser C, Shaw T. Effectiveness of the spaced education pedagogy for clinicians' continuing professional development: a systematic review. *Med Educ.Blackwell Publishing Ltd*. 2019;53(9):886-902. doi:10.1111/medu.13895

193. Fletcher KA, Bedwell WL. Cognitive Aids. *Proceedings of the International Symposium on Human Factors and Ergonomics in Health Care*. 2014;3(1):148-152. doi:10.1177/2327857914031024

194. Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*. 2011;6(1). doi:10.1186/1748-5908-6-42

195. Matava CT, Rosen D, Siu E, Bould DM. *ELearning among Canadian Anesthesia Residents: A Survey of Podcast Use and Content Needs*.; 2013. www.qualtrics.com

196. Rahmani M. Medical Trainees and the Dunning–Kruger Effect: When They Don't Know What They Don't Know. *J Grad Med Educ*. 2020;12(5):532-534. doi:10.4300/JGME-D-20-00134.1

197. Kelly JM, Perseghin A, Dow AW, Trivedi SP, Rodman A, Berk J. Learning Through Listening: A Scoping Review of Podcast Use in Medical Education. *Academic Medicine*. 2022;97(7):1079-1085. doi:10.1097/ACM.0000000000004565

198. McNamara S, Drew C. Concept analysis of the theories used to develop educational podcasts. *EMI Educ Media Int*. 2019;56(4):300-312. doi:10.1080/09523987.2019.1681107

199. Mayer R. *Multimedia Learning*. Cambridge University Press; 2020. doi:10.1017/9781316941355

200. Johnson MJ, May CR. Promoting professional behaviour change in healthcare: what interventions work, and why? A theory-led overview of systematic reviews. *Open*. 2015;5:8592. doi:10.1136/bmjopen-2015

201. Gupta DM, Boland RJ, Aron DC. The physician's experience of changing clinical practice: A struggle to unlearn. *Implementation Science*. 2017;12(1). doi:10.1186/s13012-017-0555-2

202. Deci E, Vallerand R, Pelletier L, Ryen R. Motivation and education - the self-determination perspective. *Educ Psychol*. 1991;26(3-4):325-346. doi:10.1207/s15326985ep2603&4_6

203. ten Cate O, Khursigara-Slattery N, Cruess RL, Hamstra SJ, Steinert Y, Sternszus R. Medical competence as a multilayered construct. *Med Educ*. 2024;58(1):93-104. doi:10.1111/medu.15162

204. Gamborg ML, Jensen RD, Musaeus P, Mylopoulos M. Balancing closure and discovery: adaptive expertise in the workplace. *Advances in Health Sciences Education*. 2022;27(5):1317-1330. doi:10.1007/s10459-022-10177-9

205. Atkins L, Francis J, Islam R, et al. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. *Implementation Science*. 2017;12(1). doi:10.1186/s13012-017-0605-9

206. Andersen LH, Løfgren B, Skipper M, Krogh K, Jensen RD. "They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a

qualitative study. *Eur Geriatr Med*. Published online September 4, 2024. doi:10.1007/s41999-024-01043-5

207. van Oppen JD, Coats TJ, Conroy SP, et al. Co-creation of a Patient-Reported Outcome Measure for Older People Living with Frailty Receiving Acute Care (PROM-OPAC). *J Patient Exp*. 2023;10:237437352311589. doi:10.1177/23743735231158941

208. Conroy SP, van Oppen JD. Are we measuring what matters to older people? *Lancet Healthy Longev*.*Elsevier Ltd*. 2023;4(7):e354-e356. doi:10.1016/S2666-7568(23)00084-3

209. Foss C, Hofoss D. Elderly persons' experiences of participation in hospital discharge process. *Patient Educ Couns*. 2011;85(1):68-73. doi:10.1016/j.pec.2010.08.025

210. 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

211. Lilleheie I, Debesay J, Bye A, Bergland A. Experiences of elderly patients regarding participation in their hospital discharge: a qualitative metasummary. *BMJ Open*. 2019;9(11):e025789. doi:10.1136/bmjopen-2018-025789

212. Redley B, McTier L, Botti M, et al. Patient participation in inpatient ward rounds on acute inpatient medical wards: a descriptive study. *BMJ Qual Saf*. 2019;28(1):15-23. doi:10.1136/bmjqs-2017-007292

213. Mulvale G, Miatello A, Green J, Tran M, Roussakis C, Mulvale A. A COMPASS for Navigating Relationships in Co-Production Processes Involving Vulnerable Populations. *International Journal of Public Administration*. 2021;44(9):790-802. doi:10.1080/01900692.2021.1903500

214. Sivertsen DM, Lawson-Smith L, Lindhardt T. What relatives of older medical patients want us to know - a mixed-methods study. *BMC Nurs*. 2018;17(1):32. doi:10.1186/s12912-018-0304-0

215. Nyborg I, Danbolt LJ, Kirkevold M. User participation is a family matter: A multiple case study of the experiences of older, hospitalised people and their relatives. *J Clin Nurs*. 2017;26(23-24):4353-4363. doi:10.1111/jocn.13765

216. Al-Jawad M, Winter R, Jones E. Communicating with relatives. doi:10.2307/26951528

217. Palvic A, Liu D, Baker K, et al. Behind the curtain: The nurse's voice in assessment of residents in the emergency department. *Western Journal of Emergency Medicine*. 2019;20(1):23-28. doi:10.5811/westjem.2018.10.39821

218. Yule S, Flin R, Paterson-Brown S, Maran N, Rowley D. Development of a rating system for surgeons' non-technical skills. *Med Educ*. 2006;40(11):1098-1104. doi:10.1111/j.1365-2929.2006.02610.x

219. Sullivan GM, Artino AR. Analyzing and Interpreting Data From Likert-Type Scales. *J Grad Med Educ*. 2013;5(4):541-542. doi:10.4300/jgme-5-4-18

220. Elston DM. Participation bias, self-selection bias, and response bias. *J Am Acad Dermatol*. Published online June 18, 2021. doi:10.1016/J.JAAD.2021.06.025

221. Langley GJ., Moen RD., Nolan KM., Nolan TW., Norman CL., Provost LP. *The Improvement Guide : A Practical Approach to Enhancing Organizational Performance*. Jossey-Bass; 2009.

222. Halm MA. Hourly Rounds: What Does the Evidence Indicate? *American Journal of Critical Care*. 2009;18(6):581-584. doi:10.4037/ajcc2009350

223. Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qual Res Sport Exerc Health.Routledge*. 2019;11(4):589-597. doi:10.1080/2159676X.2019.1628806

15. APPENDICES

Appendix 1 Study I: Thematic analysis

Appendix 2 Study II: Interview guide for patients and informal caregivers

Appendix 3 Study II: Survey on patient and informal caregiver demographics

Appendix 4 Study IV: Survey on resident demographics

Appendix 5 Study IV: Interview guide for patients and informal caregivers

Appendix 6 Danish version of the cognitive aid

Appendix 7 Cognitive aid intervention development

Appendix 8 Study IV: Section snippets from the podcasts

Appendix 9 Ward round documentation guide for electronic healthcare journals

Appendix 1 Study I: Thematic analysis[1]

Paper	Generating initial codes	Searching for themes	Reviewing themes	Defining and naming themes
Bains	Carers wanting to speak with physicians in private	Sharing delicate information	Framing the ward round	Communication strategy
Bains	Carers feel stressed at ward round	Carer perspective at ward round	Framing the ward round	Communication strategy
Bains	Information on ward round format to carers	Carer perspective at ward round	Health literacy	Organizational and age norm challenges
Chen	Vulnerability at admission	Frailty	Frailty and patient participation	Frailty and patient participation
Chen	Impaired recall due to vulnerability	Need for ward round written messages	Frailty and patient participation	Frailty and patient participation
Chen	Important information for patients: reasons for discomfort, discharge date, treatment status	Patient perspective at ward round	Communication strategy	Communication strategy
Chen	(not) asking questions	Culture or generation conduct	Culture or generation specific behaviour	Organizational and age norm challenges
Lindberg	Important to know the patient - life story etc.	Holistic approach	Communication strategy	Communication strategy
Lindberg	Vulnerability affects patient participation	Frailty and patient participation	Frailty and patient participation	Frailty and patient participation
Lindberg	Need for additional information after ward round	Need for ward round written messages	Communication strategy	Communication strategy
Lindberg	Patient participation is healthcare professionals' responsibility	Patient participation	Frailty and patient participation	Frailty and patient participation
Lindberg	Patients should not be seated opposite healthcare professionals + overcrowding	Framing the ward round	Communication strategy	Communication strategy

Paper	Generating initial codes	Searching for themes	Reviewing themes	Defining and naming themes
Lindberg	Not allowing enough time for ward rounds	Framing the ward round	Communication strategy	Communication strategy
Pecanac	Framing questions to elicit a certain response	Patient perspective at ward round	Communication strategy	Communication strategy
Pecanac	Concerns should be actively addressed	Patient perspective at ward round	Communication strategy	Communication strategy
Pecanac	Less active resistance with patients with fatigue	Frailty	Imbalance of power	Organizational and age norm challenges
Pecanac	Advocacy vs. paternalism	Imbalance of power between patients and doctors	Imbalance of power	Organizational and age norm challenges
Pecanac	Physicians have the plan-of-care tailored before ward round	Imbalance of power between patients and doctors	Imbalance of power	Organizational and age norm challenges
Redley	Patient participation should not be assessed by how patients come across	Patient involvement	Patient involvement	Frailty and patient participation
Redley	Patient participation is the physicians' responsibility	Patient involvement	Communication strategy	Communication strategy
Redley	Patients vulnerability affects patient participation	Frailty and patient participation	Frailty and patient participation	Frailty and patient participation
Redley	Clear and understandable information	Communication strategies	Communication strategy	Communication strategy
Redley	Building patient confidence	Communication strategies	Communication strategy	Communication strategy
Redley	Empowerment matters	Communication strategies	Communication strategy	Communication strategy
Redley	Distraction affects patient participation	Communication strategies	Communication strategy	Communication strategy

1. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2). doi:10.1191/1478088706qp063oa

Appendix 2 Study II: Interview guides for patients and informal caregivers

Interview guide - patients

Themes (concepts) From scoping review	Questions
Framing of ward round (health literacy)	What does the informal caregivers and patients know about purpose and content of ward rounds?
Understanding of provided information	How must the healthcare professionals communicate, so patients understand?
Patient satisfaction	When do patients feel satisfied with communication during ward rounds?
Involvement in decision-making (Patient-centred care) (Patient involvement) (Shared decision-making)	How do patients experience being involved in decision-making during ward rounds? What circumstances promote the involvement of patients in ward rounds? What barriers exist to involving caregivers in ward rounds? What is the best way to involve older, hospitalised patients in decision-making? How can the staff best determine whether the patient wants to be involved in decision-making during ward rounds?
Difficult topics during ward rounds	How do patients prefer to discuss topics such as delivering difficult news or discussing treatment levels?

Patients	Brief presentation: Thank you for agreeing to participate in this interview. I am conducting a research project on communication with patients and caregivers during ward rounds. The purpose of our conversation today is to investigate how you and your caregiver best communicate with the staff, so you understand the reason for their admission and can make decisions about diagnostic and treatment options. The interview will take approximately 25 minutes, and you are welcome to take breaks as needed. We will also touch on some topics that doctors, nurses, and perhaps even you might find difficult to discuss. Please feel free to skip any questions you do not wish to answer. I will record our conversation and take notes along the way to ensure I capture everything. Your name will be anonymised, meaning I will not include anything that

	could identify you. I have been looking forward to our conversation today and truly appreciate your help in making us much better at communicating. Thank you for that.	
Theme	**Questions**	**Further questions**
Context	How do you feel today? How would you describe your current health? Were you previously admitted to hospital and where? What are your expectations to being admitted?	How did you experience being hospitalised?
Framing the ward round	What comes to mind, when I say ward round? Do you know the purpose of the ward round? Do you know what is typically discussed during a ward round (content)?	(consider using doctor-patient conversation instead of ward round)
Understand the provided information	Try to think back to a conversation at the hospital when you were a patient. It could be during this or one of your previous admissions. Can you tell me a bit about that conversation? How do you experience talking with doctors and nurses during the ward round? What would make it easier or harder for you to understand what the staff says during ward rounds?	What made it a good or bad conversation?
Involvement in decision-making	Now we're going to talk about how decisions are made in the hospital. Can you tell me about some of the tests and treatments you've had during your stay here at the hospital? Do you feel involved in the decisions doctors make about tests, treatments, medication, etc.? What are your thoughts on how much control you have over your treatment? Think back to the last time you had a ward round where decisions were made, for example, about changes to medication or the circumstances surrounding your discharge. What did you discuss during that ward round? What decisions needed to be made? How did you experience being involved in the decision-making? Did you need to make any choices? When looking at other studies, it seems that older patients vary greatly in how much they want to have control over their treatment while hospitalized, compared to letting the doctor take the lead. Why do you think that might be the case?	What made you feel involved or not involved? How important is it to you to have control over what happens during your hospital stay? And why? Did you make any decisions? Do you feel that the staff understands your preferences about deciding on what happens during your hospital stay? What is the best way for the staff to ask about your preferences regarding decision-making during your hospital stay?
Patient satisfaction	[is covered in other questions]	What was it that made you satisfied with the conversation

Difficult topics during ward rounds	Now we're going to talk about something that can be difficult for some people to discuss, both patients and staff. If this is difficult for you, you don't have to answer the following questions. Have you ever experienced receiving bad news, for example, being told you had cancer or something similar? How did you experience that conversation? It's never pleasant to be told you have a serious condition, but how do you think you would prefer to receive news about, for example, the results of a scan of a lump that might be cancer?	What made this a good or a bad experience?
Difficult topics during ward rounds	Now for something else. A thing about life is that we all have to leave this world someday. Families differ in how much and in what way they talk about death. How do you talk about the final stages of life in your family, and have you discussed death together? In the hospital, the doctor decides whether a patient with cardiac arrest should be resuscitated or whether nature should take its course. This is the doctor's responsibility unless the patient has previously expressed their own wishes. Have you been asked about your views on potential resuscitation in the event of cardiac arrest? How would you prefer to be asked about your views on resuscitation in the event of cardiac arrest? What do you think about being involved in the decision regarding resuscitation? How do you feel about your relatives being involved in the decision regarding resuscitation in the event of cardiac arrest?	
Closing	The interview is coming to an end. Is there anything else that comes to mind after our talk about communication with staff during ward rounds? Do you have any questions or comments? Can I contact you, if I come home and see, that I forgot something? Can I have a colleague to check whether the hospital has documented your decision to opt out resuscitation [in case that you do you want to be resuscitated].	

Interview guide - informal caregivers

Themes (concepts) From scoping review	Questions
Framing of ward round (health literacy) Understanding of provided information	What does the informal caregivers and patients know about purpose and content of ward rounds? How must the healthcare professionals communicate, so patients and informal caregivers understand?
Informal caregiver role	How is the mandate and motivation of relatives to be involved clarified? How can the doctor best address disagreements between the patient and their relatives?
Patient satisfaction	When do patients feel satisfied with communication during ward rounds
Involvement in decision-making (Patient-centred care) (Patient involvement) (Shared decision-making)	How do caregivers experience being involved in decision-making during ward rounds? What circumstances promote the involvement of caregivers in ward rounds? What barriers exist to involving caregivers in ward rounds? According to caregivers, what is the best way to involve older, hospitalised patients in decision-making? How can the staff best determine whether the patient and their caregivers want to be involved in decision-making during ward rounds?
Difficult topics during ward rounds	Which topics do caregivers find challenging to discuss during ward rounds? How do caregivers prefer to discuss topics such as delivering difficult news or discussing treatment levels?
Surrogate decision-making	How do caregivers experience being asked about the patient's stance on issues such as resuscitation when the patient is unable or unwilling to answer for themselves? When does the doctor make the caregivers feel comfortable when they are making decisions on behalf of the older patient?
Trust	How is trust build in the relation between caregiver and healthcare professional

Informal caregivers Brief presen-tation	Thank you for agreeing to participate in this interview. I am conducting a research project exploring how older patients and their relatives can best communicate with doctors and healthcare staff. The purpose of our conversation today is to investigate, among other things, how you, as a relative of an older, frail patient, best understand why your relative is hospitalised and how you can contribute to decisions about their treatment. The interview will take approximately 45 minutes, and you are welcome to take breaks as needed.

	We will also touch on some topics that doctors, nurses, and perhaps even you as a relative might find difficult to discuss. Please feel free to skip any questions you do not wish to answer. I will record our conversation and take notes along the way to ensure I capture everything. Your name will be anonymised, meaning I will not include anything that could identify you. I have been looking forward to our conversation today and truly appreciate your help in making us much better at communicating. Thank you for that.	
Context	Tell me a little about yourself and your relationship with your relative. Can you tell me a bit about what you know about your relative's illnesses? How much does your relative want you to know about their hospitalisation? What is your relative's quality of life like? How much are you allowed to decide on behalf of your relative? What would you like to help your relative with during their hospital stay? Why do you want to help your relative while they are hospitalised?	How often do you see each other? Do you help with practical issues? Do you know why he/she is admitted? How have you and your relative agreed on your involvement and to what extent? What motivates you?
Framing the ward round	How do you experience ward rounds, including the care aspect (interdisciplinary collaboration)? How should the doctor communicate with you to help you understand how your relative is managing during their hospital stay? Do you have a sense of whether your relative understands the purpose of the ward round? Do you feel that your relative understands what the doctors and healthcare staff explain to them during the ward round?	Who joins at ward wards? What do the structure mean to you? Do you feel included in the process? Or can recall details from the rounds?
Involve-ment Shared decision-making	Now, I'd like to talk a bit about how relatives can best be involved when an older patient is hospitalised. Think about the last time your relative was admitted to the hospital. When was it, and where? Why was your relative hospitalised? Have you been called during the ward round by a doctor or nurse, or have you been present in person? How did you experience the most recent ward round conversation with the doctor or nurse? I'd also like to talk about decision-making. How do you handle that? Do you have the opportunity to contribute to decisions? Did you feel involved in decisions about, for example, medical treatment, investigations, or medication? How did you experience being involved in decisions about discharge? Which areas could you and your relative disagree on?	Is this something you have discussed with your relative? Can you describe how you experienced your role as a relative during the ward round for a hospitalised patient? Are decisions made collaboratively?

Difficult topics at ward round	Now we're going to talk about something that can be difficult for some to discuss, both patients and staff. If this is difficult for you, you don't have to answer the following questions. Have you ever experienced a doctor discussing resuscitation in case of cardiac arrest or whether your relative should be placed on a ventilator? How did you experience this conversation?	What made this conversation good or bad?
Surrogate decision-making	Have you experienced having to make decisions about treatment or similar matters because your relative was unable to speak with the doctor themselves? Often, patients are unable to respond because they are critically ill. Do you know your relative's views on, for example, resuscitation or other life-prolonging treatments? Have you and your relative agreed that you have the mandate to speak on their behalf regarding their views on resuscitation, etc.?	How did you experience making decisions on behalf of someone else? Was it a moral or ethical challenge? What role does the patient's quality of life play in such decisions?
Trust and its pre-requisites	With everything we've talked about, let's discuss trust in healthcare staff, including their professionalism, judgement, and commitment to doing what's best for the patient. Can you tell me about an experience where you felt either a strong sense of trust or a lack of trust in the staff?	What made this experience good or bad? How were your feelings acknowledged or addressed?
Closing	Our conversation is coming to an end now. Is there anything else that comes to mind when we talk about how you and the staff communicate during ward rounds? Do you or anyone else have any questions or comments in general? May I have your permission to contact you again if I realise there is something I forgot to ask?	Closing

Appendix 3 Study II: Survey on patient and informal caregiver demographics

Patient demographics were obtained through journal audits:

- Age
- Sex
- Lives alone
- Marital status
- Receives home care
- Charlson Comorbidity Index[1]
- Clinical Frailty Scale[2]
- Primary diagnosis upon admission
- Number of hospital admissions during the last 24 months

General questions for you as a relative.

Thank you so much for helping us better understand how doctors can improve their communication with patients and relatives.

---

1. Your age: ☐☐

2. Are you:
   - O Male
   - O Female
   - O Other

3. Do you live:
   - O Alone
   - O Together with a partner/others

4. What is the relation to your relative
   - O Married to/partner
   - O Daughter/son
   - O Daughter-in-law or son-in-law
   - O Sibling
   - O Grandchild
   - O Niece/nephew
   - O Neighbour
   - O Friend
   - O Other: _____

5. Do you live with your relative?
   - O Yes
   - O No

   If **no**, how far do you like from your relative?
   - O Less than 5 kilometres
   - O 5-19 kilometres
   - O 20-49 kilometres
   - O 50-100 kilometres
   - O Further away than 100 kilometres

If **yes**, for how long have you lived with your relative?

- O Under 1 year
- O 1-5 years
- O 6-20 years
- O Over 20 years

6. Please choose the job position that suits you at the moment:
   - O Works fulltime
   - O Works parttime
   - O Unemployed
   - O Retired
   - O Student
   - O Stay-at-home-parent
   - O Other

7. What your highest level of education?
   - O Primary school
   - O Vocational education
   - O Secondary education (e.g., gymnasium)
   - O Short higher education (<2 years)
   - O Medium-length higher education (2-4 years)
   - O Long higher education (≥5 years)
   - O Other

8. Do you have a healthcare professions education?
   - O Yes
   - O No

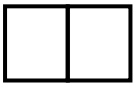
9. Do you have children living at home?
   - O Yes
   - O No

The following questions relate to the assistance you provide to your relative:

10. How often do you help your relative with practical issues?
    - O Never
    - O Less thatn 1 time pr. week
    - O 1-3 times pr. week
    - O 4-6 times pr. week
    - O Every day

If you answered "**never**", go to question 14.

11. How many hours a week do you help your relative with practical issues?



12. For how long have you been assisting your relative?
    - O 3 months or less
    - O 4-12 months
    - O 2-5 years
    - O More than 5 years

13. Which services do you assist with? (you can choose more than 1 answer)
    - O Psychological support
    - O Social support (connecting family and network)
    - O Accompanying (e.g., to the doctor or hospital)
    - O Practical services in the home (cleaning, laundry services, gardening etc.)
    - O Administrative help (budget, bank, letters etc.)
    - O Transportation
    - O Grocery shopping
    - O Walks or rehabilitation
    - O Medication (e.g. dosing)
    - O Changing dressings
    - O Other: _____

14. To what extent do you feel burdened being a relative?"
    - O To a very high extent
    - O To a high extent
    - O To some extent
    - O To a low extent
    - O Not burdened at all

15. When do you feel most burdened as a relative?
    - O During hospital admission
    - O Upon sickness (own or relatives)
    - O Due to practical services
    - O Other: _____

Thank you very much for your help.

Appendix 4 Study IV: Survey on resident demographics

Your age?

☐☐

Your sex?

☐ Female
☐ Male
☐ Other

Which year did you graduate medical school?

☐☐☐☐

Which medical specialty are you doing your residency in?

☐ Endocrinology
☐ Gastroenterology and Hepatology
☐ Geriatrics
☐ Haematology
☐ Infectious diseases
☐ Cardiology
☐ Pulmonary diseases
☐ Rheumatology

Which year of your residency are you currently in?

☐ 1st year
☐ 2nd year
☐ 3rd year
☐ 4th year
☐ 5th year

Did you receive communication training during medical school?

- ☐ Yes
- ☐ No
- ☐ Don't know/not sure

If yes, please elaborate: _____

_____

Did you participate in communication training during your formal postgraduate education programmes?

- ☐ Yes
- ☐ No
- ☐ Don't know/not sure

If yes, please elaborate: _____

_____

Did you participate in communication training outside your for postgraduate education programmes?

- ☐ Yes
- ☐ No
- ☐ Don't know/not sure

If yes, please elaborate: _____

_____

Appendix 5 Study IV: Interview guides for patients and informal caregivers

Interview guide patients - estimated time 10-15 minutes

Theme	Question	Follow-up questions
Context	I would like to talk to you about the ward round you just participated in. What did you think about the conversation you just had with the doctor? Can you tell me what you understood the purpose of the ward round to be?	What do you think the doctor would like to tell you? What input did you feel you had the opportunity to give to the doctor?
Understanding the provided information	Did you understand everything the doctor said? How did you experience the doctors communicating with you?	Why did you (not) understand the doctor? Why was the communication good or bad?
(background) Involvement	Would you like to be involved in making decisions about your treatment during your hospital stay, or would you prefer to leave that to your relatives or the doctor? How did you feel about your opportunities to contribute while the doctor was present? How did you experience the decision-making process regarding, for example, treatment or discharge?	 How did you experience the opportunity for making decision about your treatment? Why did it (not) work? What did you say? Where decisions made without you being present?
Satisfaction	How did you feel when during rounds? Were you satisfied with the conversation?	 Yes/no: Why?

Interview guide – informal caregivers - estimated time 10-15 minutes

Theme	Question	Follow-up questions
Context	I would like to talk with you about the conversation that you just participated in. How did the doctor contact you? Or What do you think about the conversation that you just had?	 What was your purpose in today's ward round?
Understanding the provided information	How did you experience the doctors abilities of speaking with you? What did you experience as the doctors' purpose with today's ward round?	Why was it a good/bad experience? Did you understand everything?
Involvement	How did you experience the possibility of being involved and delivering your thoughts and opinions?	Why was that good or bad?
Satisfaction	How did you feel when during rounds? Were you satisfied with the conversation?	Yes/no: Why?

Appendix 6 Danish version of the cognitive aid

	Forberedelse af stuegang	
1	Omgivelser	Skab de bedste betingelser for afvikling af stuegang
2	Faglig forberedelse	Foretag helhedsorienteret gennemgang af patientens sygdomshistorie og livssituation
3	Tværfagligt samarbejde	Foretag helhedsorienteret gennemgang af patientens sygdomshistorie og livssituation Afdæk aktuelle sygeplejefaglige og terapeutiske problemstillinger
4	Formål	Klargør dit mål med stuegangen
	Afvikling af stuegang	
5	Introduktion	Introducer deltagere og beskriv formålet med dagens stuegang
6	Problembaseret agenda	Skab stuegangens agenda sammen med patient og pårørende
7	Information af patient og pårørende	Informer patienten ud fra dennes præferencer og funktionsevne
8	Beslutningsprocessen	Foretag fælles beslutningstagen under hensyntagen til patientens præferencer og beslutningsevne
9	Afslutning af stuegang	Afslut stuegangen ved at repetere vigtigste aftaler og plan fremadrettet
	Kompetencer	
10	Relationsdannelse	Brug relationsarbejde til at skabe tryghed for patienten
11	Lægens sprog	Tilpas sprog og indhold til patienten
12	Inddragelse	Tag ansvar for at inddrage patienten
	Særlige omstændigheder	
13	Pårørende	Inddrag pårørende, hvis muligt
14	Patienter med kognitiv svækkelse	Tal venligt og tilpas stuegangens indhold til patienten
15	Patienter med delir	Minimer forstyrrelser og anvend kort, tydelig kommunikation ved patienter med delir
16	Den svære samtale	Overgiv den alvorlige besked med empati og fastlæg behandlingsniveau med udgangspunkt i et værdigt liv

midt
regionmidtjylland

STUEGANG HOS DEN ÆLDRE PATIENT MED SKRØBLIGHED

Et støtteværktøj

Version 1.0
Seneste revision november 2023

MidtSim
En del af Koncern HR

		Hvordan ser det ud
1	Omgivelser	Bed andre patienters pårørende, personaler (og patienter) om at forlade stuen. Patienten skal være iført briller og høreapparat, hvis disse benyttes. Hvis patienten har et talehandicap, så italesættes overfor patienten: "Jeg har læst i journalen, at du har svært ved at finde ordene, så jeg vil gøre mig umage for at give dig tid til at svare". Vis, at der er tid nok til at gennemføre stuegangen ved at sidde ned, lytte, åbent kropssprog (undgå korslagte arme etc.) og giv patienterne tid til at svare. Afklar, hvor lang tid, du har til stuegang, og italesæt dette over for patienten.
2	Faglig forberedelse	Skab overblik over komorbiditet og væsentlige diagnoser. Gennemgå behandlingsniveau og/eller intensivbehandling og om forudsætningerne for disse er stabile eller dynamiske Afdæk aspekter af den samlede helbredssituation, herunder psykisk helbred, sociale forhold, samt kognitiv (demens/anden hukommelsesvækkelse) og ernæringsmæssig status.
3	Tværfagligt samarbejde	Afklar habituelt og aktuelt funktionsniveau. Vurder væske- og kostregistrering, udskillelser, inkl. behov for KAD, kognitiv dysfunktion/delir, mobilisering, smerter, behov for iv-adgang.
4	Formål	Forbered målet med dagens stuegang, herunder en prioriteret rækkefølge af problemstillinger og behandlingsstatus, som du vil drøfte med eller orientere patienten om. Identificer 1-3 hovedelementer og nævn dem for patienten med henblik på at få en fælles agenda.
5	Introduktion	Hils tydeligt på alle på stuen og præsenter alle deltageres roller. Beskriv formålet med dagens stuegang ved at nævne hovedelementerne, der er identificeret under forberedelsen.
6	Problemba-seret agenda	Spørg ind til, hvad patienten ønsker at tale om ift. dagens stuegang og indlæggelsen generelt - er der noget uopsætteligt, som forvirrer eller giver følelse af utryghed? Spørg ind til patientens bekymringer og problemer og relater disse til patientens livssituation og tiden efter udskrivelse. Tilføj spørgsmål og bekymringer til den problembaserede agenda. Anvend: "Hvilke bekymringer har du?" i stedet for "Nogen bekymringer?"
7	Information til patient og pårørende	Afdæk, hvor meget patienten ønsker at vide om sit sygdomsforløb (gøres bedst i starten af indlæggelsen og noteres i journalen). Afklar tilstedeværelse af delir ved undersøgelse af orientering og sammenhold med habituelt niveau ift. at vurdere, om patienten skal informeres.
8	Beslutnings-processen	Afklar om patienten ønsker: 1) selv at bestemme, 2) at lægen bestemmer eller 3) at pårørende bestemmer. Stil konkrete forslag eller giv få valgmuligheder. Forstår og kan patienten overskue konsekvenserne af planen?
9	Afslutning af stuegang	Gentag stuegangens vigtigste aftaler og afklar næste skridt for patient og behandler. Overvej at notere de vigtigste punkter på skrift til patienten. Involver plejepersonale og terapeuter i planen, der er aftalt ved stuegang.
10	Relations-dannelse	Vær imødekommende, venlig og udvis tålmodighed. Vid, at de første sekunder på stuen er væsentlige ift. at skabe relationen. Tilkendegiv, at du sammen med patienten skal finde ud af, hvordan han/hun får det bedre, sig fx: "Jeg er her for dig/din skyld". Sikr, at patienten kender årsagen til indlæggelsen, hvad der skal ske i dag, og hvornår udskrivelsen er planlagt til. Overhold aftaler. Orienter dig i patients sociale netværk, bolig, tidligere arbejdsliv og interesser.
11	Lægens sprog	Tal dansk uden medicinske fagudtryk eller jargon. Tilpas talehastigheden, men tal ikke nedladende eller "baby-snak". Forsøg at forenkle komplekse medicinske problemstillinger, hvis patienten ønsker det. Læs patientens signaler, og afstem indhold i samtalen ved ændringer i patientens tilstand og kognition. Undersøg patientens forudsætninger for at forstå stuegangens budskaber, fx ved at spørge: "Hvor meget ved du om sygdommen XX?"
12	Inddragelse	Giv patienterne tid til at svare og stil åbne spørgsmål i starten af samtalen. Vær stærk i pauser, vent gerne 10-15 sekunder før du bryder ind. Lægen som moderator bestemmer samtalens retning. Undersøg, hvad der ligger bag patientens ønske om at dreje samtalen i en bestemt retning, som kan synes uhensigtsmæssig. Sæt tydelige rammer (fx sig: "Vi har 20 minutter til stuegang", "Vi har 5 minutter tilbage") for at holde samtalen på sporet
13	Pårørende	Afklar, om patientens pårørende må informeres og inddrages i beslutningsprocessen. Giv pårørende mulighed for at tale med lægen alene. Afklar pårørendes ressourcer, og om der er uhensigtsmæssige familiedynamikker. Afdæk, om pårørende og patient er enige om udrednings- og behandlingstilbud mhp. at sikre patientens perspektiv.
14	Patienter med kognitiv svækkelse	Tal venligt, undgå brug af humor eller ironi. Vær opmærksom på non-verbale tegn og signaler eller anderledes verbale udtryk. Overvej, om patienten kan overskue information, enten kraftigt forenklet eller om stuegangen slet ikke skal indeholde information af patienten. Indhent informationer fra pårørende ift. ændringer i tilstanden ift. habituelle niveau. Er pårørende på stuen, skal de informeres på patientens niveau, alternativt må man informere pårørende uden for stuen.
15	Patienter med delir	Anvend kort, tydelig kommunikation med roligt kropssprog og uden humor/ironi. Gentag relevante udsagn (anvend kognitiv reorientering, fx: "Jeg kan se, du drikker en kop kaffe nu"). Informer pårørende uden patientens tilstedeværelse, da patientens delir kan forværres af forstyrrelser på stuen.
16	Den svære samtale	Giv ærlige svar, selvom du ikke kender svaret. Vær realistisk uden at dræne patienternes håb. Udvis en empatisk adfærd, så patienterne føler, at du synes det er synd for dem eller udviser professionel medfølelse. Tal om genoplivning på en naturlig måde og vær opmærksom på, at patienter kan fejlslutte, at døden er nært forestående, når samtalen om behandlingsniveau tages. Sig fx: "Jeg spørger dig om det følgende, fordi jeg skal, så du må ikke opfatte det som om, du dør i morgen". Brug egne eller kollegaers erfaring ift. at forudse patientens tilstand efter evt. genoplivningsforsøg ift. værdighed.

Appendix 7 Cognitive aid intervention development[1]

Competencies for conducting ward rounds in older patients with frailty.

1	Problem identification and general needs assessment	Method: Problem is identified by: – Experts - Delphi - both content items and description of what residents lack in term of competencies (next page) – Patients and informal caregivers - interviews – Literature - Scoping review
2	Targeted needs assessment Studies II and III	Geriatric knowledge: Specific knowledge about factors affecting communication with this patient group Communication: Focused on the older patient with frailty: – Building relationships (patients) and involving relatives. – Shared decision-making. – Reinforcing patient-centred care. – Treatment level. Meeting facilitation: Conducting problem-based ward rounds and creating opportunities for patient involvement. Cognitive aid with 16 subsegments: – Ward round preparation – Ward round conduction – Competencies – Special circumstances
3	Goals and objectives	Overall learning objectives: Having residents use the cognitive aid and optimise ward round for older patients with frailty Lecture learning objectives: – Understand and apply the cognitive aid. – Gain knowledge about frail patients and how it affects communication. Simulation learning objectives: – Conduct a ward round with a shared, problem-based agenda involving the patient, relatives, and interdisciplinary staff. – Adapt language and content to the older patient with frailty. – Involve the patient and relatives to the desired extent. – Build a professional relationship with the patient and ensure a sense of security.
4	Educational strategies	Developing patient cases 0) Podcasts - Patient cases and informal caregiver talk Bloom's taxonomy - remember, understand the cognitive aid 1) Lecture - Introduction of the cognitive aid Bloom's taxonomy - remember, understand the cognitive aid 2) Simulation - Training specific communication strategies 1 hour, 2-3 participants pr. simulation, role play (patient case A, B, C by LA) Bloom's taxonomy - apply, analyse (evaluate)
5	Implementation	Randers Regional Hospitalet November 2023 to February 2024 (Study IV)
6	Evaluation and feedback	Patients: Interviews, involvement, understanding and satisfaction Residents: Cognitive aid usage (Study IV)

Regarding 1 and 2:

Study I to III findings + Delphi round question: Which skills should internal medicine residents be trained in to effectively conduct best-practice ward rounds for older patients with frailty?

Theme	Subtheme	Content
Geriatric knowledge	Geriatric knowledge	CGA - comprehensive geriatric assessment
		Prognostic indicators to assess if diagnostic evaluations etc. are relevant
		Medical review
		Cognitive assessment and diagnosing delirium
		Being able to identify patients at risk of developing delirium
		Knowledge that geriatric patients are a heterogeneous group
		Knowledge om atypical disease presentation in older patients
		Assess cognitive function
		Holistic patient focus
	Functional level	Being able to assess the appropriate level of treatment
		Being able to assess loss of cognitive and functional levels and anticipate future functional level
Communication	Understand the patient	Empathy and health literacy
	Communication	Techniques for cognitively impaired or delirious patients
		Avoid jargon or medical terms. Adapt language and informal, reflect upon this before the ward round.
		End-of-life conversations and treatment levels
		Patient involvement
	Skilled communication	Read patient cues and adapt if confusion/fatigue occurs
		View the situation from multiple perspectives
		Remain calm even if the patient is upset or angry
		Pick up on subtle patient cues who cannot verbalise their 'needs' themselves
	Informal caregivers	Managing anger in informal caregivers
		Managing informal caregiver that are too dominant
	Functional level	Assess functional level including frailty and cognition
	Informal caregivers	When to involve informal caregivers
Meeting facilitation	Gaining an overview	Collaboration, gaining information from interdisciplinary team
		Reading the electronic healthcare record
	Documentation in electronic healthcare records	Structure
		Ensuring a respectful tone
		Accurate and concise
	Meeting facilitation	Problem-based ward round
		Structuring the medical interview
		Time management of the conversation
		Shared agenda for ward rounds
	Professionalism	Assess own performance and reflection
		Do I need to discuss the patient case with a colleague
		Rational decision-making
		Collaboration with interdisciplinary groups.

Regarding 4: Patient cases (all pictures from Colourbox, not real patients)

A	B	C
		

Patient case	Name	Age	Co-morbidity	Diagnosis	Lives	Informal caregivers
A	Alfred	83	Parkinson	Pneumonia	At home	Wife
B	Birgit	92	Falls, vertigo, hypertension, diabetes, polymyalgia rheumatica	Fall and hematemesis	At home	Daughter
C	Christian	87	Ischemic heart disease, heart failure (EF 30), chronic anaemia	Heart failure	At home	Widow

Alfred (Patient A): Delirious when admitted.

An older gentleman with Parkinson's disease, suffering from severe frailty. He became fatigued during the interview. A good sense of humour. Previously he wanted to make decisions for himself, but as his illness progressed, he had been forced to let the doctors take over. He was unsure whether he make oppositions to doctors' orders. Cognitively impaired at admission.
Informal caregiver: The wife, cautious, does not want to impose. She there avoids calling the department.

Relevant quotes (omitted due to patient confidentiality):

1	…
2	…
3	…
4	…
5	…

Birgit (Patient B):

An older woman living alone with reasonably good overall condition, although her health has declined over the past 3–4 months. She has experienced falls and dizziness and has undergone cancer screening with a CT of the thorax, abdomen, and pelvis (CT TAP) and a colonoscopy, with no cancer found. Further investigations have not been pursued. She has now presented with bloody vomiting. Her daughter, healthcare professional, provides significant support. Perhaps the patient defers to her daughter, but that’s just the way things are, I believe. The doctor carries the primary responsibility for involving the patient in discussions where decisions are made. This requires active effort on the doctor’s part—to pause and ensure the patient is included in the process.

Relevant quotes (omitted due to patient confidentiality):

1	…
2	…
3	…
4	…
5	…
6	…
7	…
8	…
9	…

Christian (Patient C)

Challenging conversations in care and involvement

An older widower. He wished to have his family present during the interview. He values independence and ideally does not want to be hospitalised but feels that when issues arise, doctors do not take them seriously.
He emphasises the importance of knowing his doctor and having the doctor know him (which is often not the case). He wants to be involved in decisions but does not always speak up when he doesn't understand and may at times feel too exhausted to engage further.
Regarding End-of-Life Discussions: Has not made a decision regarding resuscitation and seemed somewhat surprised when relatives were asked about it. For him, doctors should address resuscitation discussions as naturally as possible.

Relevant quotes (omitted due to patient confidentiality):

1	…
2	…
3	…
4	…
5	…
6	…
7	…
8	…
9	…

Regarding 4: Simulation

Time	Min	Content
14.30	10	Introduction
14.40	12	Scenario 1 (short)
14.56	12	Scenario 2
15.08	18	Scenario 3
15.25	8	Wrap up

Scenarios			
Theme	Cognitive aid subsegments - primary	Cognitive aid subsegments - secondary	Patient case
Delirium, cognitive impairment	14/15	7, 11	A
Informal caregivers and involvement	13	5-9, 10, 11, 12	B
Challenging conversations in care	16	5-9, 10, 11, 12	B
Closure - what you do think of the cognitive aid			

Debriefing:

- Ability to create a space for reflection.
- Difficult to assess interpersonal skills but use the cognitive aid as a foundation.
- Incorporate role models into debriefing—foster circular learning.

Regarding 4: Podcast 1 - story line

Storyline overview
Goal: Maximum duration of 20 minutes

Min	Cognitive aid sub-segments	Content
0		Welcome, thanks, learning goals of this podcast
0		Presentation of tool and present 3 patient cases to explain/elaborate on the support tool
0		Meeting three patients. Alfred, Birgit and Christian.
0		Introducing patient A: Alfred, 83 years old, Parkinson's, very fragile.
1		Introducing patient B: Birgit, 92 years old, female.
2		Introducing patient C: Christian, 87-year-old gentleman
3		Cognitive aid structure - 16 subsegments - Preparation 4 - Conduction 5 - Competencies 3 - Special circumstances 4 I present subsegments individually and give the 3 patients' views on each
3	1	Patient C - uses hearing aids, sensitive to noise and values enough time.
4	2	Patient A - does he get enough home care? Is he regaining his previous functional level?

		Patient C - has a dog, who takes care of it? Often, patients have considerations beyond themselves.
5	3	Minor issues may cause deterioration, constipation in Patient A with Parkinson's, at risk of delirium.
5	4	Patient B - fatigue, will not remember much when presented with an agenda of many issues. Prioritisation is important, patient A cannot recall information to his wife.
5	1-4	Recap of the segment, preparation.
6	5-9	Conducting ward rounds.
7	5	Christian, patient, important to know the doctor, do not want to be reduced to "a piece of paper from the GP ". Alfred says "I wish I knew" about why he was admitted.
7	6	Ask Alfred "what are your concerns" and he might answer. Christian is only interested in one thing - admission (the dog?). Fatigue and involvement issues.
8	7	Some patients prefer to be informed and juxtapose to deciding, such as Birgit
8	8	Reflect upon patient preferences. Christian: omitted when decisions are made. Alfred, who wants the doctor to decisions but prefers to agree with the doctor. Birgit, daughter "helps".
9	9	Alfred prefers not to have anything written down. It confuses him.
10	10-12	Competencies are presented
10	10	Important. Maybe the most important according to patients. Birgit cares about the ward round being with her in centre. Keep agreements to Christian.
11	11	Birgit's husband didn't understand "diagnostic evaluation" and a tumour wasn't found. Alfred gets tired after a few minutes and closes his eyes. What does he know about his Parkinson?
12	12	Especially Alfred needs more time, but the answer is worth waiting for
12	13-16	Now for the last part, special circumstances.
13	13	Birgit's daughter is important, needs to speak with the doctor alone. Christian, sometimes he wants his family to join. He refrains from being a nuisance, though appreciate the sense of security that comes from having family present.
14	14	None of the patients have cognitive impairments, but examples of if they did.
16	15	Alfred suffered from delirium upon hospital admission. Christian states that he feels confident letting his daughter communicate for him in case of delirium.
17	16	Christian: Has not yet decided upon resuscitation.
19		You've come all the way. Hope that it encouraged reflexivity. Reach out if you have questions.

1. Thomas PA, Kern DE, Hughes MT, Chen BY. *Curriculum Development for Medical Education: A Six-Step Approach*. 3rd ed. Johns Hopkins University Press; 2016.

Appendix 8 Study IV: Section snippets from the podcasts

In this appendix, snippets of the podcasts are transcribed and translated to English to display some of the content and structure of the podcasts.

Podcast No. 1 - the cognitive aid

[…]

Lene: Now I will introduce the cognitive aid. And to make it a bit more engaging, I'll present three patient stories that explain and elaborate on the support tool. If you don't already have the support tool, pause the recording and look at the printout I sent you.

You'll now meet three patients. The first patient is Alfred. Alfred is 83 years old. He has Parkinson's disease. He lives with severe frailty. When you meet him, he appears a bit pale, slightly overweight, but in reasonably good overall condition. He was delirious when admitted with pneumonia. He lives at home with his wife, but it's getting harder for them to manage everyday living. When you speak with him, he comes across as a warm, slightly understated gentleman, but he is tired. That was the first patient, Alfred.

[…]

That was an introduction to the three patients: Alfred, Birgit, and Christian. Now I'd like to talk a bit about how the cognitive aid is structured. There are a total of 16 items, divided into: preparation for ward rounds, conducting ward rounds, competencies, and special circumstances. I'll present the items one by one and share my three patients' perspectives on the content. In preparation, the first item is: "Create the best conditions for conducting ward rounds."

If you remember Birgit, who had a fall and hematemesis—well, she uses glasses and a hearing aid, and she is moderately sensitive to disturbances. To create the best conditions for her, ensure complete quiet in the room, send everyone else out, and make sure she's wearing her glasses and hearing aid. For her, time is also very important, and the doctor needs to show that there is enough time. This can be done by sitting down, being at eye level, and using body language that signals you have plenty of time.

The next item in preparing for ward rounds is professional preparation. This is where you conduct a comprehensive review of the patient's medical history and life situation. Remember Alfred, the patient with Parkinson's disease. He lives with his wife, and they receive some assistance, but how much? Is it realistic for him to remain at home, even if he regains his lost functional abilities? And don't forget Christian, the patient with heart failure.

He has a dog—who takes care of it? Often, patients have other priorities besides their own health.

The third item in preparing for ward rounds involves identifying current nursing and therapeutic challenges, such as fluid intake, dietary monitoring, bowel movements, and so on. Because often, for these older patients with frailty, even small issues can lead to deterioration. For example, constipation in our Parkinson's patient, Arne[1], who is at high risk of developing delirium again.

[...]

Podcast No. 2 - the informal caregiver's perspective

[...]

Informal caregiver: I have a mother who, a few years ago, was diagnosed with Alzheimer's, but she's actually doing well considering her condition. She lives in a care facility now, but that hasn't always been the case. In the beginning, it was very important for us to understand her treatment because she didn't understand it herself. And I've experienced, for instance, that I recently attended her one-year check-up with her general physician, and I thought: "He doesn't notice she has Alzheimer's." And afterward, I had to run after him and say: "You know what, that's not quite how it is." Because when I sit there with my mother, I can't exactly say to him, "That's not true, what she's saying." My mother wants to do her best, and she pulls herself together in situations like that, right? And she sounds completely like she's saying, "I'm managing everything just fine," but she's not. That's the challenge—figuring out how to blink with your eyes or something else to communicate: "This isn't what's actually happening."

Lene: How much do you think your mother would take away from a ward round if you weren't there?

Informal caregiver: Not very much. [The information] would disappear quickly afterward. But I think it's a bit difficult to explain to those who speak with her that she doesn't fully understand everything.

[...]

[1] Should have been "Alfred"

Appendix 9 Ward round documentation guide for electronic healthcare journals

General advice	The ward round note is problem-oriented, focusing on the agendas and goals of the patient, informal caregivers, and healthcare professionals
	The ward round note includes a brief update on the patient's current status, results of investigations, any changes to the plan/treatment, and challenges that have arisen
	The ward round note must be precisely written, with a minimum of repetition
	The ward round note must be time-accurate
Problems	Problems should be addressed point by point, e.g. "regarding delirium," and described one issue at a time
	For each problem, describe observations, decisions, prescriptions, and their rationale. Conclude with the information provided to the patient/relatives
	Deviations from clinical guidelines due to frailty or, for instance, a focus on symptom management rather than life prolongation, must be documented
Conclusion and plan	The plan includes a very brief conclusion with possible diagnoses, a timeline/discharge date, and agreements on who will do what
	The next ward round doctor should be able to read the plan/conclusion to quickly gain an overview and clarify deviations from the plan
	Document the patient's consent to information and treatment here

16. PAPERS

Appendices for each study are provided unless the content is presented elsewhere in this thesis.

Paper I

Ward round communication with older patients
Andersen LH, Jensen RD, Skipper M, Lietzen LW, Krogh K, Løfgren B
The Clinical Teacher 20.6 (2023): e13614

Paper II

"They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a qualitative study
Andersen LH, Løfgren B, Skipper M, Krogh K, Jensen RD
European Geriatric Medicine 15, 1383–1392 (2024)

Paper III

Enhancing ward rounds for older patients with frailty: A modified Delphi process
Andersen LH, Løfgren B, Skipper M, Krogh K, and Jensen RD
BMC Medical Education (2025): 25, 446

Paper IV

Implementing a cognitive aid for conducting ward rounds for older patients with frailty: A feasibility study
Andersen LH, Jensen RD, Skipper M, Davodian I, Bech JK, Lietzen LW, Krogh K, Løfgren B
Submitted to The Clinical Teacher, currently in revision

Received: 2 January 2023 | Accepted: 10 July 2023

DOI: 10.1111/tct.13614

RESEARCH ARTICLE

THE CLINICAL TEACHER

Ward round communication with older patients

Lene Holst Andersen[1,2,3] | Rune Dall Jensen[3,4] | Mads Skipper[5] | Lone Winther Lietzen[2,3] | Kristian Krogh[3,6] | Bo Løfgren[1,3]

[1]Department of Internal Medicine, Randers Regional Hospital, Randers, Denmark

[2]Department of Geriatrics, Aarhus University Hospital, Aarhus, Denmark

[3]Department of Clinical Medicine, Aarhus University, Aarhus, Denmark

[4]MidtSIM, Corporate HR, Central Denmark Region, Aarhus, Denmark

[5]Postgraduate Medical Education, Region North, Viborg, Denmark

[6]Department of Anesthesiology and Intensive Care, Aarhus University Hospital, Aarhus, Denmark

Correspondence
Lene Holst Andersen, Department of Internal Medicine, Randers Regional Hospital, Skovlyvej 15, 8930 Randers NE, Denmark.
Email: lehane@rm.dk

Funding information
This research received no specific grant from any funding agency.

Abstract

Objectives: Ward round communication is essential to patient care. While communication in general with older patients is well described, little is known about how communication with older patients and their relatives at ward rounds can be optimised. Hence, this scoping review aims to provide an overview of ward round communication with older patients. Furthermore, the review investigates barriers to the optimal communication. Such an overview would provide a point of departure for developing future health care professionals' education in ward round communication training.

Method: A scoping review was performed by searching CINAHL, Embase, MEDLINE, and PubMed databases. The search strategy included terms synonymous with "ward rounds" and "older patients." We included studies regarding communication with patients above 65 years during ward rounds. Thematic analysis was applied.

Results: Seven of the 2322 identified papers were included in the present review. Thematic analysis revealed three overall themes: Communication strategy, frailty and patient participation, and organisational and age norm challenges. Barriers included frailty-related patient characteristics and imbalance of power between physicians and patients. Papers focused mainly on what the optimal ward round communication should include rather than how it should be performed.

Conclusion: Characteristics of frail older patients and organisational barriers challenge effective and safe ward round communication. Little is known about how ward round communication with frail older patients and their relatives can be optimised.

1 | INTRODUCTION

Patient–doctor communication is a crucial element of all health care practices. Demographic changes predict an increase in the number of admitted older patients; thus, communication with older patients will be common practice for most medical staff. Older patients are characterised by increasing levels of heterogenicity with great variation in intrinsic capacity. A range of concurrent issues, such as acute and chronic diseases, polypharmacy, and cognitive deficits, add complexity to the communication. Some doctors lack communicative competencies and experience difficulties communicating with older patients and their relatives.[1]

Communication theory has gradually evolved from the linear transmission model (describing communication as a one-way process) to the dynamic transactional communication model (where participants are simultaneously both senders and receivers of messages).[2] Likewise, medical communication research has shifted toward 'skilled communication' rather than 'communication skills'.[3] This shift emphasises the development of flexibility and adaptability to tailor communication based on the patient and the clinical situation. Ward rounds are

important clinical situations, as these regular and sequential visits to inpatients by medical teams are essential to patient care decisions.

Successful ward rounds depend on skilful communication and patient involvement in decision making.[4] The conceptual framework for (skilful) communication, according to Habermas' theory of communicative action, encompasses truth, sincerity, appropriateness, and understandability.[5] As such, inadequate communication with older patients can lead to undesired treatment, unnecessary diagnostic testing, and low adherence to prescribed medication.

Summarising, ward round communication is essential to patient safety and care. Still, conceptualization of skilled communication for older patients during ward rounds remains to be explored.[4] Several empirical frameworks for communication, for example, from AMEE, the International Association for Health Professions Education, or the Gerontological Society of America, address communication with older patients. However, operationalization of these frameworks in optimal ward round setting is not clear. Furthermore, post-graduate medical education curricula contain ward round communication competencies, but they do not specify how junior doctors may best acquire these competencies.[6]

This scoping review aims to provide an overview of ward round communication with older patients. Furthermore, to investigate barriers to the optimal communication during ward rounds. Such an overview would provide a point of departure for designing communication training for health care professionals.

2 | METHODS

A scoping review was conducted to systematically identify papers involving communication during ward rounds with older patients. We used the methodological framework developed by Arksey and O'Malley and further refined by Levac et al.[7] The framework consists of the following six steps: Step 1, identifying the research question; Step 2, identifying relevant papers; Step 3, selecting papers; Step 4, charting the data; Step 5, collating, summarising, and reporting the results, and Step 6, consultation with stakeholders.

2.1 | Identifying the research question

We generated a main research question that allowed for a broad exploration of ward round communication with older patients: What are the means of skilled communication at ward rounds for older patients? Second, we investigated the barriers and challenges to the optimal ward round communication with older patients and their relatives.

2.2 | Identification of relevant studies

The following databases were searched in July 2022: CINAHL, Embase, MEDLINE, and PubMed. We used no date limits. The search strategy was co-developed with a research librarian. The search strategy is shown in Appendix S1. The identified papers were uploaded to Covidence, and duplicates were removed. Subsequently, snowballing was used to identify additional papers to include in the scoping review.

2.3 | Selection of studies

To be included in the review, papers needed to focus on communication during ward rounds with hospitalised older patients. The term 'older patient' is not well defined in literature. However, traditionally, and in this study referred to as a patient ≥65 years of age. When information on study population age was missing, the terms "geriatric," "aged," "elderly," "old," or "frail" were used as proxies. Papers regarding organisation of ward rounds, nursing rounds, and intentional rounding were excluded. Also, papers regarding telemedicine or similar were excluded. Peer-reviewed papers in English or Scandinavian languages were included.

All papers were individually screened by titles/abstracts by two members of the research team. The lead author (LA) screened all papers. In case of disagreements between reviewers, either a third reviewer was involved, or the two members met to obtain consensus. Authors were contacted to acquire publications under the same or another title if the full-text papers were not published, for example, conference abstracts. No relevant papers were identified by this enquiry. The lead author (LA) conducted the full-text review, and the research team decided on included papers for data extraction.

2.4 | Charting the data

The included papers were organised based on authors, objectives, population, concept and context, and key findings relating to the scoping review questions, as recommended by Joanna Briggs Institute.[8] The extracted variables were determined by the lead author (LA) and reviewed by a co-author (KK) in an iterative process.

2.5 | Collating, summarising, and reporting the data

The extracted data were systematically categorised by the lead author (LA) to perform a thematic analysis.[9] Steps used in the thematic analysis were "familiarization with the collected data" (full text review), "generating initial codes," "searching for themes," "reviewing themes," and "defining and naming themes." The last step, "presenting and discussing results," finding of the included papers were summarised and discussed with the research team and presented using a narrative approach.

2.6 | Consultation with stakeholders

We conducted a stakeholder analysis with Elderly Council Members ($n = 4$) from a Danish municipality to provide insights into the scoping

review results. In Denmark, each municipality must have an Elderly Council by legislation and every citizen ≥60 years are electable. Four members (males = 3, age 68–78 years, previous vocational education, all retired) from the Elderly Council contributed to the study. The focus group interview included a presentation of results and thematic analysis. The Elderly Council Members were asked to state if they could recognise the issues identified in this scoping review. Second, the Elderly Council Member were asked to address themes and issues not contained in this scoping review.

3 | RESULTS

We included seven studies (see Appendix S2 for the inclusion process).[10–16] No previous systematic or scoping reviews of communication with older patients at ward rounds were identified. The key findings are summarised in Table 1.

3.1 | General characteristics of the included studies

Most studies were published after 2018 ($n = 4$), two studies were from 2013, and one study was from 1999 (Table 1). The preferred methodology was mixed methods studies ($n = 4$), two were qualitative studies, and one was cross sectional. Nearly half of the studies came from Europe (UK and Sweden, $n = 3$), followed by the United States ($n = 2$), while one study was from Taiwan and one study was from Australia. Studies that included patients were most prevalent ($n = 6$), followed by nurses and relatives ($n = 1$, respectively).

3.2 | Level of frailty in study populations

None of the included studies applied frailty assessment scores to their study populations. In two studies, the population were considered frail: Geriatric ward inpatients[15] and patients suffering from dementia.[14] Two studies included patients referring to frailty domains such as ADL-deficiencies, multimorbidity, and difficulties managing daily living, indicating a level of frailty.[10,11] Information on patients' functional level was absent in the latter three studies.[12,13,16] However, these studies address "vulnerability" as patient characteristics or reasons for communication difficulties.

3.3 | Thematic analysis

The step, "generating initial codes" resulted in a total of 25 codes, while 14 and seven themes, respectively, emerged during the following steps: "Searching for themes" and "reviewing themes."[9] Final step of the thematic analysis revealed the following three themes: Communication strategy, frailty and patient participation, and organisational and age norm challenges. Key characteristics and outcomes of included studies related to the three themes are summarised in Table 2.

4 | DISCUSSION

We identified three overall themes: Communication strategy, frailty and patient participation, and organisational and age norm challenges. We found patient frailty combined with organisational barriers challenge effective and safe communication. Importantly, the studies focused mainly on what the optimal ward round communication should include rather than how it should be performed.

4.1 | Communication strategy

Skilled communication with older patients requires a variety of basic nonverbal and verbal communication competencies.[17] According to Verheijden et al., a skilled communicator is sensitive and adapt to the patient.[18] This is highly recognised in the present review as aging causes physiological and psychological changes; perception and cognition may deteriorate, and the presence of pain or state of depression may affect the ability to communicate well.[17] As a consequence, physicians should speak clearly and avoid using technical language or jargon.[19,20] However, how "clear communication" is best performed remains uncertain but as a minimum patients should wear their glasses and hearing aids.

As many patients struggle to remember information, the physician should provide written information with ward round messages.[15,20] This also improves information of relatives. Ideally, health care personnel should contact relatives after ward rounds if the relatives are not present.

Health care personnel should contact relatives after ward round if the relatives are not present.

Ward round information should consist of information about diseases, reasons for discomfort, planned investigations, results, discharge date, and physician's diagnostic considerations.[15,19] However, physicians should avoid information overload. Skilled communication should be tailored to the patient's needs; thus, full disclosure might not be suited for all patients, as opposed to Habermas' communication theory, that advocates truth and sincerity.[5]

Physicians should avoid information overload.

TABLE 1 The studies included in the scoping review.

	Authors	Country	Aim of study	Participants	Design	Key findings related to the scoping review question
1	Bains et al.[14]	UK	To examine how relatives of people with dementia experience ward rounds at an old age psychiatry service	67 patients, 75 relatives, patients were ≥65 years.	Cross sectional study, structured telephone interview with survey after hospitalisation	Ward round communication should include agenda, purpose, and information on ward round format. Ward rounds are potentially stressful for relatives—especially spouses—due to many professionals' presence and if they fail to introduce themselves. Ward rounds with relatives should include the possibility of speaking with the physician alone.
2	Chen et al.[15]	Taiwan	To explore medical message receiving and expectations concerning medical information among hospitalised elderly patients in Taiwan	30 patients, mean age, years. (SD): 80 (6.8), males: 47%	Descriptive mixed-methods, design, audio recordings of ward rounds, semi-structured interviews after ward rounds.	Hospitalised patients have impaired recall of medical information given at ward rounds. Two-thirds of patients could not repeat any messages after 4 h, which implies a need for a written summary of ward round key messages. Ward round messages should include reasons for discomfort, discharge date, and effect of the treatment regimen. No patients asked questions to physicians, and 10% made incorrect repetitions. All patients remembered that the physician had come to visit them.
3	Lindberg et al.[10]	Sweden	To describe what participation means to older patients in team meetings	15 patients, mean age, years. (range): 82 (74–94), females: 80%	Descriptive, qualitative semi-structured interviews and observation of team meetings	The physician should view the patient as a unique human being and ask for the patient's views and personal history. The patients' possibilities of participating depend on the staff's attitude, and the possibility for the patient taking an active part is limited.

TABLE 1 (Continued)

	Authors	Country	Aim of study	Participants	Design	Key findings related to the scoping review question
4	Lindberg et al.[11]	Sweden	To explore nurses' experiences of older patients' participation in team meetings	9 nurses, mean age, years. (range): 35 (25–45), all female, 1–25 years. of work experience	Descriptive, qualitative semi-structured interviews	The staff creates conditions for patients' participation, e.g., by framing the team meeting and ask patients to be prepared. Patients need further information after the ward rounds. Vulnerability due to disease and aging affects participation level. How the participants of the team meeting are seated affects the patients' possibility of asking questions and demanding attention.
5	Pecanac et al.[12]	United States	To explore how older adults and physicians negotiate the plan-of-care during daily rounds in the hospital setting	29 patients, median age, years. (range): 72 (65–87)	Descriptive mixed-methods design, conversation analysis (qualitative data)	The physician-led negotiation process is initiated by either leading with evidence or presequences to persuade the patient to accept the proposed plan. The ability of patients to actively engage in daily conversations was negligible, maybe due to vulnerability during hospitalisation. Active resistance to the proposed plan-of-care was scarce.
6	Pecanac et al.[13]	United States	To explore how hospitalised older adults' concerns are solicited and shared during daily rounds	29 patients, median age, years. (range): 72 (65–87), males: 92%	Descriptive mixed-methods design, conversation analysis (both qualitative and quantitative data)	Most concerns were shared during the physician's listing assessment questions or during discussion of the plan of care. Physicians should apply communication strategies, i.e., when and how to invite patients to solicit concerns during ward round. Asking "how are you feeling" instead of "how are you" solicited more concerns, as did "what questions do you have" or "any concerns" compared to "any questions?"

(Continues)

TABLE 1 (Continued)

	Authors	Country	Aim of study	Participants	Design	Key findings related to the scoping review question
7	Redley et al.[16]	Australia	To examine patient preferences for participation at ward rounds in acute medical inpatient services using CPS and PAM To describe patient participation compared to patient preferences for participation To investigate clinicians' factors for facilitation and barriers for patient participation	52 patients, median age (SD): 73 years. (14.2), female 52%	Naturalistic, multi-method study design, structured interviews with surveys prior to ward rounds, observation of ward rounds, and semi-structured interviews after ward rounds (qualitative data)	Patients participated actively in 75% of ward rounds with similar proportions in each control preference group, suggesting that the physician holds the main responsibility for achieving patient participation, and patient condition or reason for admittance influences patient participation level. The following items supported patient capability for participation: Clear and understandable information, building patient confidence, and empowering patients to participate. Physicians could facilitate opportunities for patient participation by intentionally inviting patients to participate or by creating a participatory environment. In 30% of ward rounds, interruption, or distraction (environmental factors) seemed to hinder the opportunity for patient participation.

Abbreviations: CPS, control preference scale; PAM, patient activation measure; SD, standard deviation.

Skilled communication should be tailored to the patient's needs; thus, full disclosure might not be suited for all patients.

4.2 | Frailty and patient participation

Frailty is an age-related condition characterised by functional decline across multiple domains in physiological systems and psychosocial factors. There is no clear consensus on frailty. Patient participation involves a patient's rights and opportunities to influence the decision-making process, and primarily involves an effort from the health care professionals. Frailty may affect patients' ability to co-create meaning as proposed by the transactional model of communication,[2] and therefore affects patient participation.

Some frail patients prefer a passive role in ward round participation.[19] However, physicians should cautiously assess patients' preference for participation in the decision-making process rather than misjudging passive appearance as preference for non-participation.[16] Instead, physicians should invite older patients to ask questions and explore patients' concerns, expectations, and previous experiences.[21] The shared decision-making process is, however, time consuming and should be balanced. According to Elmore and

TABLE 2 caption is: Key characteristics of themes.

Theme	Challenges	How to optimise communication
1. Communication strategy	Not allowing enough time for ward rounds for frail patients Not asking for patient's views and personal history Not allowing for relatives to speak with the physician alone Low patient confidence and empowerment Not having continuity of ward round personnel[a] Ageism—discrimination on the grounds of a person's age[a]	Avoid using technical terms or jargon[a] Provide written information after the ward round Actively invite patients to participate Ask for patients' concerns, reason for discomfort, discharge date, and treatment efficiency Avoid framing questions that incite certain replies, e.g., by seeking patient acceptance by saying: "okay?" as this trend toward a "yes." To elicit patients' concerns, "what concerns do you have?" surpass "any concerns?" Accommodate explanation to the patients' desires, and recognising that full disclosure is not for all[a] Make patients feel safe, e.g., by conferring patient plans with other health care personnel[a]
2. Frailty and patient participation	Hospitalisation is likely to worsen frailty Frailty affects patient participation levels Impaired recall of received ward round messages due to frailty Fatigue may cause decreased active resistance to the proposed plan-of-care	Recognise that passivity of the frail patient may poorly correlate with participation preference
3. Organisational and age norm challenges	Imbalance of power: Physicians can choose to exclude the patients from participating Ward round structure may overlook patients' and families' individual needs Patients' and relatives' failure to know format of ward round and what to expect Overcrowding and placement opposite of patient can feel like a confrontation Age norms may result in passive acceptance of plan-of-care with no or few questions asked Some patients do not want to be a nuisance, and refrain from asking questions[a] Interruption or distraction may hinder the opportunity for patient participation	Avoid determining the plan-of-care before assessing patients' and relatives' inputs Allowing for companion to assist patients in case of no informal carers present[a]

[a]Input from stakeholder consultation with Elderly Council Members.

Kramer, a balanced shared decision-making discussion include facts, patients' values, and personal philosophies regarding health care in a neutral and non-judgmental manner.[22]

Physicians should cautiously assess patients' preference for participation in the decision-making process rather than misjudging passive appearance as preference for non-participation.

Another aspect of ward round decisions are discharge plans, an area where patient participation is deficient.[21] Older frail patients' participation in the discharge process can be supported by, for example, transition coaches, discharge information, and education of patients about management strategies, and involvement of relatives and caregivers.[23]

With increasing frailty comes increasing susceptibility (or vulnerability) to even small stressors like, for example, hospitalisation. Frailty affects ward round decision making.[11,12,15] Older people without medical illnesses are more likely to want to participate in decision-making than older people requiring acute medical care.[24] Also, patient participation is considered equivalent to being well informed, having a caring relationship, and being seen as an individual human being.[19]

Patient participation is considered equivalent to being well informed, having a caring relationship, and being seen as an individual human being.

4.3 | Organisational and age norm challenges

An asymmetrical relationship exists between the health care personnel and the older patient, an imbalance of power,[11,16] more than for younger patients.[20] Age norms imply that older patients have more respect for authorities than younger patients.[15] As a result, the older patient may feel insignificant and powerless, which may cause them to keep quiet.[20] Patients might refrain from asking questions to avoid being a nuisance. Thus, health care personnel should be aware of how the hospital appears, as a powerful institution. Physicians should take notice of and acknowledge older patients' concerns, however subtle they are pronounced.[19]

Physicians should take notice of and acknowledge older patients' concerns, however subtle they are pronounced.

The organisational structure of ward rounds can diminish patient involvement.[11,12,16] Overall, patients have limited opportunity to influence the decision-making process and short ward rounds may decrease patient activation, as older patients need longer interaction time to ask questions. Lindberg and colleagues highlight that when outnumbered by health care personnel, older patients may refrain from participating.[10] The patient should not be seated opposite health care personnel, as this may lead to a feeling of confrontation.[11] Thus, ward rounds should involve as few health care personnel as possible, thus perhaps clashing with the preferred interdisciplinary approach to frail patients.[11] Also, limiting the number of physicians involved in the patient's care could improve ward round communication.

We found that a tension between patient-centred goals and health care organisational priorities may be present.[20] If health care professionals propose a seemingly unfeasible discharge plan, relatives of older patients may experience emotional and physical burdens.[25] The aging population demands a political legislation in terms of allocation of resources at a macro level to overcome this barrier to patient-centred goals. Meanwhile, research should focus on how physician communication with relatives is best performed to ease the burden caused by the health care system.

4.4 | Informal caregivers

Health care personnel must consider informal caregivers of older patients as an integrated part of the patient's care. An informal caregiver, usually a family member, provides unpaid care owing to a personal relationship. Upon admission, older patients' cognitive state may hinder information sharing and decision making. Thus, information about medical history, functional level, and quality of life may be provided by informal caregivers. Hospital admission is stressful for informal caregivers, and surrogate decision making (i.e., decisions made on behalf of incapacitated patients) may account for some of the tension.[14,25] Frequently, surrogate decisions concern code status or other life-prolonging therapies with the risk of burdening the informal carers.[26] According to Torke and colleagues, surrogate decision making occurs in nearly half of older adults' hospitalizations due to deterioration of health or delegation.[26] Therefore, research should focus on the impact of surrogate decision making and qualify physicians' support of informal carers.

The involvement of informal caregivers increases patient participation; therefore, physicians should involve informal caregivers in ward round discussions.[20] In case that no informal caregivers exist, a companion should be offered to advocate patient needs. However, patients' and informal caregivers' opinions may not always align, according to Doekhie and colleagues.[27] Role clarification, the understanding of mutual roles and highlighting the patient perspective, may meet this challenge.

The involvement of informal caregivers increases patient participation; therefore, physicians should involve informal caregivers in ward round discussions.

4.5 | Health literacy and empowerment

The purpose of the ward rounds remains uncertain for many patients and their relatives, which implies low health literacy.[14] Personal health literacy is "the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others."[28] Health literacy is significantly lower among older patients; thus, aspects of plan-of-care are often not understood, and shared decision making is absent. Improved health literacy is linked with empowerment; the latter described as an absence or decline of powerlessness, helplessness, alienation, victimisation, oppression, subordination, and paternalism.[29] Epstein and Street suggest the following statement to improve older patients' health literacy and, thus, empowerment: "I want to make sure that I've helped you understand everything you need to understand about your illness."[30]

Health literacy is significantly lower among older patients; thus, aspects of plan-of-care are often not understood.

4.6 | Stakeholders' input

We invited Elderly Council Members to include a stakeholder perspective. The Elderly Council Members confirmed the presented results and even provided additional issues not found in this review. Namely, the importance of mutual respect, to feel safe, and exemplifying communication tailored to the individual patient. This highlights the importance of patient partnership in research.

4.7 | Strengths and limitations

To our knowledge, this is the first systematic review on communication with older patients at ward rounds. We applied the methodological framework of scoping reviews as presented by Levac et al.[7] including inviting patients and relatives to give their perspectives on the findings.

This study has some limitations. Ward rounds differ depending on the local health care systems. We consulted an experienced research librarian, and the applied search strategy included numerous synonyms for the term "ward round," but we may have excluded relevant papers unintentionally, due to the local rhetoric on such rounds. In addition, the ward round is not necessarily limited to time and place. Communication with older frail patients regarding discharge happens during ward rounds and other occasions during hospital admission. Therefore, papers concerning communication about decision-making that does not mention ward rounds or similar could be missed in this review. We did not critically appraise the included studies; however, the scoping review aims to investigate the nature and extent of the research topic rather than assess the quality of the included studies.

5 | CONCLUSIONS

Characteristics of frail older patients and organisational barriers challenge effective and safe ward round communication. The identified studies in the present review focused mainly on what the optimal ward round communication should include rather than how it should be performed. Further research is required to qualify communication training elements in post-graduate medical education.

AUTHOR CONTRIBUTIONS

Lene Holst Andersen: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; software; validation; visualization; writing—original draft; writing—review and editing. **Rune Dall Jensen:** Conceptualization; data curation; formal analysis; investigation; methodology; resources; supervision; validation; visualization; writing—review and editing. **Mads Skipper:** Conceptualization; data curation; formal analysis; investigation; methodology; supervision; validation; writing—review and editing. **Lone Winther Lietzen:** Data curation; formal analysis; investigation; methodology; resources; supervision; validation; visualization; writing—review and editing. **Kristian Krogh:** Conceptualization; data curation; formal analysis; investigation; methodology; resources; software; supervision; validation; visualization; writing—review and editing. **Bo Løfgren:** Conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; software; supervision; validation; visualization; writing—review and editing.

ACKNOWLEDGEMENTS

The authors would like to thank the members of Randers' Municipality Elderly Council for providing useful insights to this paper.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available at Figshare: https://doi.org/10.6084/m9.figshare.21644660.v1.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

ETHICAL APPROVAL

According to Danish law, only research projects in Denmark involving human beings, human tissue, cells etc. must have a permission from the Danish National Committee on Biomedical Research Ethics. Therefore, this literature review did not require ethical approval.

ORCID

Lene Holst Andersen https://orcid.org/0000-0003-0331-3136

REFERENCES

1. Hansson A, Svensson A, Ahlström BH, Larsson LG, Forsman B, Alsén P. Flawed communications: health professionals' experience of collaboration in the care of frail elderly patients. Scand J Public Health. 2018;46(7):680–9. https://doi.org/10.1177/1403494817716001
2. Barnlund DC. A transactional model of communication. In: Language behavior 41 Berlin, Boston: De Gruyter Mouton; 1970. p. 43–61. https://doi.org/10.1515/9783110878752.43
3. Salmon P, Young B. Creativity in clinical communication: from communication skills to skilled communication. Med Educ. 2011;45(3):217–26. https://doi.org/10.1111/j.1365-2923.2010.03801.x
4. Royal College of Physicians. Modern Ward Rounds Good Practice for Multidisciplinary Inpatient Review Background and Context; 2021.

5. Jürgen H. The theory of communicative action. Published online 1984.
6. The Royal College of Physicians and Surgeons of Canada. CanMEDS roles. 2022. Accessed March 30, 2022. https://canmeds.royalcollege.ca/guide
7. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. Implement Sci. 2010;5(1):69. https://doi.org/10.1186/1748-5908-5-69
8. Peters M, Godfrey C, McInerney P, Munn Z, Trico A, Khalil H. Chapter 11: scoping reviews. In: JBI manual for evidence synthesis JBI; 2020. https://doi.org/10.46658/JBIMES-20-12
9. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006;3(2):77–101. https://doi.org/10.1191/1478088706qp063oa
10. Lindberg E, Hörberg U, Persson E, Ekebergh M. "It made me feel human"—a phenomenological study of older patients' experiences of participating in a team meeting. Int J Qual Stud Health Well-Being. 2013;8(1):20714. https://doi.org/10.3402/qhw.v8i0.20714
11. Lindberg E, Persson E, Hörberg U, Ekebergh M. Older patients' participation in team meetings—a phenomenological study from the nurses' perspective. Int J Qual Stud Health Well-Being. 2013;8(1):21908. https://doi.org/10.3402/qhw.v8i0.21908
12. Pecanac KE, LeSage E, Stephens E. How hospitalized older adults and physicians negotiate plan-of-care decisions during daily rounds. Health Commun. 2021;38(4):681–94. https://doi.org/10.1080/10410236.2021.1967549
13. Pecanac KE, LeSage E, Stephens E. How hospitalized older adults share concerns during daily rounds. Patient Educ Couns. 2021;104(7):1652–8. https://doi.org/10.1016/j.pec.2020.11.037
14. Bains J, Vassilas CA. Carers of people with dementia: their experience of ward rounds. Aging Ment Health. 1999;3(2):184–7. https://doi.org/10.1080/13607869956361
15. Chen KL, Chang CM, Chen CH, Huang MC. Information reception and expectations among hospitalized elderly patients in Taiwan: a pilot study. J Nurs Res. 2018;26(3):199–206. https://doi.org/10.1097/jnr.0000000000000228
16. Redley B, McTier L, Botti M, Hutchinson A, Newnham H, Campbell D, et al. Patient participation in inpatient ward rounds on acute inpatient medical wards: a descriptive study. BMJ Qual Saf. 2019;28(1):15–23. https://doi.org/10.1136/bmjqs-2017-007292
17. Jack K, Ridley C, Turner S. Effective communication with older people. Nurs Older People. 2019;31(4):40–8. https://doi.org/10.7748/nop.2019.e1126
18. Verheijden M, Giroldi E, van den Eertwegh V, Luijkx M, van der Weijden T, de Bruin A, et al. Identifying characteristics of a skilled communicator in the clinical encounter. Med Educ. 2022;57(5):418–29. https://doi.org/10.1111/medu.14953
19. Ekdahl AW, Andersson L, Friedrichsen M. "They do what they think is the best for me." Frail elderly patients' preferences for participation in their care during hospitalization. Patient Educ Couns. 2010;80(2):233–40. https://doi.org/10.1016/j.pec.2009.10.026
20. Lilleheie I, Debesay J, Bye A, Bergland A. Experiences of elderly patients regarding participation in their hospital discharge: a qualitative metasummary. BMJ Open. 2019;9(11):e025789. https://doi.org/10.1136/bmjopen-2018-025789
21. Erlang AS, Schjødt K, Linde JKS, Jensen AL. An observational study of older patients' experiences of involvement in discharge planning. Geriatr Nurs (Minneap). 2021;42(4):855–62. https://doi.org/10.1016/j.gerinurse.2021.04.002
22. Elmore JG, Kramer BS. Breast cancer screening. Jama. 2014;311(13):1298. https://doi.org/10.1001/jama.2014.2494
23. Dyrstad DN, Testad I, Aase K, Storm M. A review of the literature on patient participation in transitions of the elderly. Cogn Technol Work. 2015;17(1):15–34. https://doi.org/10.1007/s10111-014-0300-4
24. Kiselev J, Suija K, Oona M, Mellenthin E, Steinhagen-Thiessen E. Patient involvement in geriatric care—results and experiences from a mixed models design study within project INTEGRATE. Int J Integr Care. 2018;18(1):12. https://doi.org/10.5334/ijic.2517
25. Lindhardt T, Bolmsjö IA, Hallberg IR. Standing guard—being a relative to a hospitalised, elderly person. J Aging Stud. 2006;20(2):133–49. https://doi.org/10.1016/j.jaging.2005.06.001
26. Torke AM, Sachs GA, Helft PR, Montz K, Hui SL, Slaven JE, et al. Scope and outcomes of surrogate decision making among hospitalized older adults. JAMA Intern Med. 2014;174(3):370–7. https://doi.org/10.1001/jamainternmed.2013.13315
27. Doekhie KD, Strating MMH, Buljac-Samardzic M, van de Bovenkamp HM, Paauwe J. The different perspectives of patients, informal caregivers and professionals on patient involvement in primary care teams. A qualitative study. Health Expect. 2018;21(6):1171–82. https://doi.org/10.1111/hex.12824
28. Santana S, Brach C, Harris L, Ochiai E, Blakey C, Bevington F, et al. Updating health literacy for healthy people 2030: defining its importance for a new decade in public health. J Public Health Manag Pract. 2021;27(12):S258–64. https://doi.org/10.1097/PHH.0000000000001324
29. Nutbeam D. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. Health Promot Int. 2000;15(3):259–67. https://doi.org/10.1093/heapro/15.3.259
30. Epstein RM, Street RL. The values and value of patient-centered care. Ann Family Med. 2011;9(2):100–3. https://doi.org/10.1370/afm.1239

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Andersen LH, Jensen RD, Skipper M, Lietzen LW, Krogh K, Løfgren B. Ward round communication with older patients. Clin Teach. 2023;e13614. https://doi.org/10.1111/tct.13614

AARHUS UNIVERSITY

Declaration of co-authorship concerning article for PhD dissertations

Full name of the PhD student: Lene Holst Andersen

This declaration concerns the following article/manuscript:

Title:	Ward round communication with older patients
Authors:	Lene Holst Andersen, MD Rune Dall Jensen, MsC, PhD Mads Skipper, MD, PhD Lone Winther Lietzen, MD, PhD Kristian Krogh, MD, PhD Bo Løfgren, MD, PhD

The article/manuscript is: Published ☒ Accepted ☐ Submitted ☐ In preperation ☐

If published, state full reference: The Clinical Teacher 20.6 (2023): e13614.

If accepted or submitted, state journal:

Has the article/manuscript previously been used in other PhD or doctoral dissertations?

No ☒ Yes ☐ If yes, give details:

Your contribution

Please rate (A-F) your contribution to the elements of this article/manuscript, **and** elaborate on your rating in the free text section below.

A. Has essentially done all the work (>90%)
B. Has done most of the work (67-90 %)
C. Has contributed considerably (34-66 %)
D. Has contributed (10-33 %)
E. No or little contribution (<10%)
F. N/A

Category of contribution	Extent (A-F)
The conception or design of the work:	C
Free text description of PhD student's contribution ***(mandatory)*** Conception of the study by done by study group. The study protocol has been written by the study group with major contributions from the PhD student.	
The acquisition, analysis, or interpretation of data:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student was main responsible for data collection, analysis and interpretation of data.	
Drafting the manuscript:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has written the first draft of the manuscipt with input from main supervisor	

Submission process including revisions:	C
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has prepared the final manuscript and submitted the work after academic input and revision by all co-authors.	

Signatures of first- and last author, and main supervisor

Date	Name	Signature
14/1-25	Lene Holst Andersen/first authr	
22/01/25	Bo Løfgren/last author	
14/1 25	Kasper Glerup Lauridsen/main supervisor	

Date:

14/1-25

Signature of the PhD student

European Geriatric Medicine
https://doi.org/10.1007/s41999-024-01043-5

RESEARCH PAPER

"They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a qualitative study

Lene Holst Andersen[1,2,3] · Bo Løfgren[1,3] · Mads Skipper[4] · Kristian Krogh[3,5] · Rune Dall Jensen[3,6]

Received: 25 May 2024 / Accepted: 19 August 2024

Key summary points

Aim To explore communication preferences of patients and informal caregivers during ward rounds.
Findings The study identified establishing professional relationships with patients and ensuring informal caregiver inclusion as the preferred communication preferences. Healthcare personnel should recognize informal caregiver burden and carefully dissect the shared decision-making process to ensure both patient and informal caregiver inclusion.
Message Healthcare personnel should recognize informal caregivers' burdens and ensure both patient and caregiver inclusion through empathetic and collaborative communication.

Abstract

Purpose Skilful communication prompts quality patient care. Informal caregivers occupy a crucial role when caring for hospitalised older patients living with frailty. However, skilful communication with both patients and informal caregivers during ward rounds has not been studied. Thus, we aimed to explore communication preferences of patients and informal caregivers during ward rounds.
Methods We conducted semi-structured interviews with hospitalized patients and informal caregivers until information redundancy occurred. We used inductive coding of the transcribed interviews followed by a reflexive thematic analysis.
Results The study included 15 patients and 15 informal caregivers. Patients had a median age of 85 years (range 75–100 years) and seven patients were females. Informal caregivers' median age were 45 years (range 38–80 years) and 13 were females. Three themes were generated: (1) building relationships and conveying information, (2) alleviating informal caregiver strain and (3) sharing the decision-making process. Themes highlighted the importance of collaborative and empathetic approaches in healthcare interactions, emphasizing interpersonal communication skills, such as fostering professional relationships. The interviews unveiled informal caregiver burden stemming from disempowerment during hospital discharge process and

✉ Lene Holst Andersen
lehane@rm.dk

1 Department of Internal Medicine, Randers Regional Hospital, Skovlyvej 15, 8930 Randers, NE, Denmark

2 Department of Geriatric Medicine, Aarhus University Hospital, Aarhus, Denmark

3 Department of Clinical Medicine, Aarhus University, Aarhus, Denmark

4 Postgraduate Medical Education, Region North, Viborg, Denmark

5 Department of Anesthesiology and Intensive Care, Aarhus University Hospital, Aarhus, Denmark

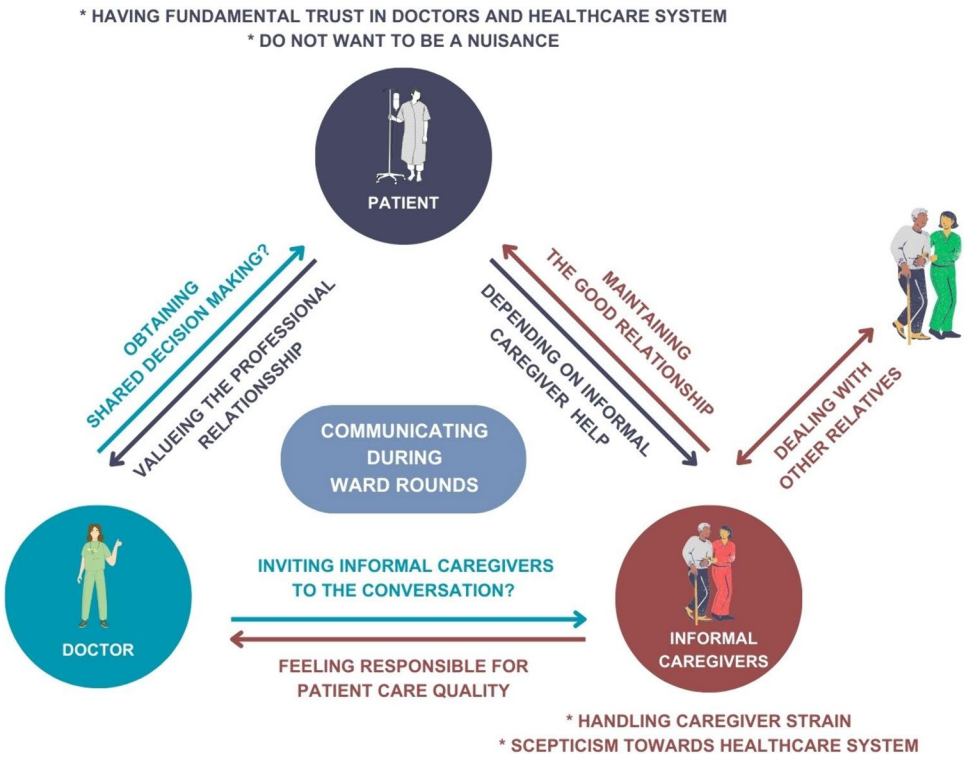
6 MidtSIM, Corporate HR, Central Denmark Region, Aarhus, Denmark

Published online: 04 September 2024

managing mistrust within the healthcare system. The shared decision-making process should address patients' and informal caregivers' needs and circumstances.

Conclusions Communication preferences of a population of older patients living with frailty and informal caregivers during ward rounds encompass interpersonal communication, demonstrating ample time, and being seen as a human being. Informal caregivers value being included in the decision-making process. Skilful communication includes for doctors to recognize informal caregivers' narratives and burdens.

Graphical abstract



Keywords Communication · Qualitative research · Patient-centred care · Family-centred care · Informal caregivers

Introduction

During a hospital stay, important patient care decisions are often made during ward rounds, and skilful communication is needed at these times [1]. Communication is best regarded as a dynamic process influenced by context and by all the individuals involved [2]. Rather than involving a linear transmission of messages, it reflects a complex interaction where people continuously send, receive and adjust messages and meanings [2]. The effectiveness of communication and of information exchange depends on the quality of interaction between participants, their mutual understanding and development of a holistic relationship [3]. It also requires that the individuals concerned can communicate. This may be more difficult for older hospital patients who are frail, with multiple comorbidities and functional decline [4] as well as are acutely unwell and perhaps suffering from conditions such as delirium [5].

Informal caregivers (ICs) are among the individuals who may be involved in ward round communication, as they typically participate during ward rounds or are contacted afterwards. They contribute significantly to patient care by providing valuable insights into patient preferences and assisting with patient discharge [6, 7]. This aligns with the family-centred care perspective, a holistic approach to patient care [8] that has been shown in studies to improve health outcomes and enhance the care experience for both patients and their families. [9, 10]. However, as previously stated, patients' and ICs' communication preferences may differ, which may make effective communication during ward rounds challenging [11]. As such, considering the communication preferences of both patients and ICs is essential to comprehensively understand the requisites for effective

ward round communication, which may ultimately improve patient outcomes and patient safety. However, their communication preferences must be explored holistically instead of merely as verbal actions.

Therefore, in this study, we aimed to explore the communication preferences of older patients living with frailty and of their informal caregivers during the patients' hospitalisation, and to analyse such preferences in light of holistic communication. Such knowledge can inform the development of family-centred education of healthcare personnel (HCP) on effective ward round communication for patient outcomes and patient safety.

Methods

Study design

Exploring the communication preferences of older patients living with frailty and of ICs during the patients' hospitalisation required a qualitative study design that involved semi-structured individual interviews with such patients and ICs [12]. A phenomenological approach was also used to explore and interpret lived experiences of ward round communication [13]. This study was conducted according to the COnsolidated criteria for REporting Qualitative research (COREQ) guidelines for reporting qualitative research studies (see Appendix 1) [14]. The interview guide was developed in collaboration with elderly councils in the municipalities of Randers and Aarhus in Denmark to ensure that it would adhere not only to the scientific literature but also to the viewpoints of such elderly councils [15]. Two pilot interviews were conducted, after which the interview guide was slightly modified. The final interview guide is presented in Appendix 2. The principal investigator, LA, conducted all the interviews.

Danish healthcare system

Individuals registered in the Danish Civil Registration System and whose place of residence is Denmark are permitted to access all public healthcare services in the country, including hospital admittance [16]. Healthcare coverage is tax-based. General practitioners function as the gatekeepers to these services in hospitals, unless the patient is admitted due to an acute condition, via an emergency call.

Recruitment of study participants

Convenience sampling was used to identify potential patient and IC interviewees for this study. Patients were recruited from inpatients in the Geriatric Department of Aarhus University Hospital, an 850-bed university teaching hospital, and in the Medical Department of Randers Regional Hospital, a 191-bed regional teaching hospital. Both hospitals are in the Central Denmark Region and are city-based hospitals serving both urban and rural populations. The patient inclusion criteria were as follows: (1) 65 years of age or older, (2) suffering from frailty according to the Clinical Frailty Scale, with a score of 5–8 [17, 18] and (3) able to give their informed consent to participate in this study. ICs of inpatients in the aforementioned departments of the two hospitals were also recruited for this study. They were either contacted by phone after the patients gave their informed consent to their ICs' participation in this study, or approached face to face if they were at the hospital. Both the patients and the ICs were briefed on this study's purpose and methods orally and in writing, after which they were given time to consider if they would participate in this study.

Data collection

The interviews were conducted from November 2022 to June 2023. The patients were interviewed in the hospital, and the ICs were interviewed in the hospital, on the phone or at their home, whichever they found convenient. The interviews were audio-recorded, transcribed verbatim and anonymised for subsequent analysis.

Data analysis

Reflexive thematic analysis was employed to identify key themes from the interview responses, using an inductive coding process [19]. The six-step process used was aimed at generating thematic patterns across the dataset based on the study's aim [20]. To ensure coding quality, RDJ, MS and KK, who are all experienced qualitative researchers, worked with LA to code the first four interviews. LA coded the remaining interviews independently, and LA and RDJ refined the themes iteratively. When information redundancy occurred, no more interviews were conducted [21]. Data analysis was performed using NVivo 14.0 (Lumivero) [22].

Ethics

This study was approved by the Institutional Review Board of Aarhus University, Aarhus, Denmark (2023–002). All the interviewees gave their oral and written informed consent to participate in this study.

Table 1 Participant characteristics, $n = 30$

Characteristics	*n* (%) or median (range)	
	Patients	Informal caregivers
Study participants	15	15
Age, years	85 (75–100)	59 (49–77)
Gender		
Male	8 (53%)	2 (13%)
Female	7 (47%)	13 (87%)
Residency		
House/apartment	13 (87%)	–
Senior housing	1 (7%)	–
Nursing home	1 (7%)	–
Receives homecare	14 (93%)	–
CFS	6 (5–8)	–
Inpatient hospital admissions during the last 24 months	3 (1–11)	–
Relationship with patient		
Partner	–	2 (13%)
Son/daughter	–	11 (73%)
Other family	–	2 (13%)
Place of interview		
Hospital	15 (100%)	1 (7%)
At home	–	3 (20%)
Over the telephone	–	11 (73%)

CFS clinical frailty scale

Results

A total of 30 interviews were conducted, equally divided between older patients living with frailty and ICs. Information on the study participants can be found in Table 1. The median interview length (minimum and maximum range) with each of the patients was 32 min (18–47 min), and with each of the ICs, 40 min (26–87 min).

Building relationships and conveying information

In the context of ward rounds, the patients highlighted that their doctors sought not only to simply convey information to them but also to build a trusting relationship with them. This underscores how doctors focusing on fostering relationships can make patients feel comfortable. However, the ICs emphasised the conveyed information and their feeling of being heard rather than the interpersonal relationships. As such, information to ICs could be effectively delivered by the doctor or a nurse who is familiar with the patient.

> IC 14/Daughter: 'It's just additional information that one might desire. It shouldn't just go through [the patient]. It would have been nice if there had been someone else [other than the doctor] to inform us. But I know it's a busy department. [...] Someone should have informed us when we were visiting'.

The patients often highlighted the critical role of ICs, especially spouses, when doctors convey information regarding patient care. For most of the patients, ICs are essential resources and translators between them and HCP to help them understand and remember the HCP's messages during ward rounds. The patients expected some ICs to know everything about their medical history, even the information that they withheld. The ICs speculated that patients withheld information either because they wanted to keep it private, or they did not want to be a nuisance. Other patients were very explicit about using ICs to speak up and challenge doctors' treatment plans.

> Patient 12: 'Now, I'm probably not the one who makes the most fuss but thank God I have a son who can make fuss for me, and he does that well'.

Both the patients and ICs highlighted the importance of aligning the level of information with patients' preferences and current conditions. They added that this often necessitates understanding patients' resources outside the hospital setting. Some ICs mentioned that the information they provided at the patient's hospital admission was essential, as patients were sometimes unable to communicate due to fatigue or delirium. Consequently, ICs felt it was important for doctors to engage in conversations with them and be available for information exchange. This IC perspective, which might differ somewhat from that of the patients, was considered essential for providing a complete picture of the patient's needs. This was rooted in their sense of responsibility, because most patients, regardless of their cognitive state, struggled to communicate their care plans to their ICs with sufficient details. The ICs emphasised that doctors need skills in incorporating ICs' perspectives in their patient care plans and in explicitly using IC-provided information.

> IC 4/Daughter: 'I was listened to, and what I said was used in the short summary that the doctor made. My knowledge was utilised, and I couldn't be more satisfied. I wasn't excluded'.

The patients largely valued doctors who formed an alliance with them and emphasised mutual goals for the patient's treatment and well-being. Many of the patients utilised terms such as 'we' or 'us' when referring to factors that affected their well-being, underscoring the importance of doctors' prioritisation of the establishment of a patient–doctor relationship.

> Patient 7: 'He [the doctor] was down to earth and could explain what was happening. Even though he was not a craftsman like me, we had a good conversation and were able to discuss things'.

Some of the patients expressed feelings of alienation when doctors failed to perceive them as individuals, which also tended to incite frustration and anger among the ICs. For example, Patient 3 commented, 'Even if I can't see properly, they can still talk to me, and I can answer. They forget that you are a human being'. Likewise, according to most of the patients and ICs, doctors should be aware of patients' feelings of being subject to a system that they may not comprehend or that they may feel subordinate to. Patient 6 said, 'Sometimes I try to speak up, but it doesn't always help. After all, they are the ones who are right, not me'.

Conversations about existential topics, such as attitudes towards do-not-attempt-cardiopulmonary-resuscitation (DNACPR) decisions, seemed less stressful for most of the patients. In addition, some patients noted that discussing death and other existential topics was challenging for their informal caregivers (ICs). However, this was not mentioned by the ICs. On the other hand, the ICs empathetically stated that based on their own experiences, honesty is their preferred means of communicating bad news or handling advanced directives, including from doctors. Most of the ICs preferred that the doctor initiate this talk.

> IC 5/Partner: 'You get to know what it [the cancer diagnosis] is all about. What do we do from here, what is the prognosis, what are the long-term consequences. Simply facts. In a kind, matter-of-fact and compassionate way, without it turning into hugs and tears'.

As for surrogate decisions for DNACPR decisions, the ICs emphasised that the doctor should explicitly explore ICs' knowledge of patients' preferences, as this would minimise the IC's strain. Furthermore, most of the patients considered the burden on the IC after the patient's resuscitation and did not want to be a nuisance, which may have led some patients to decline resuscitation attempts.

> Patient 11: 'But the second time [I was asked about my DNACPR decision], I said I only wanted to be kept alive if there is a meaning to it. [...] And another thing is that [my spouse] should not have the responsibility of getting me into a nursing home'.

Alleviating informal caregiver (IC) strain

The ICs frequently conveyed significant levels of burden and concerns, notably highlighting their challenges associated with the discharge process. This encompassed managing home care responsibilities and ensuring that the patient's residence was adequately prepared, often while experiencing the additional strain of attending to other family members' needs.

> IC 12/Daughter: 'So, what I've felt pressured and stressed about is that I've kind of felt like it was all on me; that I had to bear my mother's stress over this situation. [...] So, I've felt like I'm the one who's had to hold it all together and then accommodate other people's frustration'.

Although the patients relied heavily on the support of their ICs during their hospitalisation, they often hesitated to impose burdens on their ICs, reflecting their reluctance to be a nuisance. Additionally, they frequently affirmed their fundamental trust in medical authorities, as exemplified by their acceptance of doctors unilaterally determining their care plan without seeking their informed consent.

> Patient 5: 'No [I wasn't asked about a treatment], but I reckon it's all fine. […] I'm entirely comfortable with that'.

On the other hand, the ICs often shared their encounters with an overburdened healthcare system—a system that demonstrated minimal compliance with directives pertaining to patient care during a patient's hospital admission. Furthermore, the ICs often felt deprioritised by HCP due to their lack of information on patient care.

> IC 14/Daughter: 'Sometimes [we] don't get prioritised at all. [...] I think it's been frustrating, especially when [the patient] was hospitalised and he felt really bad'.

Navigating their lack of trust in the healthcare system and, consequently, also in doctors, was a source of stress for most of the ICs. They stated that this issue of lack of trust could be alleviated through doctors' demonstration of genuine interest in their patient's story and their good preparation.

> IC 10/Daughter: 'They actually knew what was in her medical record. They knew what it was about when they showed up at the ward. They had read everything that had happened before. So, we felt completely safe, and a weight was lifted off my shoulders'.

Most of the ICs stressed their role as an advocate and their responsibility to ensure quality of care for their patient, as illustrated by IC 12/Daughter, who stated: 'And then, I can just see the course of illness he [the patient] has had. Well, he would have been sent home without follow-up if I didn't do anything. […] So, I feel like I have to double-check all the time'. However, when time was limited, the ICs prioritised their patients' needs, which might have conflicted with their desire for active participation during ward rounds. In addition, assuming primary responsibility for a hospitalised patient's care plan while feeling excluded from crucial information posed significant challenges for many of the ICs in their supportive role.

IC/Daughter 10: 'Had we not been there, she would not have been able to get help [from the ward]. It was tough'.

Both the patients and the ICs noted that doctors' demonstration of ample time and patience was of great importance to the patients. The patients typically valued the time doctors spent with them, focusing more on the amount of time given rather than the quality of information shared during ward rounds. On the other hand, the ICs sought dedicated time from doctors and comprehensive information sharing, including for the ICs' sharing of their version of the story, often referred to as 'the long story'.

IC 12/Daughter: 'There was time enough for the doctor to take the whole story. He didn't just focus on the reason for this hospitalisation, and that was nice'.

Many of the ICs stated that their patients' frailty had led to their frequent hospitalisation and to subsequent changes in their functional abilities and care needs. Therefore, when the ICs were given the opportunity and time to tell 'the long story', their burden decreased.

Sharing the decision-making process

The patients' decision-making preferences were found to encompass a spectrum. While most patients preferred their doctor or IC to decide on their care plan, a few of them preferred to make their own care decisions. This seemed based on their respect for medical authorities.

Patient 1: 'It's the doctor and I [who make the decision]. And here, I know who is the smartest. […] that's why I don't speak up'.

The patients who preferred to be involved in the decision-making process needed to be actively involved in it. Consequently, this was fundamentally the doctor's responsibility. For example, Patient 11 stated, 'What I'm trying to say [is] … I'm trying to get that through to the doctor […]. It is imperative that [the] doctor includes me'. One area in which both the patients and the ICs did not feel included in the decision-making process was regarding the patients' hospital discharge. For some of the patients, this resulted in their lower compliance with their medical treatment.

Patient 6: 'That's probably the problem—that doctors make decisions on my behalf [...] but even if I find it difficult, I do as I please anyway [after my discharge]'.

The patients and the ICs recommended that for them to be part of this decision-making process, doctors should provide patients with few and easily understandable options. The ICs appreciated prompt and comprehensible information, considering their needs, as the discharge process constituted a major burden for them. One strategy for lightening the IC burden was to align expectations and clarify goals to be met before the discharge. However, as some of the ICs mentioned, to some extent, they have an influence on the decisions. IC 4/Daughter said, 'But sometimes, [when she makes decisions about patient care], I nudge her a little. Shouldn't you…? Have you thought about …? We do that together when I call her'.

The patients' inclination to build relationships with their doctors led many of them to express a preference for equal communication with their doctors. On the other hand, many of the ICs, said they could not say what was on their mind in front of the patient, as when they disagreed with the patient, maintaining a good relationship between them was essential. Thus, the ICs valued an opportunity for them to talk with the doctor alone.

IC 15/Daughter: 'So, they asked me if there was anything I wanted to add. Yes, there was a lot, but not while my father was present. I have often found someone out in the hallway and asked that person to request the doctor to call me'.

Some of the ICs noted that doctors sought information or sought to establish an alliance with them that could influence patients to behave in a certain manner, which the staff found advantageous. Likewise, some of the ICs observed that doctors primarily requested their involvement when the patient did not comply with the staff directives. This was particularly evident when the patient had cognitive disabilities, was reluctant to eat or drink sufficiently or neglected their illness. However, as a few patients mentioned, their ICs were sometimes mistaken or overly protective of them.

Discussion

This qualitative analysis of interviews with older inpatients with frailty and ICs identified three themes that encompassed their similar and diverse communication perspectives and needs with regard to ward rounds.

Building relationships and conveying information

The patients emphasised the importance of fostering equal relationships with doctors. This result possibly reflects generational shifts in behaviour, as previous research has suggested that older patients tended to defer more to medical authorities [23]. Fostering equal relationships with patients (i.e., by cultivating interpersonal skills) is embedded in pre- and post-graduate medical education curricula, such as via the CanMEDS role of the Communicator of 'Establish[ing] professional therapeutic relationships with patients and their

families', and plays a dominant part in, for example, nurses' education [24, 25].

The patients added that doctors should not only demonstrate empathy for their patients but should also convey patience with them and a sense of having ample time for them as markers of quality care, which should thus be emphasised in their ward-round communication skills training. Similarly, the patients underlined the importance of doctors' relationship-building skills given the time constraints prevalent in hospital settings, characterised by short admissions, lack of service continuity and busy staff [26]. Nevertheless, as in previous studies, some of the patients in this study were objectified and treated more as tasks to be managed rather than as human beings [27]. Today's healthcare communication with older patients often reflects unequal power dynamics and reinforces stereotypes of frailty and dependency, which is often described as ageism [28, 29]. Implicit stereotyping of older patients in doctors' interactions with them can affect these patients' perceptions and health outcomes [30]. The current study reiterates how condescending behaviour of doctors impacts both patients and their ICs.

We also explored the participants' experiences with DNACPR decisions, as these decisions often occur during ward rounds. Previous studies have found that DNACPR decisions challenge doctors due to the ethical, emotional and legal complexities involved [31, 32]. In the current study, most of the patients did not express discomfort when speaking to their doctors about existential topics, such as death or DNACPR decisions. They regarded death and dying as inevitable and beyond their control. Lloyd et al. (2016) also explored the experiences of older adults living with frailty and approaching death, and the experiences of their ICs, to understand their multidimensional needs and how a palliative approach might be relevant for them [33]. The researchers argued for addressing the subjects' future concerns rather than centring the conversation with them on death. Interestingly, some of the patients in Lloyd et al.'s study noted that their ICs might feel uncomfortable discussing death, a sentiment that contrasted with the ICs of this study's statements. This claim of the patients might have been rooted in their reluctance to be a nuisance to their relatives and to cause them pain [34].

Most of the ICs preferred honesty when discussing DNACPR status with doctors, as found in previous studies [35]. Educating doctors in handling DNACPR decisions is a multifaceted task, oftentimes solely focusing on clinical decision-making skills, rather than, for example, communication or psychological support training [36]. Here, bringing in patients or ICs as educators or evaluators of this task could be advantageous. Similarly, Sivertsen and colleagues found that insufficient communication about the DNACPR decision-making process can lead to distress or feelings of powerlessness among ICs [35]. Furthermore, this could cause strained relationships with healthcare providers and potential long-term psychological effects [35].

Alleviating IC strain

Strain among ICs has been demonstrated in several studies [37–39]. A study in Switzerland found that ICs' feeling of unpreparedness caused their sense of burden [37]. In the current study, however, the ICs almost unanimously reported that the primary source of their strain was their feeling of being responsible for patient care. In Denmark, ICs are often not involved in home care but, instead, manage the patient's transition from the hospital to the home with all relevant stakeholders. Thus, as shown in previous research, ICs' exclusion from the discharge process increases their burden [38]. IC strain may also arise from trust issues. In the present study, we found that younger ICs generally distrusted doctors and the healthcare system more than did older ICs. As previous research indicated, this can lead to severe IC discomfort [39]. Moreover, a Danish study in 2018 explored the collaboration experiences of relatives of older patients with hospital personnel and their involvement in the patients' care and treatment [35]. Similar to the current study, the relatives in that study felt an absence of care and, thus, felt the responsibility for patient care placed on them [35]. In addition, in the current study, the ICs experienced difficulties with being informed during ward rounds. Riffin et al. (2020) highlighted that while such integration of ICs in patient care could help improve patient care, HCP's lack of time to do so is a major barrier [40].

Sharing the decision-making process

In the current study, the patients' preferences regarding their participation in the decision-making for their care varied, so doctors should explicitly ask their patients if they wish to participate in such decision-making [23]. Ekdahl et al. (2010) highlighted how older patients, particularly those living with frailty, juxtaposed their desire to be informed about the decision-making process with their desire to participate in such process [41]. However, in the current study, we did not find a strong inclination towards the belief that being well-informed necessarily translates into active involvement in decision-making. This may be because most of the patients did not perceive themselves as part of the decision-making process or chose not to participate in it. Similarly, Bastiaens et al. (2013) found that many patients among older community-dwelling people in Europe desired to be involved in their own care, but 'their definition of involvement [was] more focused on "[a] caring relationship", "[a] person-centred approach" and "receiving information" than on "active participation in decision making"' [42]. The

'caring relationship' between patients and doctors was an important factor of the patients' feeling of control and well-being, as Nyende et al. (2023) [43].

In the context of the discharge process, where ICs' knowledge is particularly relevant, previous studies indicated a deficiency in shared decision-making practices [38]. If patients and ICs are to be parts of this process, doctors should provide few and easily understandable options to patients. In the current study, when the ICs were invited to join the discharge process, both the patients and they benefitted significantly. Other studies have demonstrated that involving patients and ICs in the shared-decision process regarding hospital discharge enhances care plan efficacy and satisfaction with subsequent arrangements [44].

Finally, we found that ICs may find themselves navigating the complex and changing aspects of paternalism, when the alliance between the doctor and the IC appears to be prioritised over the patient's autonomy. When paternalism is warranted, it requires ICs to collaborate with doctors to foster an alliance that values the patient's voice and preferences as central elements in the decision-making process.

Limitations

The current study had some limitations. First, we managed to have only one patient and one IC who were related. If we had interviewed more patients and ICs who were related, our analysis would have been deeper, as related patients and ICs might have different perspectives from unrelated ones. However, the mostly unrelated patients and ICs in the current study might have been more honest in their interview responses. Second, we were unable to include more than two male ICs, suggesting that most primary ICs are female [45]. This predominance of female over male ICs in our interviews could have affected our analysis, as female ICs have been shown to express more IC burdens than male ICs [46]. Third, as this study was a qualitative study conducted in Denmark, our findings were shaped by cultural factors, including healthcare systems and family structure. Fourth, we interviewed the patients during their hospital stays, which resulted in relatively short interviews. However, we decided to interview patients while they were still hospitalised, because previous studies in comparable contexts had challenges in recruiting patients after their hospital discharge [47].

Conclusion

This qualitative study explored, through interviews, the perspectives of older patients living with frailty and of ICs on ward-round communication. Our analysis generated three themes that covered the perspectives and needs of patients and ICs and highlighted the importance of interpersonal communication between doctors and patients while maintaining a collaborative approach to ICs. These themes are the reliance of the patients in this study on both doctors and ICs for making care decisions, and the ICs' valuing of the recognition of their narratives and burdens and of their inclusion in the decision-making process. These themes emphasise the necessity of tailoring communication to address the unique needs and circumstances of each patient and their IC. This holistic approach could lead to more effective and patient-centred care that will enhance overall patient satisfaction and alleviate IC burden.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s41999-024-01043-5.

Acknowledgements The authors would like to thank the members of Randers' Municipality Elderly Council for providing useful iterations to the interview guide.

Funding Open access funding provided by Aarhus Universitet.

Data availability The data are not available for deposition in a public repository.

Declarations

Conflict of interest The authors report there are no competing interests to declare.

Ethical approval This study was approved by the Institutional Review Board of Aarhus University, Aarhus, Denmark (2023–002).

Informed consent All the interviewees gave their oral and written informed consent to participate in this study.

References

1. Royal College of Physicians (2021) Modern ward rounds: good practice for multidisciplinary inpatient review. London
2. Barnlund DC (1970) A transactional model of communication. Language behavior, vol. 41. De Gruyter Mouton, Boston, pp 43–61
3. Thompson TL, Grant HN (2022) The Routledge handbook of health communication. Routledge, Third

4. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K (2013) Frailty in elderly people. Lancet 381:752–762. https://doi.org/10.1016/S0140-6736(12)62167-9
5. Dent E, Martin FC, Bergman H, Woo J, Romero-Ortuno R, Walston JD (2019) Management of frailty: opportunities, challenges, and future directions. Lancet 394:1376–1386. https://doi.org/10.1016/S0140-6736(19)31785-4
6. Anker-Hansen C, Skovdahl K, McCormack B, Tønnessen S (2018) The third person in the room: the needs of care partners of older people in home care services—a systematic review from a person-centred perspective. J Clin Nurs. https://doi.org/10.1111/jocn.14205
7. Lindhardt T, Bolmsjö IA, Hallberg IR (2006) Standing guard—being a relative to a hospitalised, elderly person. J Aging Stud 20:133–149. https://doi.org/10.1016/j.jaging.2005.06.001
8. Kokorelias KM, Gignac MAM, Naglie G, Cameron JI (2019) Towards a universal model of family centered care: a scoping review. BMC Health Serv Res 19:564. https://doi.org/10.1186/s12913-019-4394-5
9. Dehghan Nayeri N, Gholizadeh L, Mohammadi E, Yazdi K (2015) Family involvement in the care of hospitalized elderly patients. J Appl Gerontol. https://doi.org/10.1177/0733464813483211
10. Bauer JM, Sousa-Poza A (2015) Impacts of informal caregiving on caregiver employment, health, and family. J Popul Ageing 8:113–145. https://doi.org/10.1007/s12062-015-9116-0
11. Doekhie KD, Strating MMH, Buljac-Samardzic M, van de Bovenkamp HM, Paauwe J (2018) The different perspectives of patients, informal caregivers and professionals on patient involvement in primary care teams. Qual Study Health Expect 21:1171–1182. https://doi.org/10.1111/hex.12824
12. Kvale S, Brinkmann S (2014) Interviews: learning the craft of qualitative research interviewing. Sage Publications Inc, Thousand Oaks
13. Davidsen AS (2013) Phenomenological approaches in psychology and health sciences. Qual Res Psychol 10:318–339. https://doi.org/10.1080/14780887.2011.608466
14. Tong A, Sainsbury P, Craig J (2007) Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care 19:349–357. https://doi.org/10.1093/intqhc/mzm042
15. Landsorganisation for de folkevalgte ældreråd i kommunerne. Elderly Councils in Denmark n.d. https://danske-aeldreraad.dk/om-danske-aeldrerad/. (Accessed August 8, 2024).
16. Schmidt M, Schmidt SAJ, Adelborg K, Sundbøll J, Laugesen K, Ehrenstein V et al (2019) The Danish health care system and epidemiological research: from health care contacts to database records. Clin Epidemiol 11:563–591. https://doi.org/10.2147/CLEP.S179083
17. Rockwood K (2005) A global clinical measure of fitness and frailty in elderly people. Can Med Assoc J 173:489–495. https://doi.org/10.1503/cmaj.050051
18. Rockwood K, Theou O (2020) Using the clinical frailty scale in allocating scarce health care resources. Can Geriatr J 23:254–259. https://doi.org/10.5770/cgj.23.463
19. Braun V, Clarke V, Hayfield N, Terry G (2019) Thematic analysis. Handbook of research methods in health social sciences. Singapore, Springer Singapore, pp 843–860
20. Braun V, Clarke V (2022) Thematic analysis: a practical guide. SAGE Publications Ltd, London
21. Braun V, Clarke V (2021) To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. Qual Res Sport Exerc Health 13:201–216. https://doi.org/10.1080/2159676X.2019.1704846
22. Lumivero (2023) NVivo (Version 14) www.lumivero.com n.d.
23. Wrede-Sach J, Voigt I, Diederichs-Egidi H, Hummers-Pradier E, Dierks M-L, Junius-Walker U (2013) Decision-making of older patients in context of the doctor-patient relationship: a typology ranging from "self-determined" to "doctor-trusting" patients. Int J Family Med 2013:1–10. https://doi.org/10.1155/2013/478498
24. Frank JR, Snell L, Sherbino J (2015) CanMEDS 2015. Physician Competency Framework
25. Arnold EC, Boggs KU (2019) Interpersonal relationships: professional communication skills for nurses. Elsevier Health Sciences, Amsterdam
26. Ekdahl AW, Hellström I, Andersson L, Friedrichsen M (2012) Too complex and time-consuming to fit in! Physicians' experiences of elderly patients and their participation in medical decision making: a grounded theory study. BMJ Open 2:e001063. https://doi.org/10.1136/bmjopen-2012-001063
27. Lindberg E, Hörberg U, Persson E, Ekebergh M (2013) "It made me feel human"—a phenomenological study of older patients' experiences of participating in a team meeting. Int J Qual Stud Health Well-Being 8:20714. https://doi.org/10.3402/qhw.v8i0.20714
28. Eliassen AH (2016) Power relations and health care communication in older adulthood: educating recipients and providers. Gerontologist 56:990–996. https://doi.org/10.1093/geront/gnv095
29. WHO (2021) Global report on ageism: executive summary. WHO, Geneva
30. Allen JO (2016) Ageism as a risk factor for chronic disease. Gerontologist 56:610–614. https://doi.org/10.1093/geront/gnu158
31. Bedulli M, Falvo I, Merlani P, Hurst S, Fadda M (2023) Obstacles to patient inclusion in CPR/DNAR decisions and challenging conversations: a qualitative study with internal medicine physicians in southern Switzerland. PLoS ONE 18:e0282270. https://doi.org/10.1371/journal.pone.0282270
32. Walker J, Burke K, Magill N, Van Niekerk M, Wanat M, Hobbs H et al (2021) "Do not attempt cardiopulmonary resuscitation" (DNACPR)—difficulty in discussions with older medical inpatients and their families: a survey of hospital doctors. BMJ Publ Gr. https://doi.org/10.1136/bmjspcare-2021-003151
33. Lloyd A, Kendall M, Starr JM, Murray SA (2016) Physical, social, psychological and existential trajectories of loss and adaptation towards the end of life for older people living with frailty: a serial interview study. BMC Geriatr. https://doi.org/10.1186/s12877-016-0350-y
34. Andersen LH, Jensen RD, Skipper M, Lietzen LW, Krogh K, Løfgren B (2023) Ward round communication with older patients. Clin Teach. https://doi.org/10.1111/tct.13614
35. Sivertsen DM, Lawson-Smith L, Lindhardt T (2018) What relatives of older medical patients want us to know—a mixed–methods study. BMC Nurs 17:32. https://doi.org/10.1186/s12912-018-0304-0
36. Mockford C, Fritz Z, George R, Court R, Grove A, Clarke B et al (2015) Do not attempt cardiopulmonary resuscitation (DNACPR) orders: a systematic review of the barriers and facilitators of decision-making and implementation. Resuscitation 88:99–113. https://doi.org/10.1016/j.resuscitation.2014.11.016
37. da Rocha CG, Perrenoud B, Ramelet AS (2022) Perceptions of burden and preparedness for caregiving among the family caregivers of hospitalised older adults: a cross-sectional study. Geriatr (Switz). https://doi.org/10.3390/geriatrics7010019
38. Erlang AS, Schjødt K, Linde JKS, Jensen AL (2021) An observational study of older patients' experiences of involvement in discharge planning. Geriatr Nurs (Minneap). https://doi.org/10.1016/j.gerinurse.2021.04.002
39. Petriwskyj A, Gibson A, Parker D, Banks S, Andrews S, Robinson A (2014) A qualitative metasynthesis: family involvement in decision making for people with dementia in residential aged

care. Int J Evid Based Healthc 12:87–104. https://doi.org/10.1097/XEB.0000000000000002
40. Riffin C, Wolff JL, Estill M, Prabhu S, Pillemer KA (2020) Caregiver needs assessment in primary care: views of clinicians, staff, patients, and caregivers. J Am Geriatr Soc 68:1262–1270. https://doi.org/10.1111/jgs.16401
41. Ekdahl AW, Andersson L, Friedrichsen M (2010) "They do what they think is the best for me". Frail elderly patients preferences for participation in their care during hospitalization. Patient Educ Couns. https://doi.org/10.1016/j.pec.2009.10.026
42. Bastiaens H, Van Royen P, Pavlic DR, Raposo V, Baker R (2007) Older people's preferences for involvement in their own care: a qualitative study in primary health care in 11 European countries. Patient Educ Couns 68:33–42. https://doi.org/10.1016/j.pec.2007.03.025
43. Nyende A, Ellis-Hill C, Mantzoukas S (2023) A sense of control and wellbeing in older people living with frailty: a scoping review. J Gerontol Soc Work 66:1043–1072. https://doi.org/10.1080/01634372.2023.2206438
44. Preyde M, Macaulay C, Dingwall T (2009) Discharge planning from hospital to home for elderly patients: a meta-analysis. J Evid Based Soc Work 6:198–216. https://doi.org/10.1080/15433710802686898
45. Kim B, Wister A, O'dea E, Mitchell BA, Li L, Kadowaki L (2023) Roles and experiences of informal caregivers of older adults in community and healthcare system navigation: a scoping review. BMJ Open 13:077641. https://doi.org/10.1136/bmjopen-2023-077641
46. Kazemi A, Azimian J, Mafi M, Allen K-A, Motalebi SA (2021) Caregiver burden and coping strategies in caregivers of older patients with stroke. BMC Psychol 9:51. https://doi.org/10.1186/s40359-021-00556-z
47. Hansen TK, Jensen AL, Damsgaard EM, Rubak TMM, Jensen MEJ, Gregersen M (2021) Involving frail older patients in identifying outcome measures for transitional care—a feasibility study. Res Involv Engagem 7:36. https://doi.org/10.1186/s40900-021-00288-9

STUDY II Appendix 1 Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist[a]

No. Item	Guide questions/description		Reported on Page #
Domain 1: Research team and reflexivity			
Personal Characteristics			
1. Inter viewer/facilitator	Which author/s conducted the interview or focus group?	LA	3
2. Credentials	What were the researcher's credentials? E.g., PhD, MD	MD, PhD student	-
3. Occupation	What was their occupation at the time of the study?	PhD student	-
4. Gender	Was the researcher male or female?	Female	-
5. Experience and training	What experience or training did the researcher have?	Experienced clinician, courses on qualitative research and interviewing techniques	-
Relationship with participants			
6. Relationship established	Was a relationship established prior to study commencement?	No	-
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	That she was a doctor, a researcher wanting to improve ward rounds for older patients.	-
8. Interviewer characteristics	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	That she was a geriatric resident.	-
Domain 2: study design			
Theoretical framework			
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Phenomenological approach	3
Participant selection			
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Convenience sampling	3
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Patients were approached face-to-face, informal caregivers often face-to-face, otherwise over the phone	3
12. Sample size	How many participants were in the study?	15 patients and 15 informal caregivers	4
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Many refused to participate because of fatigue	-
Setting			
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Patients at the hospital, informal caregivers at home, the hospital or over the phone	3
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	In one patient interview, a family member was present	-
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	The patient inclusion criteria were over 65 years of age or older, suffering from frailty according to the Clinical Frailty Scale, with a score of 5–8 [17, 18] and (3) able to give informed consent	3

No. Item	Guide questions/description		Reported on Page #
Data collection			
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	The interview guide was pilot tested	3
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	No	-
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Yes	3
20. Field notes	Were field notes made during and/or after the interview or focus group?	Yes	-
21. Duration	What was the duration of the inter views or focus group?	The median interview length (range), patients: 32 min (18–47 min), informal caregivers: 40 min (26–87 min).	4
22. Data saturation	Was data saturation discussed?	Yes	3
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No	-
Domain 3: analysis and findings			
Data analysis			
24. Number of data coders	How many data coders coded the data?	Four researchers coded the first four interviews, LA coded the rest	3
25. Description of the coding tree	Did authors provide a description of the coding tree?	No	-
26. Derivation of themes	Were themes identified in advance or derived from the data?	Derived from data after inductive coding	-
27. Software	What software, if applicable, was used to manage the data?	NVivo	3
28. Participant checking	Did participants provide feedback on the findings?	No	-
Reporting			
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Yes, participant number or role of informal caregiver	4-6
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes	4-6
31. Clarity of major themes	Were major themes clearly presented in the findings?	As three major themes	4-6
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes	6-8

[a]Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

AARHUS UNIVERSITY

Declaration of co-authorship concerning article for PhD dissertations

Full name of the PhD student: Lene Holst Andersen

This declaration concerns the following article/manuscript:

Title:	"They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a qualitative study
Authors:	Lene Holst Andersen, MD Bo Løfgren, MD, PhD Mads Skipper, MD, PhD Kristian Krogh, MD, PhD Rune Dall Jensen, MSc, PhD

The article/manuscript is: Published ☒ Accepted ☐ Submitted ☐ In preperation ☐

If published, state full reference: European Geriatric Medicine (2024): 1-10.

If accepted or submitted, state journal:

Has the article/manuscript previously been used in other PhD or doctoral dissertations?

No ☒ Yes ☐ If yes, give details:

Your contribution

Please rate (A-F) your contribution to the elements of this article/manuscript, **and** elaborate on your rating in the free text section below.

A. Has essentially done all the work (>90%)
B. Has done most of the work (67-90 %)
C. Has contributed considerably (34-66 %)
D. Has contributed (10-33 %)
E. No or little contribution (<10%)
F. N/A

Category of contribution	Extent (A-F)
The conception or design of the work:	C
Free text description of PhD student's contribution ***(mandatory)*** Conception of the study by done by study group. The study protocol has been written by the study group with major contributions from the PhD student.	
The acquisition, analysis, or interpretation of data:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student is the lead investigator and has been main responsible for data collection, analysis and interpretation of the data in collaboration with the last author/study group.	
Drafting the manuscript:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has written the first draft of the manuscript with input from last author.	

Submission process including revisions:	C
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has prepared the final manuscript and submitted the work after academic input and revision by all co-authors.	

Signatures of first- and last author, and main supervisor

Date	Name	Signature
14/1-25	Lene Holst Andersen/first author	
14/1-25	Rune Dall Jensen/last author	
14/1 25	Kasper Glerup Lauridsen/main supervisor	

Date:

14/1-25

Signature of the PhD student

BMC Medical Education

RESEARCH

Open Access

Enhancing ward rounds for older patients with frailty: a modified Delphi process

Lene Holst Andersen[1,2*], Bo Løfgren[1,2*], Mads Skipper[3*], Kristian Krogh[4*] and Rune Dall Jensen[2,5*]

Abstract

Background Despite their prevalence, ward round practices are not well described, leading to challenges in achieving proficiency. We aimed to identify consensus-based content items for conducting ward rounds with older patients with frailty to provide clearer guidelines and enhanced understanding of best practices for medical professionals.

Methods A nationwide Danish five-round Delphi study was conducted during 2023. Geriatric medicine (30) and medical communication (5) experts were invited to participate. The participants' comments and an iterative thematic approach were used to identify and refine content items and themes, after which participants assessed items for consensus. Consensus was defined as 75% of participants voting 7–9 on a 1–9 Likert scale. Items without consensus returned to the next Delphi round with elimination if no consensus was reached after the second assessment.

Results Delphi study response rates were 26(74%), 21(81%), 18(86%), 13(72%), and 11(85%) in Delphi rounds 1–5, respectively. Experts reached consensus on 108 content items on conducting ward rounds with older patients with frailty. Items were organised into four themes: (1) preparing ward rounds, (2) conducting ward rounds, (3) competencies, (4) circumstances related to the patient group. Ward round preparation and the conduction of ward round detailed the process of managing older inpatients with frailty, including conducting a holistic review of patient history and functional status, as well as improving the environment, such as by reducing noise. Competencies and patient circumstances related to the patient group included knowledge, skills, and attitudes to improve ward round quality, including flexibility in terms of reading patient cues and adjusting content to changes in cognition and alertness and knowledge on how to communicate with patients living with cognitive impairment.

Conclusions Geriatric medicine and medical communication experts reached consensus on 108 content items for conducting ward rounds with older patients with frailty. The items were grouped into four themes: preparing for ward

*Correspondence:
Lene Holst Andersen
lehane@rm.dk
Bo Løfgren
bl@clin.au.dk
Mads Skipper
madsskip@rm.dk
Kristian Krogh
krikrogh@rm.dk
Rune Dall Jensen
rune.dall@rm.dk

Full list of author information is available at the end of the article

rounds, conducting ward rounds, required competencies, and patient-related circumstances. The authors believe that this study serves as a valuable resource for medical training and future research.

Keywords Continuous professional development, Ward rounds, Geriatric medicine, Frailty, Curriculum development, Delphi methodology

Introduction

Ward rounds are essential for clarifying diagnoses, coordinating management plans, and monitoring patient progress during hospitalisation [1]. They also establish patient and team goals, plan discharges, and educate healthcare professionals (HCPs) [1]. A patient-centred approach is preferred to ensure patient involvement and shared-decision making [2]. The skills required for effective inpatient care are integral to medical education, but conducting ward rounds is not clearly defined, making it difficult to teach and incorporate into curricula [3, 4].

Hospitalised older patients are increasingly complex due to rising levels of multimorbidity, polypharmacy, and frailty [5, 6]. Despite its recognised importance, managing frailty during ward rounds is challenging, even in medical education in general [1, 7–10]. Frailty, an age-related syndrome characterised by a functional decline in physical, cognitive, and social domains, complicates ward rounds [11]. Patient deterioration, such as delirium or fatigue, challenges communication and patient involvement [7, 12, 13]. Additionally, the nonspecific and subtle symptoms common in this population can make it difficult to identify complaints, potentially leading to misdiagnoses and extended hospital stays [14, 15].

To address these challenges effectively, ward rounds for older patients with frailty must involve collaborative, multidisciplinary, and profession-specific medical assessments, as well as tailored care plans [6]. As the number of older inpatients with frailty rises, there is a need for a collective responsibility for their care [16–18]. Overall, conducting ward rounds for patients with frailty is a complex and frequent task, but inadequate education can lead to improper care for older patients with frailty [19]. Therefore, the purpose of this study was to identify key items for curriculum development on conducting ward rounds for this patient group.

Methods

We applied a modified Delphi methodology to achieve expert consensus on the best practices for conducting ward rounds with older patients with frailty [20, 21]. The process comprised two parts: a focus group interview and a Delphi study conducted from January 2023 to June 2023. We opted not to specify a fixed number of rounds, thereby modifying the traditional Delphi process of three rounds [22]. Following Kern's six-step approach to curriculum development, this study offered a both a general and targeted needs assessment, and further, insights goals and objectives to improve ward rounds (steps 1 to 3) [23].

Study participants

Focus group participants were geriatric doctors with expertise in communication. They were peer-nominated by members of the Danish Geriatric Society and included via convenience sampling. Delphi study participants included geriatric medicine and medical communication experts. Geriatric medicine experts included key opinion leaders, such as medical directors and clinical leads, from all departments with geriatric medicine in Denmark [21]. Medical communication experts were contacted via email and asked to nominate peers. Work experience in the field of study served as a proxy for expertise, and we invited participants with at least five years of field experience [24]. We decided to include 35 participants for the Delphi study to ensure a broad range of perspectives and experiences [25, 26]. Five focus group participants were also invited to the Delphi study. The authors did not participate in any of the processes.

Preparing the Delphi study

A focus group interview was conducted to design the initial round of the Delphi study. The focus group interview was held online for convenience and to secure multiple site attendance. Focus group participants were asked to describe the ward round, competencies needed for undertaking ward rounds, and special circumstances related to older patients with frailty. Participants were asked to be as specific and operationalizable as possible. Medical communication experts were not included in the focus group as these interviews focused on ward round structure and content. The experts were included at the next stage of the Delphi study to refine findings with broader perspectives. The semi-structured interview guide can be found in Additional file 1. The focus group meeting was audio recorded, transcribed verbatim, and inductively coded using NVivo software [27]. The thematic analysis identified overarching themes, which informed the development of the open-ended questions in Delphi Round 1 [28].

The Delphi study

The five-round Delphi study aimed to generate consensus-based content items for conducting ward rounds with older patients with frailty. Frailty was defined using the Clinical Frailty Scale, where a score of 5–8 indicate

Table 1 Study participants

		Focus group interview *n* = 8	Delphi study expert panel *n* = 35
Peer nomination, n	Geriatric Medicine	18	-
	Medical Communication	-	5
Experts in, n (%)	Geriatric Medicine	8 (100)	30 (86)
	Medical Communication	-	5 (14)
Gender, n (%)	Female	5 (63)	23 (66)
	Male	3 (37)	12 (34)
Workplace, n (%)	University hospital	5 (63)	9 (26)
	Regional hospital	3 (37)	23 (66)
	Other		3 (9)

varying levels of frailty [29, 30]. Questions for each round can be found in Additional file 2. Delphi rounds were conducted via email, and participants were given two weeks to respond. Reminders were sent to maximise participation. Proceeding to the next round required a response rate of >60% of the panellists who participated in the preceding round. Only participants who completed the previous round could participate in the proceeding Delphi rounds. In accordance with previous Delphi studies, consensus was defined as >75% of prticipants responding '7–9' to a content item [31]. Items reaching a consensus level below 75% after the second rating were eliminated [31].

Round 1: identifying content items

Round 1 contained six open-ended questions to facilitate a brainstorming phase. Questions covered ward round preparation, conduction, and follow-up. Questions also encompassed competencies required and challenges met during ward rounds. Lastly, participants were asked to list competencies that physicians in training should practice when conducting ward rounds. Using an inductive, thematic approach, all responses were analysed and organised into themes, sub-themes, and content items by authors LA and RD [28].

Rounds 2 and 3: refining content items

Rounds 2 and 3 refined the identified content items from previous rounds. Therefore, each participant had to decide if every content item was adequately described and operationalizable. If not, participants could suggest alternations and were also allowed to add new content items. The refinement process was split into two rounds to reduce participant workload in Round 2, although this resulted in an additional Delphi round. Authors LA and RD revised content items with respect to participant comments and removed items due to merging or redundancy.

Table 2 Response rates per Delphi round

	Round 1	Round 2	Round 3	Round 4	Round 5
Surveyed participants, n	35	26	21	18	13
Responded, n (%)	26 (74)	21 (81)	18 (86)	13 (72)	11 (85)
Geriatric Medicine experts, n (%)	24 (92)	19 (90)	16 (89)	12 (92)	10 (91)

Round 3 to 5: Building consensus

In rounds 3–5, participants were asked to build consensus on refined content items by rating items on a 1–9 Likert scale from 1 being 'Not relevant' to 9 being 'Should be included in the curriculum'. Participants were encouraged to clarify or qualify their responses. Participants could provide additional comments or add content items. Items without consensus returned to the next round with the participants' score, the average agreement score, and the interquartile range.

Results

A total of 8 experts participated in the focus group preparing the Delphi Study and 35 experts were invited to participate in the Delphi study (See Table 1 for participant demographics). Medical communication experts included three consultants in non-geriatric fields, one nurse, and a professor in medical communication with a PhD in medical education. The response rates for each Delphi round appear from Table 2, illustrating a decline in the number of participants from 35 in the first round to 13 in the final round. Reasons for non-response were not formally investigated, and as mentioned in the Methods section, only participants who completed the previous round could participate in the proceeding Delphi rounds.

Generating content items, sub-themes, and themes

Participants generated 129 content items, of which 68 were revised, and 11 were removed due to merging or redundancy. After Round 1, content items were categorised into four overall themes and 22 sub-themes, illustrated in Table 3. Participants proposed no extra themes or sub-themes after Round 1.

Rating content items

First rating of 118 content items included 98 (83%) items. Second rating of 20 content items included 10 (50%) items. Details regarding refinement and the rating process can be found in Additional file 3. The mean rating scores of all content items were 7.0 (of 9.0), with a range of 4.2–9.0. On average, participants placed 2.6 comments pr. content item (ranging 0–14), and Additional file 4 illustrates the data analysis and revision of a content item. In total, 108 (91%) content items were included.

Table 3 Themes and sub-themes generated from round 1 responses

	Themes			
	Preparing ward rounds	**Undertaking ward rounds**	**Competencies**	**Circumstances related to the patient group**
Sub-themes	Current patient state Previous conditions and hospitalisations Treatment and examination planning Patient preparation Interdisciplinary collaboration Settings	Introduction Negotiating agenda Shared decision making Summarising and closing Short- and long-term planning	Adjustment of language to meet patient needs Management of meetings and prioritisation Flexibility Building relationship Credibility/reliability Patient involvement	Patient characteristics Ward round characteristics Patients with cognitive impairments Patients with delirium Relatives/informal caregivers

Additional file 5 contains the entire list of content items included.

Discussion

Based on expert consensus on the best practices for conducting ward rounds with older patients with frailty, four overall themes were identified: Preparing ward rounds, undertaking ward rounds, competencies, and circumstances related to the patient group. Our study addresses a common healthcare activity, and some findings may be generalised to all patients, while others are specific to the unique characteristics of older patients with frailty.

Ward round Preparation

The theme of ward round preparation included a holistic evaluation of patient history, including functional status and medication reviews, and a reflection on how to optimise ward round settings, such as recognising the need for hearing aids and relatives' support. What differentiates our results from other patient groups are the additional focus on the patient's functional level prior to admission, the advanced directives, and the assessment of whether the patient will benefit from intensive care treatment. Our findings support the multidimensional and interdisciplinary process of Comprehensive Geriatric Assessment (CGA). CGA is a well-established tool for managing older admitted patients with frailty [32]. Ellis and colleagues described CGA as "the cornerstones of modern geriatric care" [33]. In addition to the CGA, our study participants highlighted the importance of optimising hospital environments, such as emphasising noise reduction, which may lead to improved overall health with aging [34].

Undertaking ward rounds

Several elements, such as negotiating the agenda, shared decision-making and picking up cues, align with principles in the Calgary-Cambridge guide, a framework for core communication used to structure and assess communication skills between HCPs and patients [35]. The content item, "Ensure that the assessment of caregivers and therapists is included in the joint care plan decided during ward rounds" underlines the multidisciplinary and integrated care, supported by health policies worldwide [36, 37].

Competencies

The subtheme, "Adjustment of language to meet patient needs" aligns with other studies on communication with patients in general [38, 39]. Our study emphasised the necessity of tailoring communication to accommodate the cognitive and emotional capacities of this patient group. Participants in the Delphi study highlighted the critical role of clear, empathetic, and accessible language in fostering patient understanding and involvement. These adjustments in communication are fundamental to delivering high-quality, patient-centred care during ward rounds [40]. The content item, "Keeping agreements, including not promising things you cannot keep, e.g., coming back later in the day" addresses the issue of trust, which is particularly important to older patients [41]. Gaffney and Hamiduzzaman (2022) highlight that how patients see the credibility and trustworthiness of healthcare professionals affects a lot their willingness to talk and participate in clinical communications [42]. Similarly, the content item, "Being realistic on behalf of the patients, but not draining the patients' hopes and showing respect for the patients who want to maintain hope" applies a universal principle. However, older patients might experience higher rates of hopelessness, a factor associated with adverse outcomes [43].

Circumstances related to the patient group

Previous studies suggest that relatives play a substantial role in older patients with frailty admitted to hospital [44, 45]. The sub-theme, "relatives/informal caregivers", handles the complex process of conducting ward rounds while keeping not only the patient's needs in mind. It emphasises respecting confidentiality, aligning perspectives with the patient, and sensitively addressing emotional reactions and family dynamics. Neither the Calgary Cambridge guide, nor the CGA, as previously mentioned, include relatives' significance [32, 46].

Focusing on the patients' deficiencies tends to perpetuate stereotypes of frailty and dependency and could lead to ageism [47]. Ageism, which is prejudice or discrimination on the grounds of a person's age, could lead to adverse outcomes [48]. Thus, we acknowledge that the inclusion of the term 'patient characteristics' has the potential to cause iniquity and stigmatisation among individuals with frailty, as previously mentioned in the literature [10]. However, content items in this theme aimed at enhancing patient safety, such as general knowledge about patients' response to noise disturbances. Long and colleagues (2013) found that older patients are more prone to experiencing patient safety incidents than younger patients, while others have suggested that frailty increases the risk of adverse events [49, 50]. Including a metatext following the content items list could be advantageous in highlighting physicians' personal knowledge, awareness, and intentions towards diminishing instances of ageism. This holds particularly true in graduate medical education (GME), where geriatric education is not necessarily included in educational programs [51]. As Farrell (2023) states, "Health professions students [in GME] should also understand both the historical context of ageism and its associated harms" [52].

Operationalizability of content items

Unfortunately, a large amount of evidence-based research lacks implementation [53]. One reason for this might be the gap between research-based best clinical practice and the actual behaviour of physicians, implying that behavioural change is challenging [54]. We recognise that managing 108 content items while conducting ward rounds may present a significant challenge. Future research should focus on evaluating the practicality of this content list. By utilising Kern's six-step model for curriculum development, the content items provide the general and targeted needs assessment for improving the practice of conducting efficient ward rounds. To deepen the understanding and perspectives on conducting ward rounds, we have conducted a literature study and an interview study involving patients and caregivers [7, 55]. Building on these findings, the subsequent steps include the co-design of a cognitive aid in collaboration with patient representatives. This cognitive aid will then be implemented and its effect on ward rounds evaluated through further studies [23]. When adapting this study's findings to local practices, engaging local stakeholders is essential to ensure the final list of content items reflects and integrates the unique needs and characteristics of the local context.

Lastly, we recognise the importance of integrating these content items into resident training programs and national guidelines for ward round practices. While colleagues in Germany have developed an EPA for Internal Medicine ward rounds, it serves as a behavioural checklist rather than an EPA that incorporates stepwise progression of learners' competencies [56]. As a next step, the development of an Entrustable Professional Activity (EPA) specifically tailored to ward rounds for older patients with frailty seems relevant [57].

Limitations

This study has several limitations. A key limitation of this study is the exclusion of multidisciplinary staff, which have restricted interprofessional perspectives on ward rounds. However, a nurse was represented among the medical communication experts who completed all five Delphi rounds. The sampling of Delphi study participants has no standardised protocol, and the study may have favoured a geriatric opinion in rating of items, as peer nomination only resulted in five medical communication experts. However, the iterative nature of Delphi studies allows participants to reassess and refine their judgments based on feedback from other panellists and the close alignment to the Calgary Cambridge Guide reflects the involvement of the medical communication experts [21]. Another limitation of the study participant sample is the reliance on senior specialists only among geriatric experts, as this may have perpetuated a paternalistic approach. It is important to recognise that involving a broader group of participants could result in different set of content items.

The decline in participants from 35 to 13 across Delphi rounds is an important limitation. While this is a common challenge in Delphi methodology, often reflecting the time-intensive nature of the process and participant fatigue, it may impact the generalisability of the findings [21]. However, as high-performing doctors are more likely to participate, the later rounds likely reflect input from those most invested in the topic, enhancing its relevance [58]. However, the five-round Delphi process was important for moderating content items with participants' feedback, as items were revised during the following round before being assessed for consensus.

Although research implies that the perspectives of patients and relatives may differ from the perspectives of HCPs, no patient or relatives were included in the present study [59]. Nonetheless, this study is an important first step towards creating a framework for conducting more efficient ward rounds with older patients with frailty. Hence, studies on the perspectives of patients and relatives should be made to build on the findings from the present study.

Conclusions

We identified 108 content items for conducting ward rounds with older patients living with frailty, which were categorised into four themes: Preparing ward rounds,

undertaking ward rounds, competencies, and circumstances related to the patient group. Preparing and conducting ward rounds described the management of the ward round. Competencies and circumstances included knowledge, skills, and attitudes to improve ward round quality. This study addresses both theoretical and practical aspects of holistic care, aiming to bridge educational goals with clinical practice. Our findings provide a comprehensive foundation for developing training programs equipping HCPs to handle the complexities of managing ward rounds in older patients with frailty. However, further validation and refinement through multidisciplinary and patient/carer involvement are needed to ensure a more comprehensive and inclusive foundation.

Abbreviations

CanMEDS	Canadian Medical Education Directives for Specialists
CGA	Comprehensive Geriatric Assessment
DNACPR	Do not attempt cardiopulmonary resuscitation
GME	Graduate Medical Education
HCP	Healthcare professionals

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12909-025-07005-0.

Supplementary Material 1

Supplementary Material 2

Supplementary Material 3

Supplementary Material 4

Supplementary Material 5

Acknowledgements
The authors would like to acknowledge all study participants for their participation. Namely, Geriatricians, Catherine Hauerslev Foss, Aarhus University Hospital, Martin Schultz, Amager and Hvidovre Hospital, Solveig Henneberg Pedersen, Holbæk Hospital, Susanne Stabel Green, Herlev and Gentofte Hospital, and Tina Carlsen, Slagelse Hospital, for their continuous feedback and participation throughout the study.

Author contributions
LA wrote the main manuscript text. All authors reviewed the manuscript.

Funding
The study received funding from Graduate Medical Education, Central Denmark Region, Viborg, Denmark and Randers Regional Hospital, Randers, Denmark.

Data availability
The datasets generated and analysed during the current study are available in the "figshare" repository, available at https://doi.org/10.6084/m9.figshare.24899412.v1.

Declarations

Ethics approval and consent to participate
The Regional Ethics Committee of the Central Denmark Region exempted the study from ethical approval under Danish law, i.e. according to the Act on Research Review of Health Research Projects (reference number: 1-10-72-207-22). The study was conducted in accordance with the principles of the Declaration of Helsinki. Delphi study participants gave informed consent to participate.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Author details
[1]Department of Medicine, Randers Regional Hospital, Skovlyvej 15, Randers, NE DK-8930, Denmark
[2]Department of Clinical Medicine, Aarhus University, Nordre Ringvej 1, Aarhus C DK-8000, Denmark
[3]Postgraduate Medical Education, Northern Region Skottenborg 26, Viborg DK-8800, Denmark
[4]Department of Anaesthesiology and Intensive Care, Aarhus University Hospital, Palle Juul-Jensens Boulevard 35, Aarhus N DK-8200, Denmark
[5]MidtSIM, Central Denmark Region, Hedeager 2, Aarhus N DK-8200, Denmark

Received: 4 November 2024 / Accepted: 12 March 2025
Published online: 27 March 2025

References

1. Royal College of Physicians. Modern ward rounds: Good practice for multidisciplinary inpatient review. London, UK; 2021.
2. Grover S, Fitzpatrick A, Azim FT, Ariza-Vega P, Bellwood P, Burns J, et al. Defining and implementing patient-centered care: an umbrella review. Patient Education and Counseling. Volume 105. Elsevier Ireland Ltd; 2022. pp. 1679–88.
3. Bejarano G, Csiernik B, Young JJ, Stuber K, Zadro JR. Healthcare students' attitudes towards patient centred care: a systematic review with meta-analysis. BMC Med Educ. 2022;22(1).
4. Hearn J, Dewji M, Stocker C, Simons G. Patient-centered medical education: A proposed definition. Med Teach. 2019;41(8):934–8.
5. Nobili A, Garattini S, Mannucci PM. Multiple diseases and polypharmacy in the elderly: challenges for the internist of the third millennium. J Comorb. 2011;1(1).
6. Dall TM, Gallo PD, Chakrabarti R, West T, Semilla AP, Storm MV. An aging population and growing disease burden will require A large and specialized health care workforce by 2025. Health Aff. 2013;32(11).
7. Andersen LH, Jensen RD, Skipper M, Lietzen LW, Krogh K, Løfgren B. Ward round communication with older patients. Clin Teacher. 2023.
8. Dent E, Martin FC, Bergman H, Woo J, Romero-Ortuno R, Walston JD. Management of frailty: opportunities, challenges, and future directions. Lancet. 2019;394(10206):1376–86.
9. Winter R, Pearson GME. Exploring the challenges of frailty in medical education. J Frailty Aging. 2023;12(2):134–8.
10. Mudge AM, Hubbard RE. Frailty: Mind the gap. Age Ageing. 2018;47(4):508–11.
11. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K. Frailty in elderly people. Lancet. 2013;381(9868):752–62.
12. Roh H, Park KH. A scoping review: communication between emergency physicians and patients in the emergency department. J Emerg Med. 2016;50(5):734–43.
13. Bastiaens H, Van Royen P, Pavlic DR, Raposo V, Baker R. Older People's preferences for involvement in their own care: A qualitative study in primary health care in 11 European countries. Patient Educ Couns. 2007;68(1):33–42.
14. Schoevaerdts D, Sibille FX, Gavazzi G. Infections in the older population: what do we know? Aging Clinical and Experimental Research. Volume 33. Springer Science and Business Media Deutschland GmbH; 2021. pp. 689–701.
15. Kemp K, Mertanen R, Lääperi M, Niemi-Murola L, Lehtonen L, Castren M. Nonspecific complaints in the emergency department - A systematic review. Volume 28. Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine. BioMed Central Ltd.; 2020.
16. Rechel B, Grundy E, Robine JM, Cylus J, MacKenbach JP, Knai C, et al. Ageing in the European union. The Lancet. Volume 381. Lancet Publishing Group; 2013. pp. 1312–22.

17. Michel JP, Ecarnot F. The shortage of skilled workers in Europe: its impact on geriatric medicine. European Geriatric Medicine. Volume 11. Springer; 2020. pp. 345–7.
18. Oksuzyan A, Höhn A, Pedersen JK, Rau R, Lindahl-Jacobsen R, Christensen K. Preparing for the future: the changing demographic composition of hospital patients in Denmark between 2013 and 2050. PLoS ONE. 2020;15(9 September).
19. Higashi RT, Tillack AA, Steinman M, Harper M, Johnston CB. Elder care as frustrating and boring: Understanding the persistence of negative attitudes toward older patients among physicians-in-training. J Aging Stud. 2012;26(4).
20. Dalkey N. An experimental study of group opinion. Futures. 1969;1(5).
21. Hsu CC, Sandford BA. The Delphi technique: making sense of consensus. Practical Assess Res Evaluation. 2007;12:10.
22. Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi survey technique. J Adv Nurs. 2000;32(4).
23. Thomas PA, Kern DE, Hughes MT, Chen BY. Curriculum development for medical education: A Six-Step approach. 3rd ed. Baltimore: Johns Hopkins University; 2016.
24. Jorm AF. Using the Delphi expert consensus method in mental health research. Australian New Z J Psychiatry. 2015;49(10):887–97.
25. Kopf RS, Watts PI, Meyer ES, Moss JA. A Competency-Based curriculum for critical care nurse practitioners' transition to practice. Am J Crit Care. 2018;27(5).
26. Krueger RA, Casey MA. Chapter 4: Participants in a Focus Group. In: Focus Groups: A Practical Guide for Applied Research. 4th edition. SAGE publications, Inc.; 2009. pp. 63–84.
27. Lumivero. (2023) NVivo (Version 14) www.lumivero.com.
28. Braun V, Clarke V. In: Braun V, Clarke V, editors. Thematic analysis: a practical guide. London: SAGE Publications Ltd; 2022.
29. Fournaise A, Nissen SK, Lauridsen JT, Ryg J, Nickel CH, Gudex C, et al. Translation of the updated clinical frailty scale 2.0 into Danish and implications for cross-sectoral reliability. BMC Geriatr. 2021;21(1):269.
30. Rockwood K. A global clinical measure of fitness and frailty in elderly people. Can Med Assoc J. 2005;173(5):489–95.
31. Diamond IR, Grant RC, Feldman BM, Pencharz PB, Ling SC, Moore AM, et al. Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. J Clin Epidemiol. 2014;67(4):401–9.
32. Ellis G, Gardner M, Tsiachristas A, Langhorne P, Burke O, Harwood RH et al. Comprehensive geriatric assessment for older adults admitted to hospital. Cochrane Database Syst Reviews. 2017;2017(9).
33. Ellis G, Langhorne P. Comprehensive geriatric assessment for older hospital patients. Br Med Bull. 2005;71(1):45–59.
34. Mate KS, Berman A, Laderman M, Kabcenell A, Fulmer T. Creating Age-Friendly health Systems – A vision for better care of older adults. Healthcare. 2018;6(1):4–6.
35. Silverman J, Kurtz S, Draper J. Skills for communicating with patients. Third. London: Radcliffe Publishing Ltd; 2013.
36. Kjelsnes A, Feiring A. E. Models of integrated care for older people with frailty: a horizon scanning review. BMJ open. Volume 12. NLM (Medline); 2022. p. e060142.
37. Malone ML, Boltz M, Tejada JM, White H. Geriatrics Models of Care. 2024.
38. Jack K, Ridley C, Turner S. Effective communication with older people. Nurs Older People. 2019;31(4):40–8.
39. Weber H, Stöckli M, Nübling M, Langewitz WA. Communication during ward rounds in internal medicine. Patient Educ Couns. 2007;67(3):343–8.
40. Levinson W. Patient-centred communication: A sophisticated procedure. BMJ Qual Saf. 2011;20:823–5.
41. Kar B, Satpathy S. Trust between physicians and older patients: review and qualitative study. J Geriatr Care Res. 2021;8(2).
42. Gaffney HJ, Hamiduzzaman M. Factors that influence older patients' participation in clinical communication within developed country hospitals and GP clinics: A systematic review of current literature. PLoS ONE. 2022;17(6 June).
43. Hartmann Júnior JAS, de Farias Fernandes ALA, de Medeiros P, de Vasconcelos AGA, de Amorim CAC, de Queiroga LLL et al. MF,. Hopelessness in the elderly: a systematic review. MOJ Gerontology & Geriatrics. 2018;3(4).
44. Lambotte D, Kardol MJM, Schoenmakers B, Fret B, Smetcoren A, De Roeck EE, et al. Relational aspects of mastery for frail, older adults: the role of informal caregivers in the care process. Health Soc Care Community. 2019;27(3):632–41.
45. Bookman A, Harrington M, Family Caregivers. A shadow workforce in the geriatric health care system?? J Health Polit Policy Law. 2007;32(6):1005–41.
46. Kurtz S. The Calgary-Cambridge referenced observation guides: an aid to defining the curriculum and organizing the teaching in communication training programmes. Med Educ. 1996.
47. World Heath Organization. Ageism is a global challenge: UN [Internet]. 2021 Mar [cited 2024 Dec 21]. Available from: https://www.who.int/news/item/18-03-2021-ageism-is-a-global-challenge-un
48. Allen JO. Ageism as a risk factor for chronic disease. Gerontologist. 2016;56(4):610–4.
49. Long SJ, Brown KF, Ames D, Vincent C. What is known about adverse events in older medical hospital inpatients? A systematic review of the literature. Int J Qual Health Care. 2013;25(5):542–54.
50. Schouten B, Merten H, Spreeuwenberg PMM, Nanayakkara PWB, Wagner C. The incidence and preventability of adverse events in older acutely admitted patients: A longitudinal study with 4292 patient records. J Patient Saf. 2021;17(3):166–73.
51. Singler K, Holm EA, Jackson T, Robertson G, Müller-Eggenberger E, Roller RE. European postgraduate training in geriatric medicine: data of a systematic international survey. Aging Clin Exp Res. 2015;27(5):741–50.
52. Farrell TW. Ageism as a barrier to eliciting what matters: A call for multigenerational action to confront the invisible -ism. J Am Geriatr Soc. 2023;71(10):3024–7.
53. Chalmers I, Glasziou P. Avoidable waste in the production and reporting of research evidence. Lancet. 2009;374(9683):86–9.
54. Grimshaw JM, Eccles MP, Walker AE, Thomas RE. Changing physicians' behavior: what works and thoughts on getting more things to work. J Continuing Educ Health Professions. 2002;22(4):237–43.
55. Andersen LH, Løfgren B, Skipper M, Krogh K, Jensen RD. They forget that I'm a human being—ward round communication with older patients living with frailty and informal caregivers: a qualitative study. Eur Geriatr Med [Internet]. 2024; Available from: https://link.springer.com/https://doi.org/10.1007/s41999-024-01043-5
56. Schmelter V, März E. Ward rounds in internal medicine: validation of an entrustable professional activity (EPA) observation checklist. GME J Med Educ. 2018;35(2).
57. Chen HC, Van Den Broek WES, Ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Academic Medicine. Volume 90. Lippincott Williams and Wilkins; 2015. pp. 431–6.
58. Elston DM. Participation bias, self-selection bias, and response bias. J Am Acad Dermatol. 2021.
59. van Seben R, Smorenburg SM, Buurman BM. A qualitative study of patient-centered goal-setting in geriatric rehabilitation: patient and professional perspectives. Clin Rehabil. 2019;33(1):128–40.

Publisher's note

Study III Additional file 1 - Focus group interview guide

Overall subject	Questions - definition of the topic	Help questions
Ward rounds (WRs) with older patient with frailty (OPLWF)	What are quality WRs for OPLWF? How do WRs differ with OPLWF compared to other patient groups? What is the doctor's desired outcome of WR? Describe the challenges of WRs with OPLWF as opposed to WRs in other patient groups	Is the purpose of OPLWF WRs defined differently? How many messages can OPLWF remember? What is the patient's desired outcome of the WR? What are the special circumstances of OPLWF's WRs?
Basic communication skills	What should a consultant be able to do when undertaking WRs w/OPLWF? "Adapt your own communication to suit the patient's level of understanding and language" - what does it look like? "Achieve respectful relationship" - does it look different? "Relationship work" - does it look different with OPLWF's WRs? "Informed consent" - different with OPLWF's WRs? "Asking about social conditions" - different with OPLWF's WRs?	What communication skills are needed in relation to WRs with OPLWF What is the challenge of informed consent with OPLWF?
Patient satisfaction	How is patient satisfaction achieved with OPLWF? How can we measure patient satisfaction at OPLWF WRs? How do we teach doctors how to achieve patient satisfaction at WRs? How can the doctor tell whether the patient experiences patient satisfaction?	Does patient satisfaction differ with OPLWF?
Patient's perspective	How is OPLWF different from other patient groups? How to examine the patient's perspective? "Examine patient needs" - different with OPLWF? "Co-decision" - what does it look like from the OPLWF's perspective?	Need for involvement, information etc.
Phases and WR structure	Is there a difference between the different phases and structure of WRs w/OPLWF compared to other patient groups? "Give the patient the opportunity to prepare for the round" - what does it look like with OPLWF? "What does the good introduction look like at OPLWF's WRs"	(intro, collecting info, planning, completion)
The doctor's attitude and personal skills	What attitudes and personal skills of doctors are needed at WRs with OPLWF? What does professionalism look like at OPLWF's WRs? What is the "ability to stay focused in the conversation" especially like with OPLWF? "Using authority and influence responsibly" with OPLWF's WRs?	

Special circumstances	What special circumstances with OPLWF can you think of? "Empowerment" - what does it look like with OPLWF? "Patient disagrees with treatment plan" - Δ OPLWF?	Delivery of bad news - different with OPLWF? The conversation about death?
Relatives of the patient	What should a consultant be able to do in relation to communication with relatives of OPLWF? What special circumstances exist for WR in relation to relatives and OPLWF? "Involves the needs of the patient and relatives" - is it different with OPLWF? "Clarify the roles of relatives" - different w/OPLWF?	
Interdisciplinary collaboration	How is the interdisciplinary collaboration different at OPLWF WRs? What should a consultant be able to do to ensure a good interdisciplinary collaboration during WRs with OPLWF? What attitudes of the doctor favours interdisciplinary collaboration?	What are the challenges of OPLWF and interdisciplinary collaboration?

Special patient groups - which patient groups require special communication or behaviour by a consultant or doctor in training?		
Patient group or illness	Question	Help questions
Delirium	Drag these patient categories into the questions above	
Dying patients		
Patients with cognitive deficits		
Patients with different cultural backgrounds		

Study III Additional file 2 - Questions for Delphi round 1-3

Round 1

In the following, we will ask you to describe the ward round for the older patient with frailty, including how it differs from ward rounds with other patient groups.
Competences encompasses knowledge, skills, and attitudes that the doctor must possess to conduct the optimal ward round.

1) How would you describe the optimal ward round for the older patient with frailty?
2) What communicative competencies should a specialist possess to conduct the optimal ward round for the older patient with frailty?
3) What challenges are there in the ward round for the older patient with frailty compared to other patient groups?

The ward round can be divided into three phases:
a) Preparation of ward rounds
b) The ward round itself, i.e., the meeting with the patient and possibly relatives
c) Conclusion and follow-up after the ward round

In the following, we ask you to only consider the preparation of ward rounds + conclusion and follow-up.

4) What does the preparation for the optimal ward round for older patients with frailty encompass?
5) What does the conclusion and follow-up of the conversation for the optimal ward round for older patients with frailty encompass?

In the following, we ask you to draw on your clinical experience working with residents or junior doctors. If you do not work with residents or junior doctors, you can disregard this question

6) What skills can internal medicine residents benefit from training in to conduct the optimal ward round for older patients with frailty?

Round 2

You should assess here whether the listed content items need further elaboration, and if any content items are missing. Therefore, you must regard each content items if:
a) The sub-element is understandable and can be used by doctors in its current form or
b) The sub-element needs further elaboration
When choosing b) a free text option is given

Round 3 - 5 - reaching consensus

First rating:

Now we ask you to consider whether the following statements (or content items) should be included in a national curriculum for ward rounds with older patients with frailty.
You are asked to assess to what extent you believe the statement should be included on a scale from 1-9, where:
1 - the statement is not relevant to include in a national curriculum
9 - the statement should definitely be included in a national curriculum

Second rating:

You are now presented with the content items that did not achieve consensus in the last Delphi round. Some items have been modified based on panellists' comments - these statements are shown in the attached document, where the content items that achieved consensus are also listed.
If consensus is not reached this time, the content items will be excluded and not included in the curriculum.

In the last round, you responded: XXX and the median, as well as the IQR, were: XXX

Study III Additional file 3 - Summarised results per Delphi round

	Round 1	Round 2	Round 3	Round 4	Round 5	Total
Content items, n						
generated	99	28	2			129
revised		55	13			68
removed[a]		10	1			11
First rating, n			97	21		118
included, n (%)			80 (82)	18 (86)		98
Second rating, n				17	3	20
included, n (%)				9 (53)	1 (33)	10
Eliminated, n				8	2	10
Content items included, n						108

[a] Due to redundancy or merging of items

Study III Additional file 4 - Example of item revision

Theme: Preparations. Sub-theme: Interdisciplinary collaboration			
Content item #	Content item from Round 1	Comments from participants	Revised content item in next Round
16	Clarify roles, i.e., who does and says what at ward rounds	(1) "Not all departments have enough staff to have a nurse present at ward rounds. Perhaps instead, "determine which patients where multidisciplinary rounds are most important/necessary." (2) "What roles? With us, the doctor conducts ward rounds alone and then has some so-called cross points with the nurse to initiate prescriptions immediately. Only in case of special needs is the nurse present at rounds." (3) "Perhaps add: Clarify who is the 'moderator'"	Identify which patients would benefit most from multidisciplinary rounds and specify who will moderate the ward round conversation.

Study III Additional file 5 - List of all content items

Ward round preparations	
Current patient state	
1	Get an overview of the hospitalization, i.e. what led to admission and what examinations and treatments have been attempted so far. The overview should come from the geriatric patient review, so the attending doctor does not have to start all over again every time
2	Patient status (blood tests, early warning system scores)
3	Uncovering current nursing and therapist issues, including habitual and current functional level: Fluid and diet registration, excretions including catheters, delirium, mobilization, pain, need for intravenous access. In addition, perhaps obtain information from dietitians and authorities
4	Conduct a medication review where each medication is assessed based on indication, dose, side effects, and interactions, including considering remaining life (i.e., whether prophylactic treatment is still relevant) and follow-up on medication review. STOPP/START criteria or the Danish Health Authority's "Medication review in practice" can be used[1,2]. Particular attention should be paid to whether dose dispensing* should be paused * a service of repackaging of solid oral medication into dose-dispensing aids by a pharmacy
5	Consider making a progress note with the habitual and current functional level, rehabilitation status, as well as an overview of which problems should/can be solved now, and which can wait
Previous conditions and hospitalizations	
6	Create an overview of comorbidities by reviewing organ systems and significant diagnoses for the older patients, such as eye diseases, which can be disabling, but not lethal. Readmission is noted as it indicates mortality. The doctor obtain knowledge about and updates the medical history of the patient record
7	Read the referral from the referring doctor for reason(s) for the hospitalization and use information from the home care report when patients are hospitalized
8	Assess of functional level prior to admission, including frailty and cognition. Examine the patient's care needs prior to admission. Frailty can be assessed with CFS (Clinical Frailty Score)[3]
9	At the time of admission, examine whether the patients have considered advanced care directives, perhaps in a living will
10	Determine if resuscitation attempts and/or intensive care can be offered based on doctor's assessment
11	Review level of treatment, e.g., if patients have a DNACPR*-order and the prerequisite for this. Assess whether the conditions are stable or dynamic and whether the level of treatment needs to be adjusted * Do Not Attempt Cardiopulmonary Resuscitation

Treatment and action planning	
12	Prepare guidance for patients and relatives, options, and instructions for treatment and action plans, perhaps consultation with colleagues and relevant specialties
13	Consider ethical dilemmas
Interdisciplinary collaboration	
14	Ward rounds are most appropriately prepared together with the nurse in charge of ward rounds or the primary caregiver while hospitalized, who is likely to have detailed knowledge of the patient
15	Identify which patients would benefit most from multidisciplinary rounds and specify who will moderate the ward round conversation
Settings	
16	The doctor tries reducing noise in the room, i.e., other relatives, staff, and - if possible - patients must leave the room
17	The doctor positions herself so communication with the patient and any relatives is easiest, preferably sitting and at eye level
18	The patient must wear glasses and hearing aids if necessary
19	Relatives must be informed about the possibility of participating in ward rounds if the patient wishes so. Participation via listening on a phone is also an option

Undertaking ward rounds	
Introduction	
20	Clearly greet everyone in the room
21	Begin the ward round by introducing the doctor, the other participants, and their roles
22	Describe the purpose of today's ward round and that patients and relatives contribute to an open agenda
23	Ensure that the patient knows the reason for admission, e.g., by asking them to start by telling this reason at the first contact and at the beginning of the hospitalization. Articulate that the doctor uses the medical record and referral, so that the patient gets the possibility to give their opinion on reason for admission
Negotiating agenda	
24	Ask what the patient wants to talk about at today's ward round and hospital admission. Ask about the patient's problems and concerns, and relate these to the patient's life situation and the time after discharge
25	Ask about relatives' concerns and desires for ward round, hospital admission and discharge
26	Confirm/summarize the issues and screen for additional issues

27	Align a shared ward round agenda, where the needs of staff, patients, and relatives are included

Shared decision making	
28	Align and prioritize topics on the shared ward round agenda. Inform about any options, including explaining that there are several considerations to take into account
29	Consider the patient's ability to make decisions, including level of consciousness and cognitive function. Does the patient understand the plan, and can he or she foresee the consequences?
30	Make agreement on a discharge date, if applicable
Summarizing and closing	
31	Reiterating the most important points of the ward round and agreeing on the next step for patient and care providers
32	Ensure that the assessment of caregivers and therapists is included in the joint care plan decided during ward rounds
Short- and long-team planning	
33	Plan for the upcoming 24 hours incl. excretions, fluid schedule, and nutrition
34	Revision of medicines and ordering of clinical and paraclinical tests
35	Communicate the care plan to relatives if requested by the patient when relatives were not present at the ward round
36	Communicate the care plan to the multidisciplinary team and agree on how prescriptions are communicated to caregivers in case the electronic patient record is not yet updated
37	Communicate the care plan to cross-sectoral partners
38	Discuss professional challenges with colleagues if any novel information emerged during the ward round
39	Discuss ethical dilemmas with colleagues if any

Competencies	
Adjustment of language to meet patient needs	
40	Speak Danish, i.e., without medical terms or jargon, and make sure to simplify complex medical issues if that is the patient's wish
41	Speak clearly, adjust the speed of speech, use short sentences, but do not speak condescendingly or "baby-talk" and give the patient time to respond
42	Dose the amount of information in the conversation depending on the patient's cognitive skills

43	Understand the patient's prerequisites for understanding medical implications during ward round (health literacy)
44	Humour can be used with caution, but irony should not be used
Management of meetings and prioritization	
45	Conduct a problem-oriented ward round, where the doctor, in consultation with the patient and any relatives, prioritizes discussing the most relevant topics or problems
46	Time management of the conversation and ongoing summary
47	Ensure the involvement of other interdisciplinary ward round participants
48	Ensure continuity of staff where possible, including primary care person
Flexibility	
49	Read the patient's gestures and modify conversation content based on changes in the patient's condition and cognition
50	Changing of the treatment plan requires a discussion with the patient, relatives, and multidisciplinary staff whether the patient can comply with the new plan
51	If the atmosphere in the room changes and/or patients and relatives are dissatisfied, this must be met with curiosity to avoid a potential conflict
Building relationship	
52	Show empathy, i.e., the understanding of the older patient with frailty
53	Show interest in the patient and stay present during the conversation
54	Ask about the patient's life situation, i.e., gain insight into the person behind the patient when relevant; especially when delivering a difficult message
55	Create a safe atmosphere that is open, so that the patient and relatives dare to interrupt and ask questions
56	To be able to hold the patients' anxiety and calm their anxieties and make patients feel comfortable
57	Responsiveness to other staff's observations
Credibility/reliability	
58	Give honest answers, even when you don't know the answer
59	Being realistic on behalf of the patient, but not draining the patients' hopes and showing respect for the patients who want to maintain hope
60	Not having reluctance to deal with difficult topics, such as conversations about treatment level
61	To take responsibility in case of uncertain diagnoses and make sure that the uncertainty does not impact the patient. In case of unresolved findings on a scan, there must be a plan, which is communicated during the conversation. You could say that "it is often seen in the older ages" or "it comes with age (cysts, for example)" and "we only find it because we scan for something completely different"

62	Keeping agreements, including not promising things you can't keep, e.g. coming back later in the day
63	To seek to improve one's own communication by preparing the rounds together with other experienced colleagues or specialists to optimize communication
Patient involvement	
64	Listen actively without interrupting or changing focus, exercise patience, and give patients time to respond
65	Ask open-ended questions at the beginning of the conversation and closed-ended questions at the end
66	Let the patient use their own words and explain what they mean

Circumstances related to the patient group	
Patient characteristics	
67	The older patient with frailty tires out faster than non-frail patients during ward rounds
68	The older patient with frailty often has vague, missing, or atypical symptoms, e.g. less pronounced fever in infectious diseases, lack of peritoneal response in acute abdomen or general symptoms, such as decreased appetite and influence on functional level in case of illness
69	The older patient with frailty is frequently more sensitive to disturbance and is more easily disturbed by noise.
70	The older patient with frailty may experience physical impairment to a degree that it affects cognitive abilities
71	Confusion in the older patient with frailty may cause anxiety
72	The older patient with frailty may have unrealistic expectations and wishes for their own abilities
73	The older patient with frailty may neglect symptoms or have reduced insight of illness
74	The older patient with frailty may say yes, even if they have not understood the message
75	The older patient with frailty may find it difficult to ask for elaboration after the doctor's explanation
76	The older patient with frailty may find it difficult to say no to doctor's suggestions
77	The older patient with frailty may find it difficult to accept help after discharge, e.g., home care services
78	The older patient with frailty may acutely deteriorate due to minor stressors or triggers

Relatives/informal caregivers	
79	Assess if the presence of relatives is needed, including limiting the number of participating relatives to 1 - 2 persons. Participating relatives inform other relatives not present.
80	Assess whether relatives can be involved and informed, and considering the duty of patient confidentiality if the patient cannot give informed consent
81	Relatives themselves can be sick or injured and, regardless of age, knowledge of relative's resources is important
82	Uncovering whether relatives' perception of the situation is consistent with the patient's and ensuring that the patient's perspective is heard
83	Uncovering whether relatives and the patient agree on diagnosis and treatment decisions, as well as uncovering any disagreement internally between relatives regarding treatment decisions and thus ensuring the patient's perspective
84	Uncovering of relatives' anger, frustration or disagreement and it's causes
85	Assess whether there are inappropriate family dynamics in otherwise resourceful families
Ward round characteristics	
86	Understand the patient's life situation, e.g. social network, housing, previous work life and interests
87	Ensure that multiple aspects of the overall health situation are uncovered, including social, cognitive, nutritional, and medical status, as well as mental health
88	During the hospitalization, discuss functional loss derived from current conditions together with the patient and relatives and thereafter, rehabilitation options. Caregivers, therapists, and home care services may be involved.
89	Upon admission, uncover the patient's wishes for diagnosis and treatment decisions, including DNACPR* decisions in case of cardiac arrest. In addition, perhaps discuss with the patient and relatives whether hospitalization is relevant in case of recurrence of illness * Do Not Attempt Cardiopulmonary Resuscitation
90	Assessment of the patient's decision-making competence, i.e. clarification of patient's capability of giving informed consent, including whether the patient suffers from cognitive dysfunction and/or delirium
91	Upon admission, generate a CFS (Clinical Frailty Scale)[3] score as assigned by the future RKKP database (The Danish Clinical Quality Program – National Clinical Registry) for older people with frailty
92	Clarify goals of treatment and functional level that are expected to be met before discharge and goals for the future
93	Anticipate the expected discharge time well in advance so that hospital discharge can be well-planned
94	Assess whether patient condition is improving, and if not, be open to conversations about end-of-life care

Patients with cognitive impairments	
95	Obtain information about previous employment, place of residence, or family situation
96	Be aware of non-verbal signs and signals, as well as unusual verbal expressions that uncovers e.g. pain or state of confusion. This includes ensuring information from the caregiver's assessment of pain, mood, and behaviour
97	Adapt ward round and information level to the patient with cognitive impairment. If the patient does not understand or cannot grasp information, information must either be greatly simplified, or the patient should not be informed at all
98	Relatives are informed according to patient's consent. If relatives are in the patient room, the information must be adapted to the patient's needs and alternatively, relatives must be informed out the patient's room
99	Obtain information from relatives about changes in patient conditions
100	Speak kindly so the patient understands the intentions though the way of speaking, even if the patient should not understand the words
101	Avoid the use of humour or irony, as patients display concrete thinking
102	Be aware of any behavioural disorders and plan for coping with these disorders
103	Examine patients' reactions to previous admissions, e.g. delirium, as it may affect the length of stay
Patients with delirium	
104	To be able to diagnose delirium, e.g. by using b-CAM (Brief Confusion Assessment Method)[4], and thereby assess the patient's ability to consent to diagnosis and treatment decisions. When patients are considered not to understand the consequences of these decisions, relatives may be involved
105	Be able to assess predispositions and risk factors for the development of delirium, including paying special attention to sleep quality
106	Use short, clear communication with calm body language and without humour/irony. Repeat relevant statements (apply cognitive reorientation, "I see you're drinking a cup of tea right now")
107	When relatives need information about the delirium including detailed news about the patient's state, relatives should be informed without the patient's presence, as the patient's delirium may be aggravated by disturbances in the room
108	Depending on the degree, type, and cause of delirium, it may be necessary to prepare relatives that discharge to familiar surroundings might be the best option for the patient

1. O'Mahony D, Cherubini A, Guiteras AR, et al. STOPP/START criteria for potentially inappropriate prescribing in older people: version 3. *Eur Geriatr Med*. 2023;14(4):625-632. doi:10.1007/s41999-023-00777-y
2. Danish Health Authorities. *Medicingennemgang i Praksis*.; 2019. Accessed December 23, 2023. https://sst.dk/da/udgivelser/2019/Medicingennemgang-i-praksis
3. Rockwood K, Theou O. Using the Clinical Frailty Scale in Allocating Scarce Health Care Resources. *Canadian Geriatrics Journal*. 2020;23(3):254-259. doi:10.5770/cgj.23.463
4. Han JH, Wilson A, Vasilevskis EE, et al. Diagnosing delirium in older emergency department patients: Validity and reliability of the delirium triage screen and the brief confusion assessment method. *Ann Emerg Med*. 2013;62(5):457-465. doi:10.1016/j.annemergmed.2013.05.003

AARHUS UNIVERSITY

Declaration of co-authorship concerning article for PhD dissertations

Full name of the PhD student: Lene Holst Andersen

This declaration concerns the following article/manuscript:

Title:	Enhancing ward rounds for older patients with frailty: A modified Delphi proces
Authors:	Lene Holst Andersen, MD Bo Løfgren, MD, PhD Mads Skipper, MD, PhD Kristian Krogh, MD, PhD, Rune Dall Jensen, MSc, PhD

The article/manuscript is: Published ☒ Accepted ☐ Submitted ☐ In preperation ☐

If published, state full reference: Andersen, L.H., Løfgren, B., Skipper, M. et al. Enhancing ward rounds for older patients with frailty: a modified Delphi process. BMC Med Educ 25, 446 (2025).

If accepted or submitted, state journal: BMC Medical Education

Has the article/manuscript previously been used in other PhD or doctoral dissertations?

No ☒ Yes ☐ If yes, give details:

Your contribution

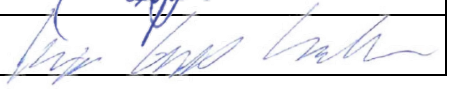
Please rate (A-F) your contribution to the elements of this article/manuscript, **and** elaborate on your rating in the free text section below.

A. Has essentially done all the work (>90%)
B. Has done most of the work (67-90 %)
C. Has contributed considerably (34-66 %)
D. Has contributed (10-33 %)
E. No or little contribution (<10%)
F. N/A

Category of contribution	Extent (A-F)
The conception or design of the work:	B
Free text description of PhD student's contribution ***(mandatory)*** Conception of the study by study group. The study protocol has been written by the PhD student in collaboration with the study group.	
The acquisition, analysis, or interpretation of data:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD The PhD student is the lead investigator and has been main respondsable for data collection, analysis and interpretation of data in collaboration with the study group.	
Drafting the manuscript:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has written the first draft of the manuscript with input from last author.	
Submission process including revisions:	C

Free text description of PhD student's contribution ***(mandatory)*** The PhD student has written the first draft of the manuscpript with input from co-authors.	
Submission process including revisions:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has prepered the manuscprit and submitted the work in collaboration with co-authors/last author.	

Signatures of first- and last author, and main supervisor

Date	Name	Signature
14/1-25	Lene Holst Andersen/first author	
22/01/25	Bo Løfgren/last author	
14/1 25	Kasper Glerup Lauridsen/main supervisor	

Date:

14/1-25 

Signature of the PhD student

STUDY IV Implementing a Cognitive Aid for Ward Rounds for Older Patients with Frailty: A Feasibility Study

Andersen LH, Jensen RD, Skipper M, Davodian I, Bech JK, Lietzen LW, Krogh K, Løfgren B

Title: Implementing a Cognitive Aid for Ward Rounds for Older Patients with Frailty: A Feasibility Study

Abstract

Introduction

Ward rounds are essential to clinical practice, yet structured training for residents remains limited, particularly in managing older patients with frailty. This feasibility study evaluated the implementation of a cognitive aid designed to enhance ward rounds, focusing on residents' aid usage and patient and caregiver perceptions of ward rounds.

Methods

A controlled before-and-after study was conducted in a Danish teaching hospital. The cognitive aid, comprising 16 items, was introduced via a lecture, a simulation session, and podcasts. Implementation was documented through field notes. Residents' use and acceptability of the aid were assessed through self-reported data and video ratings by independent, blinded raters, using a 7-point Likert scale on each item. Patient and informal caregiver perspectives were gathered through interviews and surveys.

Results

Fourteen residents participated, achieving a median rating of 5 of 7 on cognitive aid items and no difference between groups. All intervention group participants attended the lecture and simulation, but podcast usage was modest. Self-reported aid usage was low, attributed to aid denseness, lack of feedback, and limited perceived need for behavioural change. Patients reported satisfaction with ward rounds but often hesitated to provide genuine feedback, attributing communication difficulties to themselves, such as language barriers. Caregivers were present in 3 of 28 ward rounds.

Conclusion

The cognitive aid intervention was implemented as intended, but aid usage by residents was minimal. While patients reported general satisfaction, they were often hesitant to provide genuine feedback. Informal caregiver involvement was sparse, highlighting opportunities to enhance their integration in future initiatives.

Introduction

Effective patient-centred ward rounds are a cornerstone of hospital-based care, allowing physicians to assess patients, make shared decisions, and communicate treatment plans (1). For residents, these rounds are a prime learning opportunity, offering practical exposure to the complexities of patient care. However, there is a notable gap in structured training for conducting ward rounds, particularly for residents working with older patients with frailty (2,3). Frailty, an age-related, multidimensional syndrome characterised by functional decline, is increasingly prevalent and common in hospitals due to an ageing population (2,4). These patients often present with complex health needs and may encounter challenges understanding and participating in conversations about their care (5). Given these complexities, informal caregivers play a crucial role in expressing patients' perspectives and advocating for their health needs (6). Equipping residents with the skills to conduct effective ward rounds and communicate sensitively with older patients is essential for enhancing patient interactions and meeting the unique needs of this population (7).

Although ward round-related competencies are formally included in residency programmes, structured and longitudinal educational initiatives that support the practical development of these competencies remain limited in many clinical departments (8). Furthermore, despite the relevance of all seven CanMEDS roles during ward rounds, the practical application and day-to-day teaching of these roles in clinical settings are not always explicitly addressed in the Danish internal medicine training context (9). Recognizing this gap, we developed a cognitive aid designed to support residents in conducting ward rounds in older patients with frailty and engaging patients, informal caregivers, and healthcare professionals as stakeholders in its design (10). Following Kirkpatrick's evaluation framework, the cognitive aid aims to foster behavioural change in workplace settings (Level 3) and, ultimately, enhance the patient experience during ward rounds (Level 4) (11).

This feasibility study aims to evaluate the implementation of this cognitive aid, explore its acceptability among residents, and how the cognitive aid affects ward rounds, as seen from a patient and informal caregiver perspective. This approach aligns with Bowen et al.'s (2009) framework of assessing feasibility in routine clinical practice, emphasising the domains of

acceptability, "*responding to the cognitive aid*" and implementation, "*can the cognitive aid intervention be effectively delivered in this context*" (12).

The study addressed the following research questions:

1. To what extent was the cognitive aid intervention feasible?
2. Did residents use the cognitive aid during ward rounds?
3. How did older patients with frailty and their informal caregivers perceive ward rounds following the implementation of the cognitive aid?

Materials and methods

Study Design

We conducted a controlled before-and-after feasibility study in the Department of Medicine at Randers Regional Hospital, a 191-bed teaching hospital in Denmark, from October 2023 to February 2024. The study focused on the feasibility domains of acceptability and implementation, as outlined in Figure 1 (12). We used a controlled before-and-after design not to test effectiveness, but to explore feasibility domains—particularly acceptability—in line with Bowen et al.'s “Does it work?” recommendation (12). This design allowed for a comparison of resident behaviour and patient satisfaction across groups, while also helping to mitigate spillover effects. Although a single-group design might have increased sample size, the two-group setup offered a practical balance for exploring early impact in both residents and patients. Residents were assigned to either a control or an intervention group, with the control group enrolled first to prevent spill-over effects. Ward rounds were video recorded at baseline and after 6-8 weeks. Following each round, patients and informal caregivers were interviewed by LA, and patients completed the Communication Assessment Tool (CAT) to assess the resident’s communication skills (13). The timing of the follow-up assessment varied due to limited ward round assignments. The cognitive aid was introduced in the intervention group within the first two weeks after baseline. Afterwards, residents completed a survey regarding cognitive aid usage and intervention completion.

Study Participants

The study included Internal Medicine residents, eligible if they worked in the department during the study period. Residents were recruited by LA and the clinical education team of the Department of Medicine and were enrolled through convenience sampling. LA collaborated with the nursing staff to recruit patients and informal caregivers through convenience sampling, with patients consenting prior to caregiver participation. Frailty was assessed using the Clinical Frailty Scale (CFS) (14). Patients were eligible if they scored between 5 and 8 on the CFS and were capable of giving informed consent.

Context

In Denmark, ward rounds are a core clinical activity typically conducted once daily on weekdays in hospital departments. In internal medical wards, including internal medicine, junior doctors often conduct ward rounds independently, particularly after completing their initial training period. The format is generally face-to-face at the patient's bedside and may occasionally include nurses or other healthcare professionals."

Development of Cognitive Aid

The cognitive aid (Appendix 1) was initially developed through a literature review, a Delphi Study with experts in geriatric medicine and medical communication on ward round conduction, and an interview study with patients with frailty and informal caregivers (7,10,15). The aid was then refined through an iterative process by LA with feedback from co-authors and during a focus group meeting with members of the Senior Citizen's Council in Randers Municipality. The cognitive aid consisted of 4 components: 1) preparation, 2) conducting the ward round, 3) competencies required, and 4) special circumstances. Every component was divided into items (16 in total), operationalisation of the items, and the rationale behind each item.

Figure 1 Study Design with Feasibility Domains

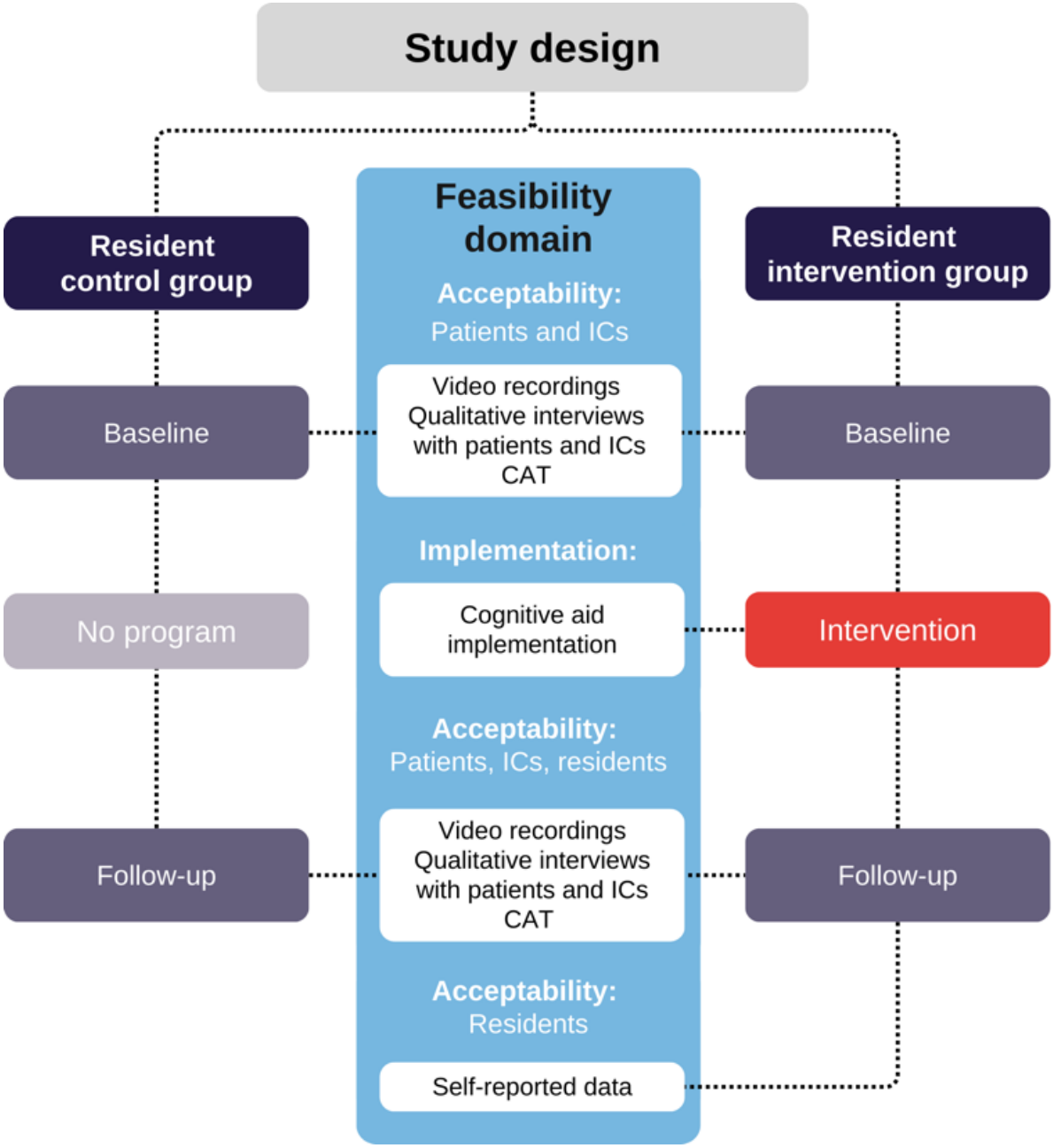


Figure 1 shows the controlled study design with baseline and follow-up. The feasibility domains explored in this study are acceptability and implementation (the blue box), with their corresponding data sources (white boxes) (12). Abbreviations: ICs: Informal caregivers, CAT: Communication Assessment Tool.

Intervention

The cognitive aid intervention was designed following Kern's six-step approach to curriculum development (16). Residents were e-mailed the cognitive aid after their baseline ward round. Thereafter, the residents received a 45-minute lecture introducing the cognitive aid and a 60-minute simulation session, both during working hours. Two podcast episodes were developed and introduced: the first before the lecture with an introduction to the cognitive aid and the second during the intervention period. The podcasts were grounded in constructivist orientation (17,18). The first episode outlined the cognitive aid through three patient cases. The second was an interview with two members of the Elderly Council describing the role of informal caregivers during ward rounds. The patient cases were also used to facilitate the three simulation sessions on managing delirium, shared decision-making, and ceilings of treatment.

Data Collection

Baseline data were collected for all residents, while data on patients and informal caregivers were gathered during both the baseline and follow-up periods. Although some patients and caregivers participated in multiple ward rounds, no residents encountered the same patient across both periods. Implementation data were collected through field notes and self-reports. Resident usage of the cognitive aid was assessed through self-reports and video recordings, using a 7-point Likert scale for each observable item. Items not addressed in the ward round, such as advanced care directives, were marked as 'not relevant.'

Two independent raters - a geriatric resident and a geriatric consultant - were blinded to group assignments and assessed videos in random order. The raters met with LA after 5, 10, and 15 videos to compare results, and then raters only reconvened to discuss items with a difference greater than 2. Patient and informal caregiver perceptions of the ward rounds were explored through interviews and CAT, and validity evidence was collected for using this tool in a Danish context and this patient group (19). Semi-structured interview guides (Appendix 2) focused on satisfaction, understanding, and participation.

Data Analysis

Demographic data, ward round ratings, and CAT scores were analysed using descriptive statistics with STATA version 18 (StataCorp LLC, College Station, TX, USA). Patient and informal caregiver interviews were transcribed verbatim and analysed in NVivo version 14 (Lumivero, Denver, CO, USA) using Thematic Analysis by Braun and Clarke (20). First, data was read several times, then followed both deductive coding from patient and informal caregiver satisfaction, understanding, and participation and inductive coding to explore underlying factors and rationales behind interviewees' responses (20). Then, several iterations were made to generate themes. The analysis was performed by LA and further discussed by all authors.

Ethical Considerations

Ethical approval was obtained from the Internal Review Board, Aarhus University, Aarhus, Denmark (2023-0507859). Verbal and written consent was obtained from residents, patients, and informal caregivers before start of the intervention.

Results

In total, 20 residents were eligible to be included in the study. Reasons for not participating included sick leave, not willing to participate, and no ward round duty during the study period. In total, 16 residents were enrolled. Two residents were excluded due to technical issues during video recording, leaving data from 14 residents for analysis. In total, 25 patients participated in the study. As three patients participated twice, the total number of observations was 28. Patients were older with comorbidities, moderate to severe frailty, and predominantly living at home. Four patients did not have any informal caregivers. Informal caregivers were present during 3 of the 28 ward rounds, and as such, we decided to omit their data and interview analysis due to confidentiality considerations and a concern of generalisability. Demographics are listed in Table 1.

Residents' use of the Cognitive Aid and Implementation

All residents attended the in-person intervention sessions. Despite the availability of podcast recordings as part of the intervention, only a subset of residents reported listening to them

(Table 2). Video ratings indicated no difference between the control and intervention group (Table 3), as baseline and follow-up rating scores were 5 in both the control and intervention group. However, during the review process, raters delivered informal feedback on resident performance, noting that some video-recorded ward rounds fell short of the expected standards for residents. The self-reported data revealed that the residents did not use the cognitive aid (Table 2). While there was a general positive sentiment towards the idea of a supportive aid, all residents mentioned a need for the cognitive aid to be more streamlined and practical for daily clinical use. However, as one resident noted: *"I like that there are specific suggestions for phrasing, but that's also part of what makes the text dense*." One resident noted that the lack of feedback on their ward round performance directly impacted their motivation. Other residents did not perceive the use of the cognitive aid as mandatory, attributing this to the informal tone during its introduction. Most residents suggested that the cognitive aid should be exposed to less experienced doctors/medical students. Although some residents have taken useful points from the cognitive aid and its related case sessions, most expressed that they were already set in their clinical practice, such as the following quote suggests: "*The cognitive aid can help one consider the whole patient, but it is unlikely to change much about the practice I already have*."

Table 1 Study Participants

	Residents	Patients
Study participants, n	14	25
Age: median, years (range)	35 (31-39)	85 (70-97)
Female, n (%)	7 (50%)	14 (56%)
Years since medical school: median, years (range)	7 (4-12)	-
Residency years: median, years (range)	2 (1-5)	-
Specialty, n (%)		
Geriatrics	5 (36%)	-
Other Internal Medicine	9 (64%)	-
Clinical Frailty Scale: median (range)	-	6 (5-8)
Charlson Comorbidity Index: median (range)	-	6 (3-10)
Living at care facility, n (%)	-	3 (12%)
Hospital admissions the last two years: median (range)	-	2 (1-8)

Table 2 Overview of Cognitive Aid Implementation

Attended introductory session, n (%)	7 (100%)
Attended simulation session, n (%)	7 (100%)
Answered self-reported data, n (%)	5 (72%)
Used the cognitive aid[a], n (%)	0 (0%)
Listened to the podcast[a]	
1: Cognitive aid description	3 of 5
2: Informal caregiver perspective	1 of 5
Felt adequately prepared to use the cognitive aid[a]	
Yes	2 of 5
Partly	3 of 5

[a] denotes self-reported data

Table 3 Video Ratings (median) on a 1-7 Likert scale[a]

Items		Total group	Baseline		Follow-up	
			Control group	Intervention group	Control group	Intervention group
Average of all items		5	5	5	5	5
1	Optimising the environment	5	6	5	5	5
4	Purpose of the ward round	3	3	3	4	4
5	Introduction	4	5	4	4	5
6	Problem-based agenda	4	4	4	4	3
7	Informing the patient and ICs	5	4	5	5	5
8	Decision-making process	5	5	5	5	5
9	Concluding the ward round	5	5	5	6	4
10	Building relationships	5	5	5	5	5
11	Doctor's language	6	6	6	6	6
12	Patient involvement	5	5	4	5	5
13	Involvement of ICs	5	5	6	6	2
16	Breaking bad news and advanced care planning[b]	5	4	N/A	N/A	6

[a] Item 2, 3, 14, and 15 (*Preparation before ward round, Interdisciplinary collaboration, Patients with cognitive impairment, Patients with delirium*) were exempted from rating. [b] Item was rated when observed. ICs: Informal caregivers. N/A: Not applicable.

Patients' and Informal Caregivers' Perception of Ward Rounds

Interviews indicated that patients were very satisfied with the care they received during ward rounds. Communication Assessment Tool (CAT) scores were high, particularly for clear communication, inviting questions, and allowing uninterrupted speaking (Table 4). Lower scores were observed for providing desired information and discussing next steps. One patient was too fatigued to complete the CAT. Others struggled to remember specific ward round details despite completing the CAT within 3 hours after the ward round and often immediately after. Some patients also found the questions challenging, feeling unqualified evaluate the resident due to educational differences. As one patient noted: *"Well, I can only be satisfied [...] I'm not a doctor."*

Regarding comprehension of the information provided, interviews showed that when patients felt the doctor's explanations had not been clear, they often attributed this to their limitations. For instance, when asked if everything the doctor said was understood, one patient commented: *"I think there was one word that I didn't understand. But she [the resident] still deserves a top grade, as it's not her fault I'm not clever enough."* Views on patient participation varied, though no differences were observed between groups. Some patients who felt less involved in the conversation also tended to take personal responsibility for this, as illustrated by one patient's reaction: *"I think the doctor was really nice. But I think maybe... The doctor couldn't really know what I was interested in knowing. And I wasn't good at taking the opportunity to ask the right questions. But that wasn't the doctor's fault; it was mine."*

Table 4 Communication Assessment Tool score, (n = 27)

Communication Assessment Tool item	Overall score (% Excellent)	Non-applicable n (%)	Missing n (%)
1 Greeted me in a way that made me feel comfortable	74.1	0 (0.0%)	0 (0.0%)
2 Treated me with respect	88.0	0 (0.0%)	2 (7.4%)
3 Showed interest in my ideas about my health	73.9	4 (14.8%)	0 (0.0%)
4 Understood my main health concerns	72.2	8 (29.6%)	1 (3.7%)
5 Paid attention to me (looked at me, listened)	79.2	1 (3.7%)	2 (7.4%)
6 Let me talk without interruptions	92.3	1 (3.7%)	0 (0.0%)
7 Gave me as much information as I wanted	68.0	2 (7.4%)	0 (0.0%)
8 Talked in terms I could understand	91.3	0 (0.0%)	4 (14.8%)
9 Checked to be sure I understood everything	83.3	7 (25.9%)	2 (7.4%)
10 Encouraged me to ask questions	88.2	8 (29.6%)	2 (7.4%)
11 Involved me in decisions as much as I wanted	83.3	13 (48.1%)	2 (7.4%)
12 Discussed next steps, including any follow up plans	61.9	4 (14.8%)	2 (7.4%)
13 Showed care and concern	76.9	0 (0.0%)	1 (3.7%)
14 Spent the right amount of time with me	77.8	0 (0.0%)	0 (0.0%)

The Communication Assessment Tool score represents the percentage of respondents who rated each item as "excellent," with "excellent" corresponding to a score of "5" on a 1-5 Likert scale. The table also includes the number of "non-applicable" responses (i.e., items deemed not relevant) and any missing answers for each item.

Discussion

The present study investigated the feasibility of a cognitive aid intervention to improve ward rounds for older patients with frailty and their informal caregivers. Using video ratings of cognitive aid usage and self-reported data, we found that residents showed little engagement with the cognitive aid. After the cognitive aid implementation, we explored patient and caregiver perceptions of ward rounds. Patients were generally satisfied with the ward round experience. Still, when exploring their experience, we found they were reluctant to give genuine feedback when problems occurred and often blamed themselves for the communication issues. Also, as caregivers were often absent during the ward rounds, their feedback was limited, which raised questions about their role in this intervention. These findings suggest that, even though the intervention was carried out as planned, its acceptability and usefulness in practice were limited. Thus, alterations to the cognitive aid and its integration into daily practice must be made. Exploring the patient and caregiver perspective on the intervention should be modified in future versions of the intervention.

Cognitive Aid usage

While the cognitive aid was developed with input from patients and informal caregivers, its clinical use revealed several barriers. As noted by Fletcher and Bedwell, doctors often resist cognitive aids, viewing them as time-consuming or unnecessary (21). This aligns with the Behaviour Change Wheel (BCW); a framework for understanding and designing behaviour change interventions (22). It identifies three components to drive behaviour change: Capability, Opportunity, and Motivation (COM-B) (22). Regarding capability, several residents in our study found the cognitive aid too complex and challenging to manage, though most felt adequately prepared (Table 2). The simulation and podcasts were seen as valuable and thought-provoking; these elements could be further refined. While not all participants listened to both episodes, podcasts have shown potential in medical education (23). While our initial implementation faced challenges, we propose that with clearer guidance and integration into the curriculum, podcasts could serve as an effective educational tool (23). Regarding Opportunity, some residents found the cognitive aid too simplistic or unnecessary given their expertise, believing they were already well-trained in ward rounds. However,

Rahmani et al. argue that ward round competence requires lifelong learning, as even attendants may lack proficiency (24). Similar, 'Purpose of ward round' and 'problem-based agenda' received the lowest scores by the raters (Table 3), although these are fundamental ward round skills. This aligns with research indicating residents often struggle to accurately self-assess their abilities (25).

Regarding Motivation, engagement could be enhanced by involving residents in designing the aid or incorporating direct feedback through in-person sessions or video reviews with a supervisor. This aligns with Johnson and May's systematic review on promoting behaviour change in healthcare (26). Future interventions might also target early-career doctors, who may be more motivated to change their behaviour, or tailor the cognitive aid to residents' experience levels (27).

Exploring the Patient and Informal Caregiver Perspective of Ward Rounds

Patient and Public Involvement has gained emphasis in healthcare research and medical education, aiming to place patients at the core of care (10,28). However, our study highlighted several challenges in considering quality in ward rounds from a multi-stakeholder perspective. Residents' median adherence to the cognitive aid was 5 out of 7. However, since none of the residents used the cognitive aid directly, these scores reflect their behaviour. Some items received lower median ratings (3-4), namely purpose, introduction, and problem-based agenda. Also, raters noted that some ward rounds did not meet standards for residents. Consequently, with only moderate behavioural alignment to the aid, these ward rounds may not be classified as best practice despite positive patient feedback. This finding highlights that high adherence to the cognitive aid may sufficiently capture ward round quality from the patient's perspective. While the cognitive aid is designed to enhance interactions, patient satisfaction likely includes additional factors, underscoring the complexity of assessing ward round quality. Although patient satisfaction was generally high, our qualitative data suggest that this may mask communication challenges, as some patients hesitated to voice concerns or blamed themselves for misunderstandings. Therefore, we interpret the findings not as evidence against the cognitive aid, but as a basis for refinement and future evaluation.

While the cognitive aid is designed to enhance interactions, patient satisfaction likely includes additional factors, underscoring the complexity of assessing ward round quality. Other factors, such as generational norms and frailty, may have affected their responses. Older patients may be less inclined to critique their care, often due to cultural norms around authority, while frailty-related fatigue may limit their ability to provide detailed feedback (15,29). Power dynamics further complicate patient evaluations, as many feel uneasy critiquing their doctors, especially in dependency (30). Therefore, integrating nurses' perspectives could enhance Level 4 evaluations. Nurses observe patient care and interactions continuously, positioning them to assess the practical impact of resident training on outcomes (31). By combining patient, caregiver, and nursing perspectives, the study could have achieved a more comprehensive view of the intervention's impact in future studies. Lastly, perspectives on patient involvement varied significantly. While some patients preferred minimal participation, nearly half found the CAT question on involvement irrelevant. This raises questions about the appropriateness of using patient involvement as a quality indicator in this group. Although the literature on involving informal caregivers in the evaluation of medical education initiatives is limited, their inclusion is important (32). However, this involvement requires balancing of patient autonomy with the support provided by caregivers (32). In our study, caregivers freely shared their views and, if more consistently involved, could play a larger role in enhancing doctors' awareness of patient needs.

Limitations and Strengths

Self-reported data were obtained from 5 of 7 residents in the intervention group, likely reflecting higher engagement among responders (33). The small sample may reduce the generalisability of self-reported insights. Patients and informal caregivers were not asked about their experiences evaluating ward rounds, which would have allowed for comparative insights. Limited caregiver participation left their perspectives unclear, highlighting the need for greater caregiver involvement in future studies to better understand their role in medical education evaluations. Additionally, prior collaboration between LA and most residents may have influenced recruitment and implementation, though its impact were not assessed. Among this study's strengths is its multi-perspective approach, incorporating feedback from residents, patients, and informal caregivers. This provides nuanced understanding of patient

and caregiver involvement in medical education and may inform the design of future studies aiming to evaluate end-user experiences with educational interventions.

Conclusion

We developed a cognitive aid to support ward rounds for older patients with frailty, incorporating input from stakeholders such as patients and informal caregivers. This feasibility study evaluated its implementation and usage, focusing on patient and informal caregiver experiences. While the intervention components—comprising a lecture, simulation, and podcasts—were made available as planned, full implementation was not achieved, as not all participants engaged with the podcasts. Residents did not use the cognitive aid during ward rounds. As the cognitive aid was not used, it was not possible to assess its acceptability among patients and informal caregivers. Patients were generally satisfied but often hesitated to provide candid feedback when they felt excluded or struggled to understand the information shared—frequently attributing these difficulties to themselves. Feedback from informal caregivers was limited, as they were not consistently present during ward rounds. Modifications to enhance aid usability and better integrate patients and caregivers are needed before a full-scale study.

References

1. Royal College of Physicians. Modern ward rounds: Good practice for multidisciplinary inpatient review. London, UK; 2021.
2. Mudge AM, Hubbard RE. Frailty: mind the gap. Age Ageing. 2018 Jul 1;47(4):508–11.
3. A Kjelsnes A, Feiring E. Models of integrated care for older people with frailty: a horizon scanning review. Vol. 12, BMJ open. NLM (Medline); 2022. p. e060142.
4. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K. Frailty in elderly people. The Lancet. 2013 Mar;381(9868):752–62.
5. Lee SB, Oh JH, Park JH, Choi SP, Wee JH. Differences in youngest-old, middle-old, and oldest-old patients who visit the emergency department. Clin Exp Emerg Med. 2018 Dec 31;5(4):249–55.
6. Bookman A, Harrington M. Family Caregivers: A Shadow Workforce in the Geriatric Health Care System? J Health Polit Policy Law. 2007 Dec;32(6):1005–41.
7. Andersen LH, Jensen RD, Skipper M, Lietzen LW, Krogh K, Løfgren B. Ward round communication with older patients. Clinical Teacher. 2023;
8. Danish Society for Internal Medicine. Courses for Internal Medicine Residents [in Danish]. 2025.
9. The Royal College of Physicians and Surgeons of Canada. CanMEDS roles [Internet]. 2022 [cited 2022 Mar 30]. Available from: https://canmeds.royalcollege.ca/guide
10. Towle A, Brinbridge L, Godolphon W, Katz A, Kline C, Lown B, et al. Active patient involvement in the education of health professionals. Med Educ. 2010;44:64–74.
11. Kirkpatrick D, Kirkpatrick J. Evaluating Training Programs : The Four Levels [Internet]. Oakland, UNITED STATES: Berrett-Koehler Publishers, Incorporated; 2006. Available from: http://ebookcentral.proquest.com/lib/asb/detail.action?docID=335391
12. Bowen JD, Kreuter M, Spring B, Cofta-Woerpel L, Linnan L, Weiner D, et al. How We Design Feasibility Studies. Am J Prev Med. 2009;36(5):452–7.
13. Makoul G, Krupat E, Chang CH. Measuring patient views of physician communication skills: Development and testing of the Communication Assessment Tool. Patient Educ Couns. 2007 Aug;67(3):333–42.

14. Nissen SK, Fournaise A, Lauridsen JT, Ryg J, Nickel CH, Gudex C, et al. Cross-sectoral inter-rater reliability of the clinical frailty scale – a Danish translation and validation study. BMC Geriatr. 2020 Dec 1;20(1).
15. Andersen LH, Løfgren B, Skipper M, Krogh K, Jensen RD. "They forget that I'm a human being"—ward round communication with older patients living with frailty and informal caregivers: a qualitative study. Eur Geriatr Med [Internet]. 2024 Sep 4; Available from: https://link.springer.com/10.1007/s41999-024-01043-5
16. Thomas PA, Kern DE, Hughes MT, Chen BY. Curriculum Development for Medical Education: A Six-Step Approach. 3rd ed. Baltimore: Johns Hopkins University Press; 2016.
17. McNamara S, Drew C. Concept analysis of the theories used to develop educational podcasts. EMI Educ Media Int. 2019 Oct 2;56(4):300–12.
18. Tan C, Ng CSL. Constructivism in Education. In: Oxford Research Encyclopedia of Education. Oxford University Press; 2021.
19. Iversen ED, Steinsbekk A, Falbe Vind B, Bangsgaard A, Cold S, Ammentorp J. Translation and cultural adaptation of the Communication Assessment Tool (CAT), developing a Danish and Norwegian version. International Journal for Quality in Health Care. 2019 Mar 28;
20. Braun V, Clarke V. Thematic analysis : a practical guide. Braun V, Clarke V, editors. London: SAGE Publications Ltd; 2022.
21. Fletcher KA, Bedwell WL. Cognitive Aids. Proceedings of the International Symposium on Human Factors and Ergonomics in Health Care. 2014 Jun;3(1):148–52.
22. Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implementation Science. 2011 Apr 23;6(1).
23. Kelly JM, Perseghin A, Dow AW, Trivedi SP, Rodman A, Berk J. Learning Through Listening: A Scoping Review of Podcast Use in Medical Education. Academic Medicine. 2022 Jul 23;97(7):1079–85.
24. Rahmani M. Medical Trainees and the Dunning–Kruger Effect: When They Don't Know What They Don't Know. J Grad Med Educ. 2020 Oct 1;12(5):532–4.

25. Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, Perrier L. Accuracy of Physician Self-assessment Compared With Observed Measures of Competence. JAMA. 2006 Sep 6;296(9):1094.
26. Johnson MJ, May CR. Promoting professional behaviour change in healthcare: what interventions work, and why? A theory-led overview of systematic reviews. Open [Internet]. 2015;5:8592. Available from: http://bmjopen.bmj.com/
27. Gupta DM, Boland RJ, Aron DC. The physician's experience of changing clinical practice: A struggle to unlearn. Implementation Science. 2017 Feb 28;12(1).
28. Gordon M, Gupta S, Thornton D, Ried M, Mallen E, Melling A. Patient/service user involvement in medical education: A best evidence medical education (BEME) systematic review: Guide No. 58. Med Teach. 2020;42:4–16.
29. Dent E, Martin FC, Bergman H, Woo J, Romero-Ortuno R, Walston JD. Management of frailty: opportunities, challenges, and future directions. The Lancet. 2019 Oct;394(10206):1376–86.
30. Lilleheie I, Debesay J, Bye A, Bergland A. Experiences of elderly patients regarding participation in their hospital discharge: a qualitative metasummary. BMJ Open. 2019 Nov 3;9(11):e025789.
31. Ann Riesenberg L, Little BW, Wright V. Nonphysician Medical Educators: A Literature Review and Job Description Resource [Internet]. Available from: http://journals.lww.com/academicmedicine
32. Al-Jawad M, Winter R, Jones E. Communicating with relatives. Available from: https://www.jstor.org/stable/10.2307/26951528
33. Elston DM. Participation bias, self-selection bias, and response bias. J Am Acad Dermatol. 2021 Jun 18;

AARHUS UNIVERSITY

Declaration of co-authorship concerning article for PhD dissertations

Full name of the PhD student: Lene Holst Andersen

This declaration concerns the following article/manuscript:

Title:	Implementing a cognitive aid for conducting ward rounds for older patients with frailty: A feasibility study
Authors:	Lene Holst Andersen, MD Rune Dall Jensen, MSc, PhD Mads Skipper, MD, PhD Ilona Davodian, MD Johanne Kolind Bech, MD Lone Winther Lietzen, MD, PhD Kristian Krogh, MD, PhD Bo Løfgren, MD, PhD

The article/manuscript is: Published ☐ Accepted ☐ Submitted ☒ In preperation ☐

If published, state full reference:

If accepted or submitted, state journal: The Clinical Teacher

Has the article/manuscript previously been used in other PhD or doctoral dissertations?

No ☒ Yes ☐ If yes, give details:

Your contribution

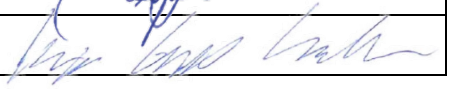
Please rate (A-F) your contribution to the elements of this article/manuscript, **and** elaborate on your rating in the free text section below.

A. Has essentially done all the work (>90%)
B. Has done most of the work (67-90 %)
C. Has contributed considerably (34-66 %)
D. Has contributed (10-33 %)
E. No or little contribution (<10%)
F. N/A

Category of contribution	Extent (A-F)
The conception or design of the work:	C
Free text description of PhD student's contribution ***(mandatory)*** Conception of the study by study group/main supervisor. The study protocol has been written by the study group with major contributions from the PhD student.	
The acquisition, analysis, or interpretation of data:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student is the lead investigator and has been main respondsable for data collection, analysis and interpretation of the data in collaboration with study group.	
Drafting the manuscript:	B

Free text description of PhD student's contribution ***(mandatory)*** The PhD student has written the first draft of the manuscpript with input from co-authors.	
Submission process including revisions:	B
Free text description of PhD student's contribution ***(mandatory)*** The PhD student has prepered the manuscprit and submitted the work in collaboration with co-authors/last author.	

Signatures of first- and last author, and main supervisor

Date	Name	Signature
14/1-25	Lene Holst Andersen/first author	
22/01/25	Bo Løfgren/last author	
14/1 25	Kasper Glerup Lauridsen/main supervisor	

Date:

14/1-25 

Signature of the PhD student