Clinical observation of deteriorating frail older patients

Improving the competence of homecare professionals

by

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Research environment

This PhD project was included in the research project titled 'Improving Quality and Safety in Primary Care: Implementing a Leadership Intervention in Nursing Homes and Homecare' (SAFE-LEAD). The SAFE-LEAD project was undertaken by the Centre for Resilience in Healthcare (SHARE) at the Faculty of Health Sciences, University of Stavanger. It received funding from the Research Council of Norway's HELSEVEL programme, under grant agreement 256681/H10, and the University of Stavanger.

The SAFE-LEAD project aimed to develop managers' competence in quality and safety in primary care. A leadership guide was developed and implemented in nursing homes and homecare. The project studied the effect on quality and safety improvement knowledge, attitudes and practices (Wiig et al., 2018). The PhD thesis was included in the SAFE-LEAD project to provide a study on an improvement project initiated by primary care stakeholders themselves.

As a researcher in the SAFE-LEAD project, I was involved in the development and implementation of the SAFE-LEAD guide during my PhD period. Furthermore, I collected research data for testing and evaluating the SAFE-LEAD guide implementation. This participation has resulted in several publications of which I am a co-author. The publications are as follows:

Aase, I., Ree, E., Johannessen, T., **Strømme, T**., Ullebust, B., Holen-Rabbersvik, E., Thomsen, L.H., Schibevaag, L., Bovenkamp; H. & Wiig, S. (2021). Talking about quality: how 'quality' is conceptualized in nursing homes and homecare. *BMC Health Services Research*.

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Aase, I., Ree, E., **Strømme, T**. & Wiig, S. (2020). Behind the Scenes of a Patient Safety Leadership Intervention in Nursing Homes and Homecare. Researchers' Tips for Success. *Journal of patient safety*.

Ree, E., Aase, I., **Strømme, T**., Westbrook, J. & Wiig, S. (2020) Lessons learnt from nursing home and homecare managers' experiences with using the SAFE-LEAD guide. *Tidsskrift for omsorgsforskning*.

Holen-Rabbersvik, E., Ullebust, B., Ree, E., Schibevaag, L., Thomsen, L.H., **Strømme, T**., Aase, K., Aase, I., Ellis, L.A., & Wiig, S. (2020). How to deal with context? Evaluation of the SAFE-LEAD Context Tool for quality and safety in nursing home and homecare services. *Tidsskrift for omsorgsforskning*.

Johannessen, T., Ree, E., **Strømme, T**., Aase, I., Bal, R. & Wiig, S. (2019). Designing and pilot testing of a leadership intervention to improve quality and safety in nursing homes and home care (the SAFE-LEAD intervention). B*MJ Open*.

Wiig, S., Ree, E., Johannessen, T., **Strømme, T**., Storm, M., Aase, I., Ullebust, B., Holen-Rabbersvik, E., Thomsen, L.H., Pedersen, A.T.P., Bovenkamp, H., Bal, R. & Aase, K. (2018). Improving quality and safety in nursing homes and home care: the study protocol of a mixed-methods research design to implement a leadership intervention. *BMJ Open*.

Lyng, H.B., Ree, E., **Strømme, T**., Johannessen, T., Aase, I., Ullebust, B., Thomsen, L.H., Holen-Rabbersvik, E., Schibevaag, L., Bates, D. W. & Wiig, S. (202x). Barriers and enablers in externally and internally driven implementation processes in healthcare; a qualitative cross-case study. *In submission for BMC Health Services Research.*

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SAFE-LEAD

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Summary

Introduction

Homecare services are providing care to an increasing number of frail older patients with complex care needs. These patients are in a vulnerable state and have an increased risk of deterioration, and the early detection of changes in their clinical condition is highlighted as a means of preventing adverse health outcomes. Clinical observation is an essential prerequisite in identifying deteriorating patients. In homecare, clinical observation is currently insufficient, and little is known about homecare professionals' detection of deteriorating patients. Therefore, the overall aim of this PhD project is to gain knowledge of clinical observation in homecare and to understand how a competence improvement programme can change homecare professionals' clinical observation. Consequently, theories on competence and improvement in healthcare have been applied in the thesis.

Methodology

This thesis adopted a multi-method qualitative, sequential design consisting of three phases: (1) before the implementation of a competence improvement programme (study 1), (2) during the implementation of the programme (study 2), and (3) after the implementation of the competence improvement programme (study 3), focusing on two homecare districts (homecare A, homecare B) in Norway. The programme was designed to improve homecare professionals' competence and skills in recognising and responding to deteriorating frail older patients. The first study developed knowledge of homecare professionals' observational competence in the early recognition of deterioration in frail older patients. Homecare professionals, including nurses, skilled health workers, and assistants were observed during their home visits to patients and interviewed in

focus groups. The second study described and analysed the implementation of a competence improvement programme for the systematic observation of frail older patients. Participant observation was used during the implementation activities, and focus group and individual interviews were conducted to describe the experiences of the homecare professionals, managers, and development nurses with the implementation of the competence improvement programme. The third study described the outcomes of the competence improvement programme for the systematic observation of frail older patients. Homecare professionals were observed during their home visits to patients and interviewed in focus groups, while managers and development nurses were interviewed individually.

Results

The studies included in this thesis contribute to longitudinal research on a competence improvement programme for the systematic observation of frail older patients in homecare and demonstrate that clinical observation is multifaceted and the improvement of this competence is challenging.

In study 1, the homecare professionals' observational competence before the competence improvement programme was characterised by a focus on patient-situated assessment of changed clinical conditions and how the organisational environment impacted the homecare professionals' performance of clinical observation. Patients' physical and mental conditions formed a vital basis for detecting clinical deterioration. Communicating with the patient was highlighted, together with precise nursing documentation. Basic understanding and use of vital sign measurements as part of clinical observation were insufficient in the two homecare districts. Pre-planned workplans organised the homecare professionals' practice, but actions to follow up on patients' changed conditions were not reflected in these plans. Collaboration with

colleagues was seen as supportive of homecare professionals' observational competence.

In study 2, the homecare professionals perceived the competence improvement programme as important, as the programme would improve their observational competence and confidence in situations with deteriorating patients. However, the competence improvement programme consisted of several learning resources with complex content and was applied differently in the two homecare districts. The homecare professionals described the implementation process of the competence improvement programme as demanding and time-consuming. The homecare professionals were unfamiliar with simulation-based learning and found it more challenging than they had expected.

Study 3 reported that two years after the implementation of the competence improvement programme, the frequency of vital signs measurements for the systematic observation of frail older patients varied between the two homecare districts. Although measurements of vital signs had increased for new patients and in the case of patient falls, situation awareness related to the clinical deterioration of patients remained insufficient. However, the homecare professionals reported improved coping with deteriorating patient situations. Regular programme activities integrated into the homecare professionals' daily work routines sustained the competence improvement programme. Organisational issues affecting the sustainability of the competence improvement programme varied between the two homecare districts. Organisational needs were prioritised by homecare A, but sick leave, personnel turnover, busy work plans, and a change in managers in homecare B affected the maintenance of the programme.

Conclusions

This thesis provides knowledge and understanding of homecare professionals' clinical observation and how a competence improvement

programme can change such observational competence. Clinical observation had a low priority before the competence improvement programme, and vital signs were rarely used to detect early deterioration in patients. The competence improvement programme changed clinical observation in defined situations; nevertheless, homecare professionals' situation awareness of patients' deterioration was insufficient. The PhD project demonstrates that the implementation of a competence improvement programme is influenced by factors regarding the programme itself, the professionals, the organisation and the external context.

Papers included in the thesis

Paper 1

Strømme, T., Aase, K. & Tjoflåt, I. (2020). Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study. *Journal of Clinical Nursing*. 29 (13-14), 2429-2440.

Paper 2

Strømme, T., Tjoflåt, I. & Aase, K. (2020). Systematic Observation of Frail Older Patients in Homecare - Implementing a Competence Improvement Program. *Tidsskrift for omsorgsforskning. 6*(02), 23-39.

Paper 3

Strømme, T., Tjoflåt, I. & Aase, K. (2022). A competence improvement programme for the systematic observation of frail older patients in homecare: qualitative outcome analysis. *BMC Health Services Research. 22*(1), 1-15.

Abbreviations

HCP:	Homecare Professional
CIP:	Competence Improvement Programme
USHT:	The Centre for Development of Institutional and Home Care Services

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Part I

1 Introduction

This thesis provides knowledge on the observational competence of homecare professionals (HCPs)[1]. Successful homecare services require a system of care that focuses on monitoring patients, rapid response to changes and appropriate treatment, including monitoring responses to the treatment (Vincent & Amalberti, 2016). The thesis addresses how the deterioration of frail older patients is observed and acted on by HCPs and how such competence can be improved by an improvement programme.

Competence demands in homecare have increased together with the complexity of homecare. The growth of homecare is grounded in the need for replacing residential and hospital care and thereby includes patients who are sicker and require extended needs and specialised care (Beer, et al., 2014; Fjørtoft et al., 2020a; Fjørtoft et al., 2020b; Genet et al., 2011; Halcomb et al., 2016; Tarricone & Tsouros, 2008). Thus, clinical observation and early detection of deterioration is an area of increased emphasis (Gobbens et al., 2010; Gray et al., 2018a; Pialoux et al., 2012). Healthcare professionals should perform clinical assessments and procedures in response to the effort of reducing patient hospitalisations and providing care in the municipality (Fjørtoft et al., 2020a;). Detection of early deterioration of patients is a vital component of such assessments and procedures to prevent decline resulting in hospitalisation (Gray et al., 2018a; Næss et al., 2017; Pialoux et al., 2012).

Older persons are statistically categorised as persons older than 65 years. However, a strict definition is difficult to apply because biological age may differ largely; a person aged 75 years may be healthier than one aged 60 years (Eurostat, 2019). Frailty significantly impacts a person's likelihood to require care and is expected to grow alongside the ageing

[1] In this thesis homecare professionals include nurses, skilled health workers and assistants. HCPs are personnel who are authorised or have a healthcare license and/or other personnel working in the homecare services (Health Personnel Act, 1999, §3).

population (Dent et al., 2019; Gobbens et al., 2010; Hoogendijk et al., 2019). Dent et al. (2019) consider frailty as one of the most serious public health challenges for the coming century. It is a 'condition in which the individual is in a vulnerable state at increased risk of adverse health outcomes and/or dying when exposed to a stressor' (Morley et al., 2013, p. 2). Persons at any age may be frail, although frailty may increase with age and is a consequence of the normal ageing process. Frailty is a long-term, multidimensional condition involving physical and psychological factors, and is dynamic as an individual may fluctuate between states of the severity of frailty (Hoogendijk et al., 2019). Frail older patients are associated with an increased risk of adverse outcomes, hospitalisations and deaths (Dent et al., 2019; Gobbens et al., 2010; Hoogendijk et al., 2019). In this thesis, frail older patients are categorised as patients aged 65 and above, mostly older than 75 years, with extensive homecare needs.

An ageing population is a global phenomenon and results from public health, medical advancement and the prevention of diseases, injuries and early deaths with limited life spans throughout history. The largest increase in older persons over 65 years until 2050 is projected to occur in Northern Africa and Western Asia at 226%. At present, Europe and Northern America have a significantly high number of older persons and will have the lowest increase in older persons (United Nations, 2019). In Europe, the proportion is expected to increase from 34% in 2020 to 56% in 2050 (Eurostat, 2021). An ageing population entails challenges involving epidemiological changes where frail persons with complex health problems are increasing. Long-term care and age-associated public expenditure are expected to increase substantially, though family members and friends continually provide long-term care for older persons for free (Rechel et al., 2013). Homecare is more cost-effective compared with institutional care (Kok et al., 2015), and the number of patients receiving care at home is increasing (Genet et al., 2012).

1.1 Homecare

Homecare is care provided by HCPs within a patient's home. Care ranges from short- to long-term and involves preventive, acute, rehabilitative and palliative care. The purpose of homecare is to promote, maintain and restore the patient's health to maximise their independence and minimise the effects of disabilities and illness (Genet et al., 2012; Jones et al., 2012; Vincent & Amalberti, 2016).

Patients can remain in their homes for a long time if sufficient homecare services are available (Kristinsdóttir et al., 2021). The organisation of homecare services varies across countries (Genet et al., 2011) in terms of policy, regulation, prioritisation and financing. Homecare can be provided by private (profit and non-profit) or public providers. Differences also involve how formal and informal care is valued. Many countries rely heavily on informal care, typically delivered within families and households. Formal care is complementary in certain countries and a substitute in others (Genet et al., 2011; Knight Frank, 2020).

The emerging need of homecare is affected by social factors, technological changes enabling patients with care needs to remain in their homes, and different attitudes and expectations of the patients (Kok et al., 2015; Mah et al., 2021; Tarricone & Tsouros, 2008; World Health Organization, 2015). Many older patients prefer homecare and consider ageing in place important for their quality of life. They experience an attachment to their communities, social relationships and interactions with locals and neighbours. Staying at home gives them a sense of freedom and autonomy. They also experience that their self-identity is sustained as the home environment gives presence to their past and present life (Stones & Gullifer, 2016; Wiles et al., 2012). However, older patients report challenges and barriers to ageing in place, such as an unsuitable physical environment, feeling of loneliness, deteriorating health and function decline and inaccessible community services (Brim et al., 2021; Martin et al., 2019).

The homecare environment differs greatly from that of hospitals and other institutional healthcare. HCPs' practice take place at a foreign ground, and many homes are not arranged and suitable for providing care. Equipment necessary to perform care may also lack (Beer et al., 2014; Martinsen et al., 2018) and HCPs need to balance being a guest in a private home, respecting the patient's autonomy while using their professional authority (Furåker, 2012; Martinsen et al., 2018). The continuity of HCPs visiting patients at home is low and patients cannot always relate to a restricted number of professionals (Gjevjon et al., 2014). Coordination of services is a central task for HCPs following up on patients' needs, negotiating care levels and tasks internally in the municipality and in the transition between the hospital and home (Fjørtoft, et al., 2020b; Melby et al., 2018).

Most HCPs work alone and need to make autonomous decisions with extensive responsibilities for seriously ill patients and perform increasingly advanced clinical tasks. In homecare, conducting common reflections and receiving support from colleagues are challenging (Beer et al., 2014; Flöjt et al., 2014; Gray et al., 2018a; Melby et al., 2018). Working without collegial support requires extensive competencies when encountering patients' individual healthcare needs (Andersson et al., 2017). Furthermore, homecare is characterised by heavy workloads and time pressure where the focus of care tends to be task-oriented. This setting also challenges the possibilities for updates on research and new knowledge (Flöjt et al., 2014; Josefsson, 2015; Martinsen et al., 2018; Melby et al., 2018). Fjørtoft et al. (2020b) identified a contradiction between following a rule-based practice involving written contracts and work lists, and using professional discretion involving competence and responsibility.

Patient safety is a global priority, and the focus has also evolved in the homecare context (Sheikh et al., 2013; Vincent & Amalberti, 2016; World Health Organization, 2021). However, mobilising safety in homecare is seen as challenging (Lindblad et al., 2018; Aase et al., 2021).

Factors affecting patient safety in homecare include the assurance that the patients are cared for in their homes within the context of their family, the uniqueness of the physical home environments, excessive workloads and the breadth of the required competence of the professionals (Lang et al., 2008; Macdonald et al., 2013). Additionally, high age, comorbidities and complex medication use are associated with an increased risk of adverse events, to which frail older patients are particularly vulnerable (Vincent & Amalberti, 2016). Changes in a patient's health condition, late detection and admission to the emergency room and hospitalisation are emerging as adverse events (Harrison et al., 2013; Lawati et al., 2018). Therefore, assessing the patient and recognising and responding to deterioration is a central patient safety strategy (Considine & Currey, 2015; Mok et al., 2015; Vincent & Amalberti, 2016).

1.2 Clinical observation in homecare

Clinical observation refers to measuring, questioning and evaluating a patient (Russler, 2009; Tanner, 2006). Clinical observations aim to detect information about the patient's situation. It is essential in identifying deteriorating patients and in making clinical judgement. Thus, it involves interpretations and conclusions about the patient's needs, concerns and health problems and further comprises the decision to take proper action (Cappelletti et al., 2014; Tanner, 2006).

Recognition is an essential factor of clinical observation along with understanding the patient's needs for individualised care (Andersson et al., 2017). Professionals recognise and respond to clinical deterioration in different ways often because of practice-based and contextual factors (Jones et al., 2013). In the study of Fjørtoft et al. (2020a), homecare nurses emphasised the importance of assessing and identifying deteriorating patients. The authors highlighted nurses' knowledge of awareness and observation, and that competence is needed in such situations. Gray et al. (2018a) identified three factors that influence the assessment of patients in homecare: (1) the relationship between

education and experience, including clinical assessment and decision-making skills, (2) HCPs' informed decision-making involving information provided by the patient and/or the patient's family and (3) HCPs' knowledge about the patient's environmental and individual needs.

Hospital-based research has focused on the assessment of patients' deterioration aiming to reduce in-hospital deaths (Chan et al., 2010). Rapid response systems have been implemented to improve patient systems and ensure observations, detections and tailored responses (Winters & DeVita, 2010; Winters et al., 2013). Different early warning systems and physiological 'track and trigger' systems are developed to standardise, support and assure the assessment of and response to clinical deterioration. Early warning systems guide healthcare professionals to record and respond to physiological parameters simultaneously, such as respiration rate, saturation, systolic blood pressure, pulse rate, consciousness level and temperature. Changes in vital signs can also be used to detect early deteriorating patients. Early warning systems have been implemented and tested in many hospital settings and are recommended for use in other healthcare settings, including primary care (Brangan et al., 2018; Downey et al., 2017; Royal College of physicians, 2017). Although these warning systems have been used increasingly in contexts outside of hospitals, few studies are published and less is known about the contribution of the tools in such settings (Brangan et al., 2018; Gray et al., 2018a; Steinseide et al., 2022). A recent study on homecare focusing on HCPs' experiences of an implemented early warning system describes increased support when conducting comprehensive clinical assessments and reasoning concerning deteriorating patients. Furthermore, interdisciplinary communication and collaboration were strengthened. The study also identified the need for a modified, evidence-based tool adjusted for geriatric patients in homecare (Jeppestøl et al., 2020).

1.3 Improving competence

European countries experience a shortage of qualified HCPs, where low educational standards are seen as a cause of unmet needs (Genet et al., 2012; Tarricone & Tsouros, 2008). The homecare staff involved in patient-related work mainly consists of nurses (with a bachelor's degree in nursing), skilled health workers (with healthcare education at the upper secondary school level) and assistants (without any formal health education) (Bing-Jonsson et al., 2016b).

Many studies explore nurses' competence though all HCPs (nurses, skilled health workers, assistants) need to conduct all tasks to provide continued services in homecare (Bing-Jonsson et al., 2016b). An imbalance between the actual and expected competence of HCPs ranges from specific tasks, such as medication management, to overarching principles, such as safe practice and considerate care (Bing-Jonsson et al., 2016a). Homecare nurses experience competence as being prepared and capable of taking care of the patients (Andersson et al., 2017; Flöjt et al., 2014). Being capable involves maintaining control over the situation and feeling confident when performing their work. Homecare nurses request training opportunities that address the advanced needs of patients. Theoretical and practical training is emphasised and contributes to independence and quality of care (Flöjt et al., 2014).

A relatively low proportion of competent HCPs entails that all staff must perform tasks needed by the patient to provide proper care (Bing-Jonsson et al., 2016a). Additionally, all professionals need to solve the different arising situations to provide care in the best interest of the patient (Ekstedt et al., 2022). Bing-Jonsson et al. (2016b) indicates that necessary competence to provide safe care for frail old patients in primary care is worrying and professionals lack basic competence in systematic observation. According to their survey, HCPs have less competence than professionals in nursing homes.

Educational programmes that aim to detect early deterioration by using early warning systems are widely used in hospital settings. Connell et al.'s (2016) review identified the effectiveness and outcomes of such programmes. Twenty-three educational programmes used various educational models. All programmes included traditional classroom teaching blended with different combinations of simulation, e-learning, case studies and paper-based scenarios without simulation. Simulation was used in 87% of the interventions. Most programmes had a positive outcome on the professionals, the patients and the organisational system. Simulation was highlighted as an especially efficient learning method in improving techniques and skills to detect deteriorating patients. In homecare, such programmes are limited. Nevertheless, a recent study investigated the effectiveness of a combined web-based and simulation-based continuing educational programme on HCPs' competence in evaluating older people's need for acute care (Kajander-Unkuri et al., 2021). Competence scores improved after the competence programme, and the combinations of methods used in the programme provided the HCPs with continuous learning. In line with Boscart et al. (2019), the results confirmed that simulation can expand HCPs' competence (Kajander-Unkuri et al., 2021).

Recently the World Health Organization (2022) published the Global Competency Framework for Universal Health Coverage to guide education and practice standards for healthcare professionals in primary care. The framework emphasises that competence improvement programmes should be rooted in the actual context and based on the patients' needs.

1.4 Aim, objectives, and research questions

HCPs recognise and respond to clinical deterioration differently because of practice-based and contextual factors (Jones et al., 2013). Structured monitoring is often insufficient homecare services, and little is known about HCPs' recognition and response to patients' clinical deterioration thus far (Gray et al., 2018a). An increased focus on monitoring is necessary to detect early deteriorating patients (Vincent & Amalberti, 2016). Accordingly, competence development and new approaches are needed to care for frail older patients in homecare (Gray et.al. 2018a, 2018b).

Based on the above knowledge gaps, the overall aim of this thesis is twofold:

I. To gain knowledge of clinical observation in homecare

II. To understand how a competence improvement programme change the HCPs clinical observation

The following objectives are set to achieve the aim:

1. To develop knowledge of homecare professionals' observational competence in early recognition of deterioration in frail older patients (study 1)
2. To describe and analyse the implementation of a competence improvement programme for the systematic observation of frail older patients (study 2)
3. To describe the outcomes of a competence improvement programme for the systematic observation of frail older patients (study 3)

Based on the objectives, the following research questions (RQ) are developed:

RQ1 How can homecare professionals' practises and experiences with early recognition of deterioration in frail older patients be described? (study 1)

RQ2 How can the implementation of a competence improvement programme for systematic observational competence be described and analysed? (study 2)

RQ3 How are the outcomes of a competence improvement programme in two homecare districts enacted by HCPs? (study 3)

RQ4 How do implementation and context influence the outcomes of a competence improvement programme? (study 3)

2 Contextual setting

The PhD project was conducted in the homecare service in Norway. This chapter will describe the contextual setting for the research.

2.1 Homecare in Norway

In Norway, the municipalities are responsible for the delivery of homecare services. All individuals who need healthcare can apply for and have a legal right to receive home healthcare services in the municipality where they are living or staying (Health and Care Services Act, 2011; Holm et al., 2017). Homecare is described as 'the lowest level of effective care' and a comprehensive service provided in the patient's home (Holm et al., 2017). It includes rehabilitative, therapeutic and assistive care for a short or long period and includes tasks, such as medications, hygiene, nutrition and clinical procedures (Holm et al., 2017; Vabø et al., 2013).

'The Coordination Reform' in 2012 established a watershed for care services in Norway. The responsibility of healthcare services in the municipalities was increased, and proper treatment was required at 'the right place and right time'. Thus, patients should return sooner to the home municipality after completing specialist treatment and care at the hospital. Collaboration between the municipalities and hospitals was highlighted (Health and Care Services Act, 2011; Innst. 2012 S 2009-2010; St.meld nr. 47 2008-2009). As a result, the number of sicker patients with complex needs discharged to the municipalities increased (Gautun & Syse, 2013, 2017; Glette et al., 2018). Patients over 80 years in Norway receiving homecare have increased by 10% since 2017, and is now at the level of 28.6 % (SSB [Statistics Norway], 2021).

The healthcare provided in homes is based on the assessment of patients' needs. The municipal administration uses collected patient information to make an individual decision about the type and scope of services the

patient requires. Homecare allocation is outlined in individual time-managed care contracts that show the amount of healthcare each patient receives from the municipality. Furthermore, daily activities are planned according to predetermined work plans, which indicate the schedule and estimates of the duration of visits to patients and the tasks required (Holm et al., 2017).

HCPs are comprised of nurses, skilled health workers and assistants (Holm et al., 2017). In Norway, nurses' minimum requirement is a bachelor's degree in nursing, while some have a specialisation with a higher degree. Skilled health workers earn their healthcare education at the upper secondary school level, with two years of theoretical knowledge and two years of practical training in a hospital and primary care setting. Assistants employed in homecare have no formal healthcare education. Most assistants are temporary workers and work at vacant shifts or have a temporary position for certain months. Nevertheless, several assistants still work in the homecare service for a longer period, continuously having new temporary positions.

2.2 Quality and patient safety strategies

In Norway, patient safety initiatives have been emphasised, mainly since 2010 (Helsedirektoratet, 2017; Sosial- og Helsedirektoratet, 2005), that is, ten years after patient safety was brought into international focus in the reports of the Institute of Medicine (IOM, 2001; IOM, 2000). In 2012 the first white paper on quality and patient safety was established, covering all health and care services (Meld. St. 10 (2012–2013)). The white paper aims to discuss the status and challenges to patient safety (Meld. St. 11 (2014–2015)). Additionally, the three-year national patient safety campaign 'In Safe Hands 24/7' was initiated in 2011 by the Norwegian government to reduce patient injuries, develop structures for patient safety and improve the patient safety culture. The campaign was continued for another three years under the patient safety programme

(2014–2018). Strategies involved increased competence in patient safety, user participation and improved patient safety in primary care. Specialised healthcare was required to implement the activities, whereas primary care was recommended to participate due to differences in the legal frameworks (Pasientsikkerhetsprogrammet, 2014a; Pasientsikkerhetsprogrammet, 2014b).

Patient safety work is currently anchored in the National Action Plan for Patient Safety and Quality Improvement (2019–2023). The plan has defined four broad areas of priority: (1) leadership and culture, (2) competences and skills, (3) national initiatives for quality and safety and (4) systems and structures (Helsedirektoratet, 2019).

The first white paper on quality and patient safety stated that managers have an important role in ensuring quality and safety in healthcare (Meld. St. 10 (2012–2013)). Accordingly, in 2017, a management regulation on quality improvement was activated in specialised and primary healthcare (Forskrift om ledelse og kvalitetsforbedring i helse- og omsorgstjenesten, 2017). The regulation was organised around the four aspects of the Plan–Do–Study–Act circle and involved planning, implementing, evaluating, and correcting and clarifying the management system.

Early recognition of and response to deteriorating patients

As a strategic priority area, early recognition of and response to deteriorating patients was launched during the patient safety programme and was developed and highlighted in national professional advice (Helsedirektoratet, 2017; Helsedirektoratet, 2020).

The advice involves the following actions (Helsedirektoratet, 2020):

- development of healthcare professionals' observational competence;
- measuring patients' vital signs;
- detection of deterioration and adequate response; and

- routines that ensure clear communication and rapid assistance in a suspected deteriorating condition.

The advice generated several initiatives in hospitals and primary care on clinical observational competence. In primary care, a national digitally available programme, *KlinObsKommune*, funded by the Norwegian Directorate of Health was developed (Utviklingssenter for sykehjem og hjemmetjenester (USHT), 2020).

2.3 Centre for Development of Institutional and Home Care Services

The Centre for Development of Institutional and Home Care Services (USHT) is a national initiative that contributes to strengthening the quality in primary care through professional and competence development and the dissemination of new knowledge, new solutions and national guidelines. Twenty centres are located throughout the country in host municipalities. The USHT's vision is 'development through knowledge', and the participants of their activities include managers and employees of primary care services, particularly nursing homes and homecare services (Utviklingssenter for sykehjem og hjemmetjenester, USHT, 2022).

National and municipal requirements guide the assignment of the USHT. White papers are central, such as Meld. St. 15 (2017–2018) 'A Full Life - All Your Life: A Quality Reform for Older Persons'. The USHT arranges learning networks, seminars and training within areas such as management, dementia, welfare technology, medication management and clinical observation. The Norwegian Directorate of Health provides funding for the centres.

Competence Improvement Programme

In 2016, the USHT of one county initiated a competence improvement programme (CIP) to improve the skills and competence in recognising and responding to deteriorating frail older patients in primary care. The programme was initiated upon request of and developed in collaboration with two municipalities (see Figure 1). The CIP was named 'In safe hands: Early recognition and management of frail older patients in primary care' and based on experiences of healthcare professionals' incapacity to detect deteriorating patients. The programme was implemented in two homecare districts and two nursing homes.

The CIP aimed to:

1) develop a tailored educational programme in primary care, designed to improve healthcare professionals' competence and skills in recognising and responding to deteriorating frail older patients, based on teaching programmes using digital learning tools and simulation interventions; and
2) implement new work routines in homecare organisations to strengthen healthcare professionals' understanding of and clinical judgement on deteriorating patients.

This thesis is based on the CIP. The USHT contacted the Faculty of Health Science at University of Stavanger to connect research to the CIP and learn about the programme. The PhD researcher did not participate in the development and implementation of the CIP (see Figure 1).

Homecare was selected as the setting for the PhD project as research in the homecare setting is limited, particularly on observational competence. Incorporating both nursing homes and homecare would also be ambitious for a PhD project.

Chapter 4.4 provides further details on the CIP.

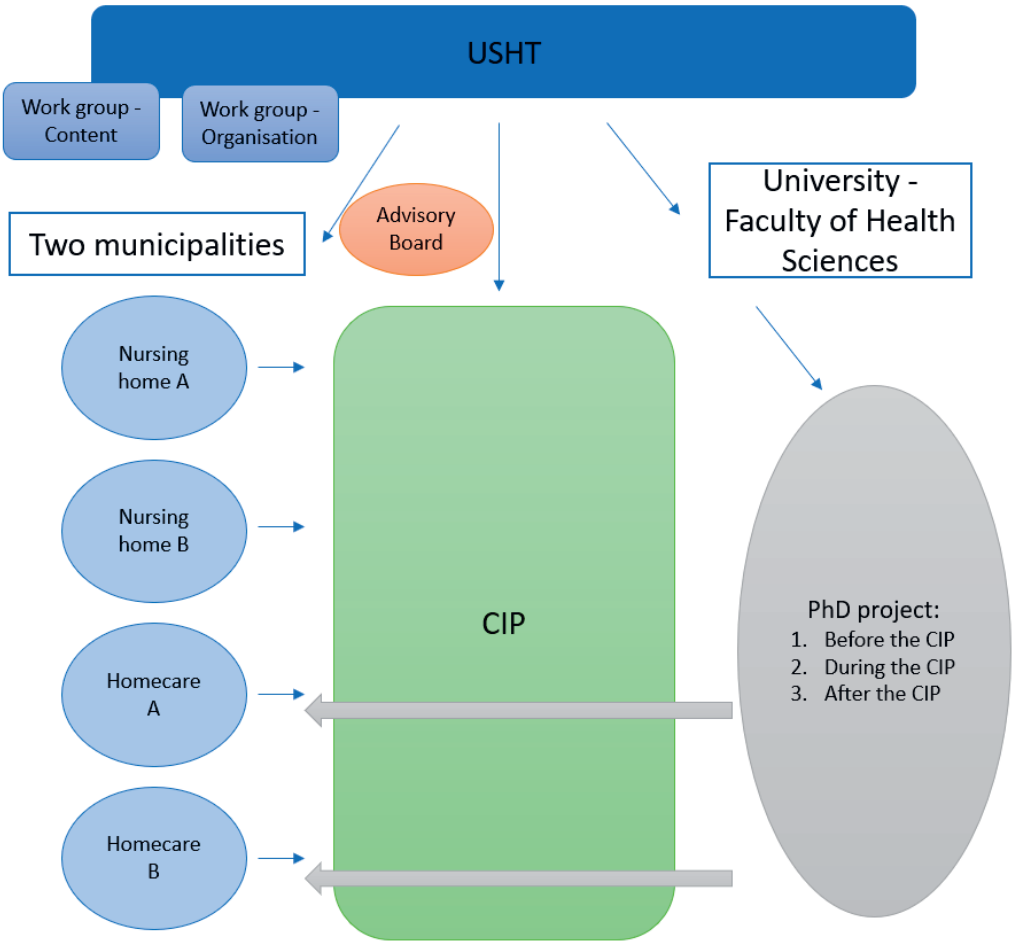

Figure 1. CIP organisation and the PhD project

3 Theory

This chapter presents theories on competence and improvement in healthcare as the thesis aims to gain knowledge of observational competence and how such competence can be changed in homecare.

3.1 Competence

Competence is a central quality challenge in healthcare (Bate et al., 2008; Johannessen et al., 2020; Langins & Borgermans, 2015). The World Health Organization emphasises that competence must be rooted in patients' needs in specific contexts. To ensure this a strong healthcare system is needed with educated and empowered healthcare professionals. They further argue that competence should have an outcome-oriented approach, rather than focusing on the educational process or duration. This approach requires a focus on professional competence (World Health Organization, 2022).

Competence is a debated concept with several definitions as follows:

1. Cowan et al. (2005) state that competence in nursing practice needs a holistic definition that involves a 'complex combination of knowledge, performance, skills, values and attitudes' (p. 361).
2. The International Council of Nursing (2010) defines competence as 'the effective application of a combination of knowledge, skill and judgement demonstrated by an individual in daily practice or job performance' (p. 17).
3. The World Health Organisation (2022) distinguishes between competence and competency. Competence is 'the state of proficiency of a person to perform the required practice activity to the defined standard' (p. 4), whereas competency refers to 'the abilities of the health worker to integrate and apply the necessary knowledge, skills and attitudes in the provision of services' (p. 1).

4. Eraut and Boulay (2000, p. 4) define competence as 'the ability to perform the tasks and roles required to the expected standard' (p. 4).

The distinction between competence and competency is unclear in the literature (Cowan et al., 2005). Hence, in this thesis, competence, as a concept, will be used, and the definitions of Eraut and Boulay (2000) and the International Council of Nursing (2010) set the foundation of the understanding of this concept. The two definitions comprise a holistic approach to competence. Such approach is highlighted to enable preparedness for practice, ensure the quality of care and develop resilient and adaptable healthcare professionals (Cowan et al., 2005; World Health Organization, 2022).

In the International Council of Nursing's view on competence, judgement is emphasised alongside knowledge and skills. Clinical judgement is essential in observational competence and is an important capability in recognising undefined clinical situations (Tanner, 2006). Additionally, assessments and judgements are frequently undertaken in the HCPs' everyday work (Furåker & Agneta, 2013). Eraut and Boulay (2000) highlight that competence is significant in the relationship between the healthcare professional and the patient and thereby represents the professionals' capability. The definition can be applied at any stage of the career and will vary with experience, responsibility, accounts for changes in practice and the need to meet the requirements of the service (Eraut & Boulay, 2000). Competence consists of the dimensions of scope and quality (Eraut, 1994). The scope dimension concerns the content of the person's competence, involving various roles, tasks and situations. The quality dimension refers to work quality assessment, which extends on a continuum from being a beginner of a particular task to becoming an expert (Eraut, 1994).

Eraut's (1998; 2005; 2010) definition agrees with Boyatzis' (2011) claiming that competence involves a person's ability or capability. Maximum performance occurs when a person's ability is consistent with the job demand and the organisation. An individual's competence

involves knowledge, experience, values and interests. Job demand focuses on the role, responsibilities and tasks that need to be performed. The organisation's culture and climate, structure and systems and economic and social surroundings reflect the environments that impact competence (Boyatzis, 2011).

Following the International Council of Nursing's definition of competence (ICN, 2010), the concept of knowledge, skills and judgement will be outlined.

3.1.1 Knowledge

Knowledge is an important component of competence and can be described as knowing facts and having insights and recognition. Knowledge involves the theory and explanation of a phenomenon. It is related to how a person gains access to correct information and understands the consequences of actions (Bernecker, 2006).

Knowledge is examined from individual and social perspectives, involving what individuals learn and how they interpret such learning. The examination also includes their attention to the social constructs of knowledge of the context for learning in the performance of for examples nursing roles based on the standards required in employment (Eraut, 2005, 2010).

Knowledge can be classified into the following three types (Eraut, 2005, 2010):

1. *Codified knowledge* includes theoretical publications in books, journals, policy documents and medical statistics and has the perspective of acceptance and truth (Eraut, 2005, 2010).
2. *Cultural knowledge* plays a key role in work-based practices and activities. Cultural knowledge is acquired through participation in work practices and influences a person's behaviour. In many situations, cultural knowledge is uncodified or disregarded, and

people are unaware of its influence on their behaviour (Eraut, 2005, 2010).

3. *Personal knowledge* involves ‘what the individual persons bring to situations that enables them to think, interact and perform’ (Eraut, 2010, p. 37). It represents the use of knowledge and its outcome and incorporates ‘personal expertise, practical wisdom and tacit knowledge’ (Eraut, 2005, p. 2). Tacit knowledge expresses what is taken for granted (Eraut, 2010) and refers to a person’s unspoken knowledge. Polanyi (2009) describes tacit knowledge as ‘we know more than we can tell’, involving thoughts, experiences and skills. Tacit knowledge is exposed in a particular practice and context and transmitted through social networks (Gascoigne & Thornton, 2013; Polanyi, 2009).

3.1.2 Skills

Skills are specific cognitive and motor abilities adopted through training and practice (ICN, 2010; World Health Organization, 2022). Although skills are not context-specific, a situation understanding is needed to decide when to use the actual skill (Eraut, 2005). A skilled behaviour consists of practical knowledge combined with ability and can be defined as ‘complex sequences of actions which become routinised through practice and expertise that is performed almost automatically’ (Eraut, 1994, p. 111).

Within the field of nursing, skills are understood as the practical aspect of bedside nursing and psychomotor skills where cognitive aspects are related to the acquisition of skills (Bjørk, 1999). The conceptualisation of skills has evolved from narrow and technical approaches to a broader perspective that involves a qualitative description of clinical performance where psychomotor skills include efficient and effective performance. Knowledge of an underlying theory guides the rationale of the execution of the skills. In the performance of skills Bjørk and Kirkevold (2000) highlight that a broad perspective is needed to capture

the practical actions of the skills and the involvement of holistic care of patients. Furthermore, skills are complex because of shifting environments involving different patients and contexts.

Eraut (2005) describes that skills are personal and cultural knowledge. Skills regarding procedural actions are often based on memory and classified as technical skills. Furthermore, skills are related to processes and are constructed from a mix of procedural, social and personal knowledge; skills involve complex processes, such as teamwork and problem-solving (Eraut, 2005). Flin et al. (2008) describe this type of skill as a non-technical skill, that is, 'the cognitive, social and personal resource skills that complement technical skills and contribute to safe and efficient task performance' (p.1).

3.1.3 Judgement

Clinical judgement is the healthcare professional's ability to recognise a patient's changed condition (Tanner, 2006). Clinical judgement and reasoning are essential parts of the decision-making process and are viewed as a problem-solving activity. In the literature, decision-making, critical thinking and clinical judgement are used interchangeably (Cappelletti et al., 2014; Tanner, 2006). Manetti (2019) highlights that clinical judgement and decision-making are synonymous concepts based on critical thinking and clinical reasoning.

Judgement and choosing options are needed to make decisions and meet the need of the patients (Flin et al., 2008). Manetti (2019) proposes that clinical judgement is a cognitive process through which healthcare professionals form a holistic assessment of a patient's situation. Clinical judgements are influenced by the healthcare professional's contribution to the situation, knowledge of the patient and the context, the use of different reasoning patterns and reflection on practice. Professionals need to gain an understanding of the pathophysiological and diagnostic aspects of the patient's clinical situation and the patient's and family's experiences of the illness and their physical, social, and emotional

strengths and coping resources (Flin et al., 2008; Manetti, 2019; Tanner, 2006).

Situation Awareness

Situation awareness is interlinked with and a foundation of healthcare professionals' judgement and decision-making (Walshe et al., 2021), Simply put, situation awareness is 'knowing what is going on around you' (Flin et al., 2008, p. 17). It is described as a non-technical skill and a continuous process of observing and detecting any changes. Situation awareness is dependent on the healthcare professional's attention to and perception of the patient's situation (Flin et al., 2008). It involves three elements of an individual's state of knowledge concerning the dynamic environment: (1) perceptions of elements in the environment, (2) comprehension of the current situation and (3) projection of future status (Endsley, 1995). Therefore, situation awareness has been identified as a critical component of the effective detection of deteriorating patients (Orique et al., 2019; Walshe et al., 2021). Loss of situation awareness is an important contributing factor to patient harm as deteriorating patients are not recognised; and healthcare professionals, who are most proximal to the patients, have a critical role in identifying and escalating the care of clinical deterioration (Walshe et al., 2021).

3.2 Improvement in healthcare

Improvement in healthcare has a pivotal role in achieving high quality services for the patients. A widely used definition of improvement in healthcare is offered by Batalden and Davidoff (2007):

> The combined and unceasing efforts of everyone - healthcare professionals, patients and their families, researchers, payers, planners, and educators - to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning) (p.2).

In this thesis, the term ‘improvement’ is used to encompass the range of purposeful attempts to make a positive change in homecare (Dixon-Woods et al., 2012). The competence improvement programme under study in this thesis meets the definition well as the aim is to detect early deteriorating patients (patient outcomes, health). Accordingly, improved performance of clinical observation (system performance, care) based on HCPs’ competence (professional development, learning) is necessary. As such, improvement processes should be established in professional practices (Wensing et al., 2020).

Context is often the ‘deal-breaker’ of making positive changes in healthcare and must be considered in improvement initiatives (Coles et al., 2020; Dixon-Woods et al., 2012; Lau et al., 2016). The focus on context has recently evolved and concerns the explanations of the causes of variability in responses to the improvement effort in an organisation (Dixon-Woods et al., 2012). Context is outlined differently and can be conceptualised as a set of circumstances that surround improvement efforts and organisational change (Damschroder et al., 2009; Kaplan et al., 2010; Øvretveit, 2014).

3.2.1 Conceptual framework of change

Theories of improvement efforts have differences and considerable similarities (Wensing et al., 2020). A conceptual framework of change in primary care is developed by Lau et al. (2016) to identify and explain key elements and the causes of the ‘evidence–practice gap’. The framework is based on published reviews from primary care displaying improvement initiatives (Lau et al., 2016).

The framework consists of four levels (Figure 2): (1) improvement initiative (intervention), (2) professionals, (3) organisation and (4) external context. Each level is synthesised from 70 reviews by using an interactive, interpretive and inductive approach. The fit between the improvement initiative and the three levels of contexts is highlighted. Furthermore, the different barriers and facilitators to improvement are

dynamic, cannot be considered in isolation and are changing over time (Lau et al., 2016).

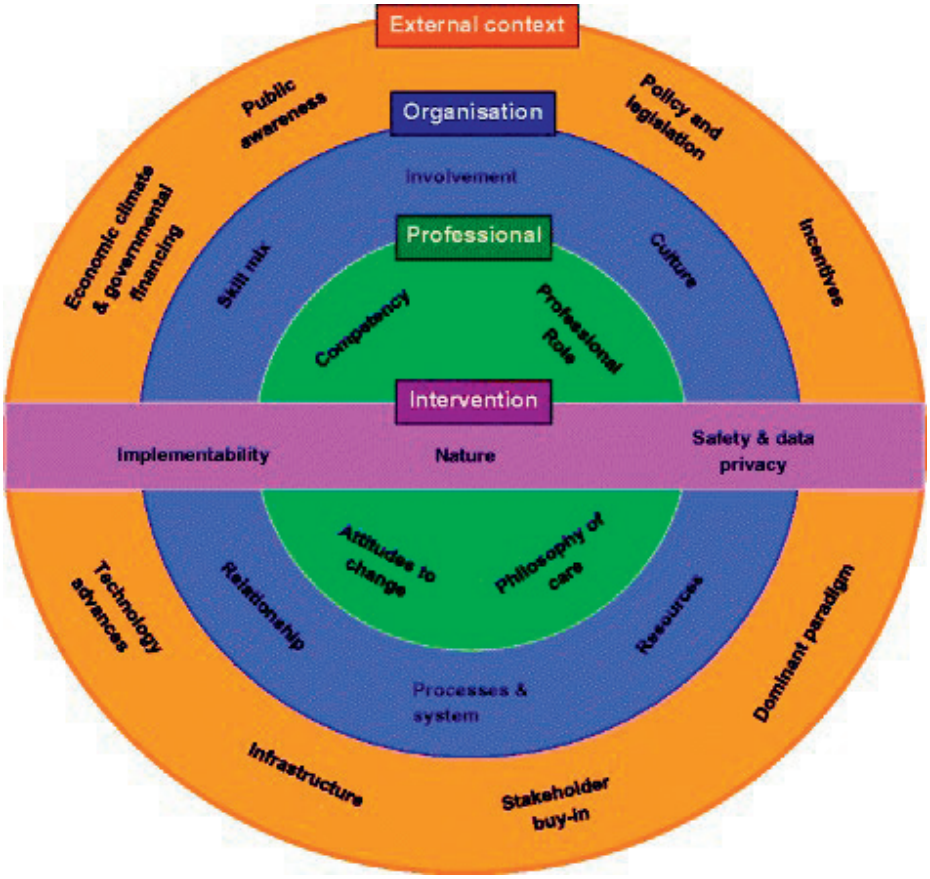

Figure 2. Conceptual framework of change in primary care (Lau et al., 2016)

In this thesis, Lau et al.'s (2016) framework is adopted to study competence improvement in homecare as their theoretical perspective is developed specifically for primary care. Furthermore, the framework corresponds with Boyatzis (2011) theory on competence describing that maximum performance occurs when a person's ability is consistent with

the job demand and the organisation. Lau et al. (2016) emphasise that the framework agrees with the Consolidated Framework for Implementation Research, the Normalisation Process Theory and the Theoretical Domains Framework (Damschroder et al., 2009; May et al., 2009; Michie et al., 2005). The Consolidated Framework for Implementation Research is constructed from published theories and frameworks and comprises five domains: (1) the intervention, (2) the inner and (3) outer setting, (4) the individual involved and (5) the process in which the implementation is accomplished (Damschroder et al., 2009). The Normalisation Process Theory focuses on what people do and the social processes into which changes are implemented, embedded and integrated (May et al., 2009). The Theoretical Domains Framework focuses on the theoretical understanding of the processes involved in changing healthcare professionals' behaviour and highlights 12 domains that explain behavioural change (Michie et al., 2005).

In the following, the four levels of Lau et al.'s framework are described in more details.

Improvement initiative (intervention)

The *nature and characteristics* of the improvement initiative comprise aspects as complexity, benefits, applicability, costs, utility, and customisation. Complex improvement initiatives are often associated with low adoption, while improvement initiative with clear and consistent clinical evidence of benefits and applicability to the setting facilitates implementation. Improvement initiative with clear designs, useability and reliability facilitate implementation. Costs affect implementation negatively when the implementation lacks cost-effectiveness and positively when practice experience advantages from the effort of the improvement initiative. Time is highlighted as a cost investment. Customisation represents the applicability of the improvement initiative to the context. A fit between the improvement initiative and the healthcare professional's needs, organisational

practices, values, and cultural norms promotes implementation (Lau et al., 2016).

Implementability includes the complexity of the implementation process, recourse requirements and the consequences of the implementation. Complex processes are difficult to accomplish as they often require complex project organisations. Easy and effective processes, such as using step-by-step management facilitates the implementation. The required resources and the positive and negative results of the improvement initiative should be considered. New improvement initiatives may lead to efficient workflow and cost savings, or a shift in organisational priorities, increased workload and the need to put other projects on hold (Lau et al., 2016).

Safety and data privacy are highlighted as important, particularly for technology-based improvements involving health information, secure data exchange, confidential information and trust between the healthcare professional and patient. Compliance between technical measures and data protection laws promotes implementation (Lau et al., 2016).

Professional

Competence and adequate training facilitate implementation and the *professional role* involves using the professional judgement, application of scientific and experiential knowledge and the capability of the professional to manage uncertainty. Autonomy and trust affect improvement initiatives. Professionals' independency of practice and problems with practicing comprehensively are barriers to implementation. The lack of confidence and the possibility to influence change impede improvement initiatives. Negative attitudes and beliefs about colleagues' communication and information are also perceived as a hinder to implementation (Lau et al., 2016).

Philosophy of care involves the fit between the implementation of improvement initiative and the existing clinical practice. In contrast, a

philosophical conviction, a communication style or personality, are barriers to the implementation. Values affect implementation, and if these values are at stake, such as the 'patient - healthcare professional relationship', the implementation is affected negatively (Lau et al., 2016).

Attitude to change is described both as a facilitator and a barrier to improvement. It is shaped by personal beliefs, experiences, education, training and peer networking. Resistance to change caused by the disagreement of the evidence or beliefs of the usefulness are barriers to improvement. Previous experiences affect the healthcare professionals' attitude. Furthermore, competing priorities, low motivation and awareness, shortage of time, and additional workload hinder improvement (Lau et al., 2016).

Organisation

A positive *culture* that values change and innovation is important for improvement initiatives. Leadership also impact improvement both positively and negatively. Strong and consistent leadership trusted by the staff facilitates change, whereas the lack of effective leadership to manage the process of change and set priorities is a barrier. Organisational readiness refers to the degree to which the organisation is prepared for the process of change. Staff preparation, strategic planning and role clarification affect improvement (Lau et al., 2016).

Available resources, such as time, funding, staff and technical support, are essential for the improvement effort. Barriers include limited funding, time and trained staff, a lack of sufficient equipment and failure to anticipate the amount of time and costs. Support is necessary at all stages of the improvement initiative (Lau et al., 2016).

Processes and systems represent the fit between the improvement initiative and the existing workflow and its integration with the actual work and systems. An existing workflow might require a change to

achieve a good fit between the implementation and the workflow (Lau et al., 2016).

Relationship, interprofessional and between the patient and healthcare professional, influences improvement initiatives. An interprofessional relationship is founded on trust and support, where reflections and input to challenges facilitate improvement. *Skill mix issues,* and clear roles, responsibilities and division of labour during the implementation facilitate the process. The absence of a proper skillset or the lack of competence to perform the required tasks inhibits a good process of change. Non-clinical staff often has better competence in the implementation process compared with clinical staff. *Involvement* and support by all personnel are important for a positive improvement initiative. A shared vision is highlighted and represents the collective understanding and agreement of the goals and benefits of change (Lau et al., 2016).

External context

Policy and legislation affect improvement initiative. Mandatory national and local policies activate and promote new initiatives and changes. A fit between policy and organisational priorities facilitates improvement, and standards and guidelines for ensuring uniform practice promote change. Clear *incentives*, financial and non-financial, drive the adoption of improvement. Non-financial incentives involve recognition and access to training. Financial incentives facilitate the adoption of improvement, and financial penalties could lead to distrust and professional demoralisation (Lau et al., 2016).

The *dominant paradigm* involves a set of values and beliefs in society at a given time. The agenda of politicians, the advice to promote healthcare and the production of national guidelines impact the credibility and enactment of values. *Stakeholder buy-in* refers to how stakeholders align with the improvement effort. Resistance, the lack of interests or

competing interests impede the change process. *Infrastructure* supports change, and reliable Internet access and focuses on sufficient information promote improvement initiative. A*dvances in technology* change the delivery of care in terms of how information is provided. *Economic climate and governmental financing* are central, and allocated funding and investment decisions affect the change processes. *Public awareness* represents the public's expectations and could generate pressure to change (Lau et al., 2016).

4 Methodology

This chapter presents the methodological approach of the current thesis. The chapter starts with a brief presentation of the philosophical considerations. Then, it describes the research design, phases of the thesis, detailed information on the competence improvement programme (CIP), data collection, setting, analysis, trustworthiness, ethical- and methodological considerations.

4.1 Philosophical considerations

This thesis is constructed within the paradigm of social constructivism based on its fundamental premise that knowledge and understanding are socially constructed in a context and that the individual is the centre of meaning-making experiences (Berger & Luckmann, 1967).

The central concept of the thesis is competence, particularly clinical observational competence. Clinical observational competence involves individual professional and intelligent judgements, the need to reflect on practice and the importance of contexts (Cowan et al., 2005). In the context of homecare, the professional mostly works individually. Learning within social constructivism occurs in interactions, where knowledge is created and applied within a particular social context (Thomas et al., 2014). The importance of the meetings and interaction between the HCPs should therefore be highlighted. Berger and Luckmann (1967) claim that reality includes shared meanings among a group of people and objective truths. Thus, knowledge can be communicated, created and acquired (Berger & Luckmann, 1967; Scotland, 2012).

Social constructivism argues that the human world differs from the physical world and must be studied differently (Patton, 2015). In this thesis, different qualitative approaches were used to observe and report

on the knowledge of those involved in the CIP (Hulscher et al., 2003; Mertens & Tarsilla, 2015). The experiences of the participants involved in homecare services have different realities, and all deserve attention. The variety of experiences represents reality, and the competence programme can only be understood within the context of reality (Patton, 2015).

4.2 Design

To pursue the overall aim of gaining knowledge of HCPs' clinical observation, a qualitative multimethod longitudinal sequential design is adopted in this thesis (Hesse-Biber & Johnson, 2015; Morse, 2009).

The multimethod design was applied to obtain a comprehensive understanding from several qualitative studies (Hesse-Biber & Johnson, 2015; Morse, 2009). Moreover, the study adopted a sequential design and longitudinal perspective by collecting data at three different stages, namely before, during and after the CIP (two years), and thereby examined the outcome of the programme (Calman et al., 2013; Polit & Beck, 2018).

4.3 Phases of the thesis

The thesis consists of three phases (studies) as illustrated in Figure 3.

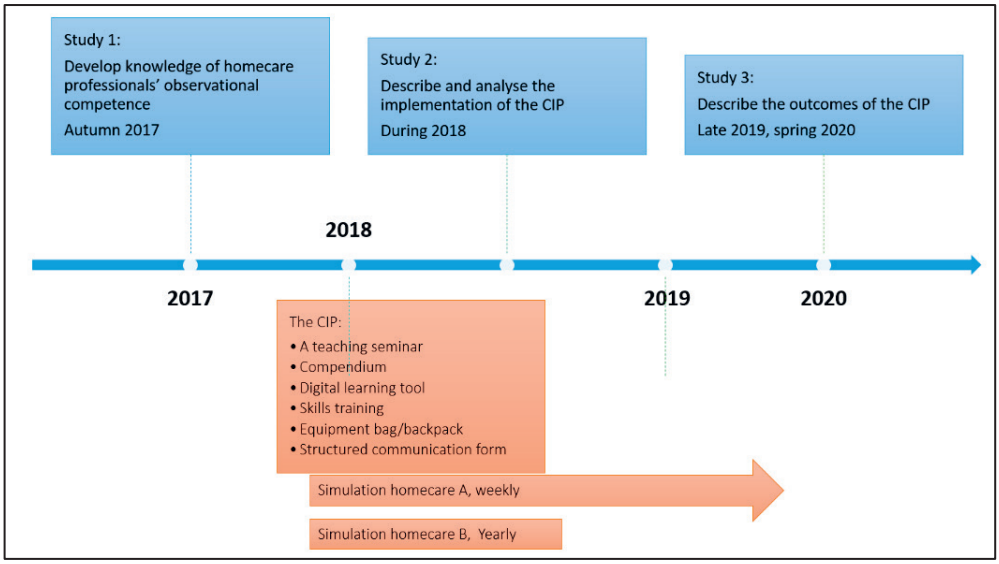

Figure 3. Phases of the thesis

Study 1 was conducted before the implementation of the CIP to develop knowledge of HCPs' observational competence in early recognition of deterioration in frail older patients. Study 2 aimed to describe and analyse the implementation of the CIP. Data collection started with a teaching seminar in autumn 2017 to autumn 2018. Study 3 aimed to describe the outcomes of the CIP and was conducted in late autumn 2019 and spring 2020 (see Figure 3).

The three phases resulted in three papers (Table 1). The three studies with belonging designs, samples, methods and analysis are displayed in table 1.

Table 1. Overview of the three studies of the thesis

Studies	Study 1	Study 2	Study 3
Papers	Paper 1	Paper 2	Paper 3
Design	Exploratory mixed-method	Descriptive qualitative	Mixed-method
Setting	2 homecare districts	2 homecare districts	2 homecare districts
Sample	HCPs (nurses, skilled health workers and assistants)	HCPs (nurses, skilled health workers and assistants), development nurses and managers	HCPs (nurses, skilled health workers and assistants), development nurses and managers
Methods	Participant observation and focus group interview	Participant observation, focus group interview and individual interview	Participant observation, focus group interview and individual interview
Data collection period	Autumn 2017	2018	Late 2019 and spring 2020
Analysis	Content analysis (Graneheim & Lundman)	Content analysis (Elo & Kyngäs)	Content analysis (Elo & Kyngäs)

More details on the methods of the three studies are presented throughout the chapter.

4.4 Competence Improvement Programme

The CIP was initiated to improve competence in recognising and responding to deteriorating frail older patients in primary care.

Two homecare districts and two nursing homes implementing the CIP participated in the development of the programme, together with a project manager at the USHT (see Figure 1). Two work groups where gathered: (1) working with the content development of the CIP and (2) working on organisational issues and a plan on how to implement the CIP in the services. Group participants included the project manager from the USHT, managers at the services, professional development nurses and healthcare professionals. Additionally, an advisory board was established to review the content and implementation plan. The board consisted of the project manager, three physicians (a general practitioner, a geriatric specialist and an experienced emergency room doctor), a simulation centre manager and a nursing professor. During the development period, a day meeting was arranged by the USHT. Participants of the meeting were from the homecare districts and nursing homes, along with hospital representatives and a USHT representative from another county. The purpose of the meeting was to discuss the experiences of other professionals working on similar projects.

Content and learning resources

The CIP was a multi-component programme and consisted of a *teaching seminar*, a *written compendium*, a *digital learning tool*, *skills training*, *simulation-based training*, a *form for structured communication (ISBAR-form)* and *equipment* for measuring vital signs. These components contained basic knowledge of clinical observation of frail older patients. The CIP started with a teaching seminar. Skills training and simulation-based training were then conducted at the actual service. The digital learning tool was available for individual use. A ISBAR form was gradually utilised in the services together with the available equipment.

The USHT arranged the *teaching seminar* twice in the autumn of 2017. The seminar programme contained an introduction, a description of the planned CIP and dissemination of theoretical knowledge on early recognition of deteriorating frail older patients in primary care. Topics included normal physiology, disease symptoms from a geriatric perspective and systematic examination of a critically ill geriatric patient. The examination was based on the airway, breathing, circulation, disability, exposure (ABCDE) algorithm, National Early Warning Score and the ISBAR communication tool. Each seminar had approximately 70 participants, representing the two homecare districts and two nursing homes.

A *compendium* consisted of content including the topics taught at the teaching seminar. The compendium was compiled into a booklet and was available for the HCPs at the homecare services and nursing homes.

A *digital learning tool* was an external resource available to the HCPs. It included the ABCDE algorithm, NEWS, ISBAR, different patient cases and questions related to the patient cases. The digital learning tool was available at any time via an Internet link, and the HCPs were encouraged to use this tool during their working hours.

Skills training was conducted for the rehearsal of measuring vital signs, such as pulse, respiration rate and blood pressure. The professional development nurses arranged the schedule during work shifts, and the training was held at the nursing homes and homecare offices. HCPs were also encouraged to practice measuring vital signs without assistance.

Simulation-based training was performed at scheduled times locally at the nursing homes and homecare offices. Groups of nurses, skilled health workers and assistants were gathered to practice actual cases from the homecare context. The professional development nurses signed every HCP on the list to ensure everyone's participation.

An *ISBAR form* addressed the need to structure the observation of patients' clinical conditions and contribute to decision-making.

Additionally, the form was also used to structure communication in situations when patients had a changed condition and needed systematic observation and/or when HCPs needed to call a general practitioner, emergency room doctor or the Emergency Medical Communication Centre. The form consisted of the ABCDE algorithm, ISBAR communication tool, quick Sepsis-related Organ Failure Assessment, FAST (stroke symptoms), National Early Warning Score and visual analogue pain scale.

Equipment available for measuring vital signs was provided. In both the homecare districts, HCPs brought a bag or backpack with equipment during home visits to patients. The bags were used by nurses on call and contained the ISBAR form, a blood pressure device, a stethoscope, an oxygen metre, a thermometer, a blood glucose metre, a urinary test kit, a pocket mask, a rescue foil and a flashlight. Similarly, the backpacks were used by other HCPs and contained the ISBAR form, a blood pressure device, a stethoscope, a thermometer, a urinary test kit, a pocket mask and a flashlight.

4.5 Setting

The study was conducted in two homecare districts (homecare A and B) in two different municipalities in Western Norway (see Table 2).

The HCPs consisted of nurses, skilled health workers and assistants working day shifts, evening shifts and weekends. Night shifts were organised in a separate group, with HCPs solely working at night.

Both homecare districts were organised with a unit manager and department managers. Unit managers had the overall responsibility for homecare in addition to other services including a nursing home and assistance service for people with disabilities. Department managers were responsible for the homecare districts. Furthermore, each homecare district had professional development nurses responsible for quality enhancement and improvement work.

During an ordinary work shift (day and evening) in the homecare districts, the HCPs worked following preplanned work lists. The patients were visited, and tasks were performed following these assigned lists. The work shift started with the HCPs examining their patients based on the documentation system. Then, the HCPs attended a report meeting at the homecare office. During the meeting, messages were conveyed; special concerns relating to patients were discussed; and patient medications were delivered to the HCPs according to their patient lists. Next, the HCPs visited their patients included in the lists. At mid-shift, the HCPs returned to the office for a break. Then, a report about the patients, new messages and an update on the remaining tasks of the shift were shared. After the break, the HCPs visited new patients, and certain HCPs conducted administrative work in the office.

Table 2. Characteristics of homecare districts

Homecare	A		B	
Year	2017/2018	2020	2017/2018	2020
HCPs:	80	83	65	67
- Nurses	30	31	20	22
- Skilled health workers	30	29	30	30
- Assistants	20	23	15	15
Patients	400	380	280	300
Geographical areas	Two	Two	Two	Two
Organisation	Three groups of homecare professionals	Three groups of homecare professionals	Two groups of homecare professionals	Two groups of homecare professionals
Managers	1 unit manager 1 department manager	1 unit manager 1 department manager	1 unit manager 3 department managers	1 unit manager 2 department managers
Development nurses	1 development nurse, full time	1 development nurse, full time	2 development nurses, part time	2 development nurses, part time

4.5.1 Homecare A

Homecare A was located in a large city in Norway. The homecare was one of six districts in the municipality, covering two geographically densely populated districts. The homecare had a unit manager and a department manager. The professional development nurse performed administrative work at the office.

The HCPs were organised into three groups as follows:

- Group 1 comprised nurses who visited patients needing special nursing tasks in both geographic areas.
- Groups 2 and 3 included skilled health workers and assistants who visited patients in their respective geographic areas. Each group had a nurse with a consultancy role. These HCPs visited patients following the preplanned work list.

Homecare A did not have digital work plans and patient journals on smartphones or pads. The HCPs had printouts of their daily work plans during home visits. They could not access patients' information while visiting them without the digital version of the patient journal system. They would have to update the patients' journals at the homecare office before and after homecare visits.

4.5.2 Homecare B

Homecare B was one of two homecare districts located in a municipality comprising urban and rural areas, with approximately 30,000 inhabitants. The homecare was organised in two groups including nurses, skilled health workers and assistants, covering two geographic areas. Each group was led by a department manager, and a unit manager was the head of both homecare groups. The homecare had two professional development nurses who practiced nursing in patients' homes, in addition to their responsibility for professional development of the HCPs.

The homecare had work plans and patients' journals available on smartphones, and electronic door locks (to patients' doors) were connected to the smartphones. The digital tools encouraged collaboration between the HCPs, and the patients' journals were available when the HCPs visited the patients. They could update and edit patients' journals continuously during visits.

4.6 Data Collection

Data for studies 1–3 were collected from the two homecare districts to gain knowledge about clinical observation and to understand how the CIP changes the HCPs clinical observation.

4.6.1 Sample

The sample comprises nurses, skilled health workers and assistants in all three studies (see Tables 3–5). They represented HCPs working part-time and full-time and who had permanent or temporary positions.

In studies 2 and 3, all managers and professional development nurses in the homecare districts were included as participants to better reflect the experiences and opinions of all personnel groups (see Tables 4 and 5).

Table 3. Study 1, sample and methods

Homecare A		Homecare B	
Sample	Data Collection	Sample	Data Collection
3 nurses	Participant observation, 6 different shifts	2 nurses	Participant observation, 5 different shifts
2 skilled health workers		2 skilled health workers	
1 assistant		1 assistant	
7 nurses	3 focus group interviews	5 nurses	3 focus group interviews
6 skilled health workers		5 skilled health workers	
5 assistants		2 assistants	

Table 4. Study 2, sample and methods

Data collection	Homecare A	Homecare B
Observations:		
2 teaching seminars	46 participants	16 participants
14 simulation-based training sessions	8 simulations	6 simulations
8 meetings	3-20 participants at each meeting	
Interviews:		
6 focus group interviews	19 HCPs: 7 nurses 6 skilled health workers 5 assistants	12 HCPs: 5 nurses 5 skilled health workers 2 assistants
9 individual interviews	2 managers 1 prof. development nurse	4 managers 2 prof. development nurses

Table 5. Study 3, sample and methods

Homecare A		Homecare B	
Sample	Data Collection	Sample	Data Collection
5 nurses	Participant observation, 11 different shifts	3 nurses	Participant observation, 10 different shifts
4 skilled health workers		5 skilled health workers	
2 assistants		2 assistants	
3 nurses	3 focus group interviews	3 nurses	2 focus group interviews
4 skilled health workers		2 skilled health workers	
3 assistants			
2 managers	3 Individual interviews	3 managers	6 individual interviews
1 prof. development nurse		2 prof. development nurses	
		1 assistant	

In sum, 32 HCPs (13 nurses, 13 skilled health workers and six assistants) were observed during their daily work in studies 1 and 3. Of these, three HCPs were observed in both studies. Focus group interviews were conducted with a total of 45 HCPs. Of these, four HCPs were interviewed twice. The managers and development nurses in homecare A were identical throughout the PhD project, while homecare B had several changes in these positions.

4.6.2 Recruitment

A project manager at the USHT organised and led the improvement programme, and managers were asked to participate in implementing it in their respective homecare districts. The USHT presented the project to researchers and asked for evaluative research following the implementation of the CIP.

The USHT project manager established contact between the two homecare districts and the PhD researcher. A meeting was arranged at the homecare offices to share information about the research and to agree on the researcher's role in the two homecare districts.

In both homecare districts, the professional development nurse had the overall responsibility for the CIP and functioned as a contact person for the PhD researcher. In cooperation with the professional development nurses, the managers recruited participants for data collection in studies 1–3.

Nurses, skilled health workers and assistants were asked to participate in observations, and the HCPs were recruited based on their time logs and shifts. The researcher was not present when the HCPs were asked to participate and first met recruited participants at the homecare district at the agreed-upon shift to greet and follow them.

The managers and professional development nurses also recruited participants for the focus group interviews. Different HCPs were recruited in three different groups based on their competence levels (i.e. nurses, skilled health workers and assistants). The scheduled times were sent to the researcher after the agreements were settled with the HCPs.

All managers and development nurses were asked to participate in individual interviews. Everyone agreed to participate, and the PhD researcher arranged the interviews.

4.6.3 Methods

All three studies used combinations of qualitative methods, such as participant observations, focus group interviews and individual interviews (see Tables 3–5). The use of several methods helped maintain a broad perspective. The observational component represented the participants' actions and practices, and the different interviews provide the participants' self-report of experiences (Denzin & Lincoln, 2018; Polit & Beck, 2018).

The following subsections describe the data collection by presenting the methods used in each study.

Participant observation

Participant observation was used in all three studies and was performed during the participants' daily activities and in all the activities of the CIP. The method aimed to gain knowledge of the explicit and tacit aspects of the HCPs' practices and routines, including the participants' daily communications among them (DeWalt & DeWalt, 2011; Patton, 2015).

Moderate participation occurred in all three studies when the researcher was present in the setting and identified as a researcher and interacted minimally. Active participation occurred when the researcher engaged in the situation, asked questions and had a dialogue with the participants to learn and gain insights into the HCPs' practice and the homecare setting (DeWalt & DeWalt, 2011).

Study 1 – before the CIP

The PhD researcher conducted participant observations during the HCPs' work shifts to develop knowledge of their observational competence. This method involved observations during home visits and transportation between different patients and at the homecare office. Additional observations were performed at different activities at the homecare office during a shift involving reports, meetings and breaks. Moderate observation was used during the visits to the patients' home. The researcher remained in the background and did not intervene in the patients' situations. The researcher observed home visits to frail older patients. When the HCP visited younger patients (under 65 year) during the shift, the researcher stayed in the car. At some visits, the researcher entered the patient's home and it became clear that the patient was not frail and old, the field notes were subsequently not recorded.

Active participant observation was used when travelling from the patient's home to the next patient. During this drive, the HCP and researcher talked and reflected on the patient's situation. The HCP shared reflections on the visit, and the researcher asked supplementary questions for clarification. Moderate and active observations were used at the office, during the reports, meetings and breaks at the homecare office. In the reports and meetings, the researcher stayed in the background and observed the actions and discussions that took place. Between meetings and patient visits and during breaks, active participant observations were conducted. The researcher then talked with the HCPs and managers.

Field notes were recorded during all stages of the observations. The first few keywords, e.g. phrases or key elements, were noted in the actual situation. Furthermore, in available situations, such as during a drive or at the office, additional written information was included. Detailed field notes were written after each observed shift. An observational guide (see Appendix 1) was developed focusing on work practices, the performance of skills related to the observation of patient deterioration, the interaction between the HCP and the patient, job and competency demands, the use of discussions and reflections and contextual factors. The core observational component of study 1 was conducted in 11 shifts, day and evening, in the homecare districts (six in homecare A, five in homecare B). In total, approximately 62 hours of observation were conducted (32 in homecare A and 30 homecare B), resulting in 51 pages of written field notes.

Study 2 – during the CIP

In study 2, the PhD researcher and supervisors conducted the participant observation during the teaching seminars, at different meetings, and during the simulation-based learning activities to describe and analyse the implementation of the CIP.

Teaching seminars

The researchers attended the teaching seminars and used moderate observation during the presentations and active observation during breaks and lunchtime. In total, 62 participants were recruited from the homecare districts. The homecare districts recruited the participants differently. At homecare A, the managers invited any HCP to sign up. At homecare B, the managers selected and asked the actual HCPs to participate. An observation guide (see Appendix 3) was used to focus on the teaching seminars. The guide includes items related to the content, interactions, responses and activities of the participants. 17 pages of notes were recorded during the two teaching seminars.

Simulation-based training

Simulation-based training was conducted locally at the two homecare districts. Groups of HCPs were gathered with one or two facilitators working on an actual patient case from homecare. The HCPs were given different roles in the simulation sessions, some acted in the simulation cases while others observed the simulation. The simulation-based training lasted for approximately one hour.

The PhD researcher and supervisors attended 14 simulations sessions, eight in homecare A and six in homecare B. Moderate observation was mostly used during the simulations. On a few occasions, the researcher was involved in the debriefing phase, and active observation was used. An observational guide (see Appendix 3) was used, focusing on the content of the simulation training, the participants' involvement and their expressed experiences. A total of 50 pages of notes were recorded during the simulations.

Meetings

Participant observation was also completed at several meetings. The USHT arranged two meetings, in which the two homecare districts and nursing homes participated to share their experiences of the CIP. Other meetings were conducted internally at the two homecare districts. In

homecare A, the participants included the professional development nurse together with the 'resource nurses' of the CIP. In homecare B, these meetings were held with the professional development nurses. The meetings aimed to organise, evaluate and modify the CIP. The researcher attended the meetings using and observational guide (see Appendix 3) and 32 pages of notes were recorded.

Study 3 – after the CIP

In study 3, participant observations were conducted as in study 1. The researcher entered the homecare districts two years after the CIP and conducted participant observation for four months (October 2019–January 2020). The observations focused on the outcomes of the CIP, the HCPs' systematic clinical observations and their discussions and reflections during the meetings at the homecare office. An observational guide was used (see Appendix 5). In total, 144 hours of observation were conducted (74 in homecare A and 70 homecare B), resulting in 138 pages of written field notes.

Focus group interview

Focus group interviews were used in all three studies to gain knowledge through organised conversation and discussion with a selected group of HCPs. HCPs with similar backgrounds and competence levels were gathered (Morgan, 1997; Patton, 2015; Powell & Single, 1996).

The PhD researcher and a supervisor conducted the focus group interviews at the homecare offices. The researcher started by explaining the concept of focus groups and the aim of the conversation. The researcher and the supervisor introduced themselves. They highlighted that the conversation between the HCPs was the most important interaction and that they would remain in the background. All the HCPs presented themselves.

Semi-structured interview guides were used with the main questions and topics for the discussion. Open-ended questions were used, and the researcher supplemented the conversation with sub-questions. The supervisor documented the group interaction, raised additional questions and included all the HCPs in the conversation. A tape-recorder was used, and the interviews lasted for approximately one hour. Coffee, tea and chocolate were served.

Lastly, the supervisor summarised the conversation and asked if the content of the conversation was perceived correctly and if any had additional comments. In many interviews, several HCPs added comments and described the conversation in the focus groups as a fruitful experience of being listened to and taken seriously (Powell & Single, 1996). In the two homecare districts, most of the HCPs did not have experiences being interviewed by any researcher.

Studies 1 and 2

Focus group interviews were conducted to collect data for studies 1 and 2 in combination. Six focus group interviews with 30 informants were completed, three in each homecare district (see Table 3 and 4). The participants were gathered in separate groups of registered nurses, skilled health workers and assistants (Morgan, 1997). Five focus groups comprised five to seven personnel, and one consisted of two HCPs. A semi-structured interview guide was used (see Appendix 2). First, the guide focused on questions related to the HCPs' detection of deterioration in patients, observational routines, use of vital signs and the organisational structure of the homecare (study 1). Second, the guide focused on how the HCPs perceived the CIP (study2). The tape-recorded interviews resulted in 82 pages of transcripts (54 for study 1 and 28 for study 2).

Study 3

Focus group interviews were conducted with HCPs to describe knowledge of the outcomes of the CIP (see Appendix 6). In homecare A, nurses, skilled health workers and assistants were gathered in three separate groups. In homecare B, nurses and skilled health workers were gathered in two groups. The focus groups comprised two to five HCPs, which is a fewer number of participants compared with the typical group size of 5–10 participants (Morgan, 1997; Patton, 2015). The interviews were conducted in May 2020 and June 2020 at the end of the first wave of COVID-19. The homecare districts welcomed visitors to their offices, which enabled the accomplishment of the focus groups. However, the number of persons gathered in the groups was limited due to infection control. The interviews were tape-recorded and comprised 173 pages of transcripts.

Individual interview

Semi-structured individual interviews (Brinkmann, 2018; Polit & Beck, 2018) were used in studies 2 and 3 to collect data on the managers' and professional development nurses' experiences with the CIP. They implemented, led and organised the CIP and had valued experiences of the CIP and its outcome. The PhD researcher conducted all the interviews at the homecare offices lasting for approximately an hour. Individual interviews were preferred over focus groups for practical reasons and group size considerations.

Study 2

The interviews focused on the background and motivation of the CIP and the process of realising it in the homecare districts (see Appendix 4).

The interviews were completed between January 2018 and March 2018. In homecare A, two managers and a professional development nurse were interviewed. In homecare B, four managers and two professional

development nurses were interviewed. The managers were at different levels and consisted of the unit and department managers. Department managers were responsible for several units and were the head of unit managers. The interviews were tape-recorded and provided 127 pages of transcripts.

Study 3

The interviews focused on the managers' and professional development nurses' experiences of the perceived outcomes of the CIP (see Appendix 7) and were completed in the spring of 2020. The interviews resulted in 100 pages of transcripts. Furthermore, in homecare B, an individual interview was conducted with an assistant rather than a focus group interview because of recruitment difficulties.

4.7 Analysis

To gain knowledge of HCPs clinical observation and understand how the CIP changed such observations qualitative content analysis was used in all three studies (Elo & Kyngäs, 2008; Graneheim et al., 2017; Graneheim & Lundman, 2004).

This method involves analysing the content of the observations, focus group interviews and individual interviews by reducing the data and forming concepts or units (Kyngäs et al., 2020). Content analysis involves discussions and a distinction of the manifest or latent content. The *manifest content* is what the text actually says and closely describes the participants' actions or experiences, whereas the *latent content* is the underlying meaning or interpretation of the meaning (Graneheim et al., 2017; Graneheim & Lundman, 2004; Polit & Beck, 2018). In the context of this thesis, the manifest content could relate to how the HCPs performed clinical observation and daily activities at the homecare districts, while the latent content could relate to the understanding of this

performance in light of working routines, level of reflections and knowledge or professional group.

4.7.1 Study 1

Qualitative content analysis according to Graneheim & Lundman (2004) was used to structure the participant observation and focus group interviews. The transcripts from the two datasets were analysed separately and followed the same procedure (Morse, 2010). Morse and Niehaus (2009) argue that a mixed method involves a primary method combined with one or more strategies drawn from a second and supplemental method. In study, participant observation was the core component used to establish knowledge of how HCPs conducted clinical observation in practice. Then, the focus group interview was the supplementary component conducted to obtain additional information on HCPs description of clinical observation (Morse & Niehaus, 2009).

The analysis and interpretation of data comprised four stages as follows:

1) The researcher and the supervisors read the transcribed data material several times to find similarities and differences between parts of the texts. A back-and-forth discussion process resulted in a common understanding of the data and tentative codes.
2) The content was divided into meaning units of related words and statements with the same central meaning. The PhD researcher condensed these meaning units.
3) The text was reduced, and the core content was preserved, with codes used to label the meaning units.
4) The codes were sorted into themes and sub-themes. A discussion of manifest or latent content was central and conducted between the researcher and supervisors.

After the analysis of the two data sets were completed, themes with familiar content were combined and written together to produce the results descriptions at the point of interface (Morse & Niehaus, 2009).

The results point of interface is where the methods integrated into the writing as a single textual description based on themes and sub-themes as visualised in Figure 4.

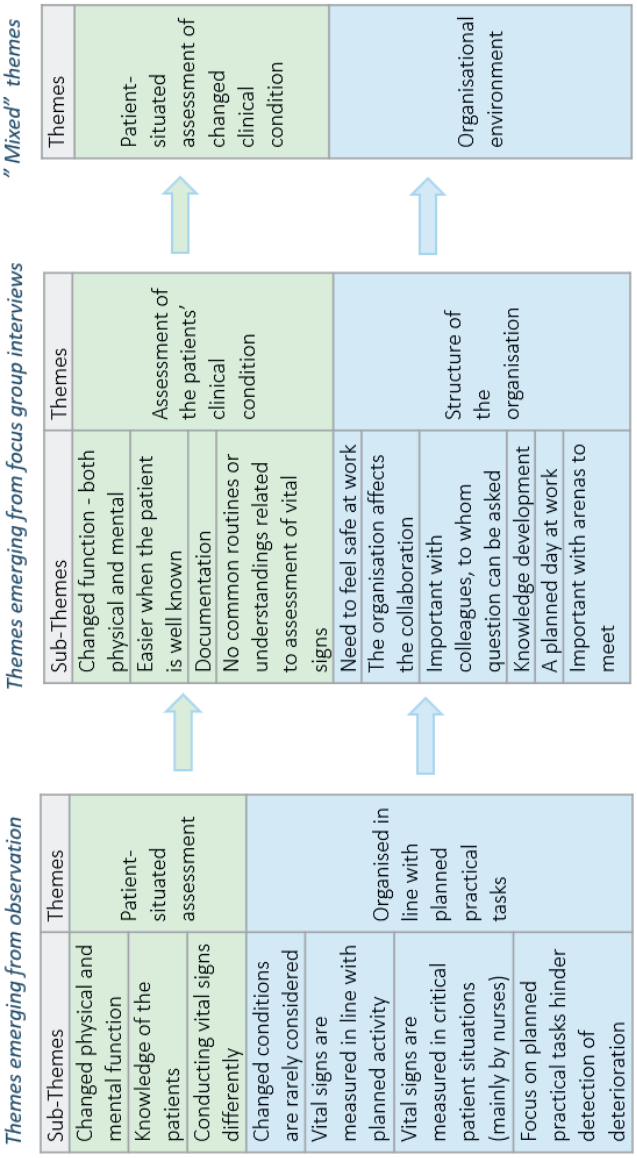

Figure 4. Study 1: Combination of datasets

4.7.2 Study 2

Qualitative content analysis according to Elo & Kyngäs (2008) and Kyngäs et al. (2020) were used to structure the participant observations and interviews. The descriptive qualitative design of the study aimed to describe and analyse the implementation of the CIP and using the perspectives of the professionals involved. These perspectives include information required directly from those experiencing the CIP (Bradshaw et al., 2017).

The material, the participant observation at the CIP activities, focus group interviews of the HCPs and individual interviews of professional development nurses and managers in the two homecare districts were read several times by the PhD researcher and supervisors. Then, the material was sorted and structured into dimensions of context (WHY), content (WHAT) and process (HOW) according to a model to identify factors related to organisational change (Pettigrew et al., 1992; Stetler et al., 2007). In study 2 WHY relates to describing the purpose of the CIP in the homecare context, WHAT relates to the content of the CIP and HOW relates to the process of implementing the CIP. The WHY dimension was mainly informed by the focus group and individual interviews. The observations and interviews informed the WHAT and HOW dimensions.

Furthermore, within the dimensions of content, context and process, the analysis of the material was conducted inductively as follows (Elo & Kyngäs, 2008; Kyngäs et al., 2020):

1) Open coding was conducted in the sorted material. Headings, phrases or words were written in the margin when reading. The headings had a clear connection between the open coding and raw data.
2) Common codes were grouped. The lists of identified open codes and the content of the groupings were checked by returning to the raw data to confirm the context of meaning.

3) Sub-concepts, concepts and main concepts were identified. This step is a process of abstraction, which can proceed further when the concepts can be grouped.

The findings of the analyses were reported and presented by describing the identified concepts and open codes to address the implementation of the CIP. The descriptions included several citations from the material to connect the results to the raw data.

4.7.3 Study 3

Qualitative content analysis according to Elo & Kyngäs (2008) and Kyngäs et al. (2020) was used to structure the participant observation, focus group interviews and individual interviews from each homecare districts. Data from each homecare district was analysed separately to describe the outcome of the CIP in each district respectively. The following steps were used:

1) The PhD researcher and supervisors read transcripts of raw data several times.
2) The raw data was open-coded with words or codes covering the content and with a clear connection between each code and raw data.
3) Similar codes with common content were grouped and created the sub-concepts. The meaning of the sub-concepts' descriptions was reviewed by returning to the raw data and checking that the content was included in the open codes' descriptions.
4) The abstraction process continued in the analysis by grouping the sub-concepts into concepts.

The PhD researcher led the process, and all steps and results were discussed in several meetings with the supervisors to gain a common understanding. The observational data served as the core component, and the focus group interviews and individual interviews were the supplementary components. Figure 5 shows how the analysis of the main

concept, namely the frequency of vital sign measurements, was structured. The three datasets were combined at the point of interface and written together as a text covering the findings from each homecare district (Morse & Niehaus, 2009). The supplemental components added information to the core component and addressed the outcomes of the CIP from different perspectives (Morse, 2010).

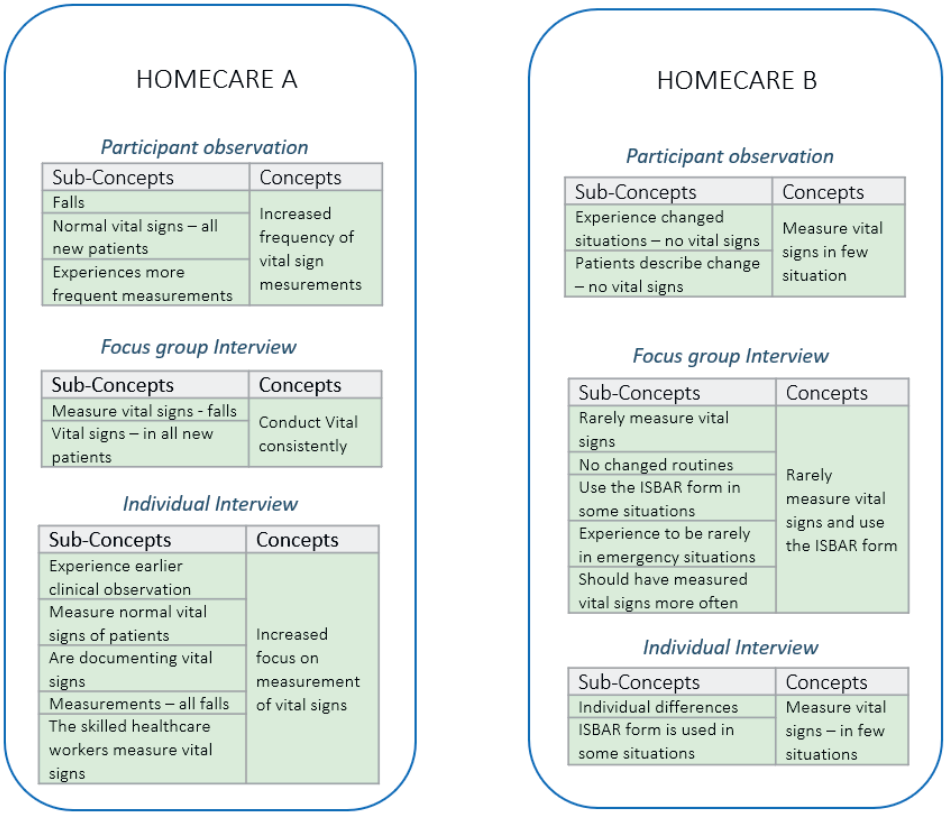

Figure 5. Study 3: Combination of datasets

4.8 Trustworthiness

Trustworthiness refers to the authenticity and truthfulness of the PhD project. Credibility, transferability, dependability, confirmability and reflexivity will guide the reflection on trustworthiness in the following subsections (Lincoln & Guba, 1985; Polit & Beck, 2018).

4.8.1 Credibility

Credibility refers to the confidence in the research conducted, the truth value of data and their interpretations (Korstjens & Moser, 2018; Polit & Beck, 2018; Shenton, 2004).

The credibility of the findings of this thesis was attained by using different data collection methods (multi-method design). The weaknesses of a single method were reduced, and the data collection improved its robustness. The data were complete and contributed nuanced answers to the research questions as the participants' experiences were captured from actions (observations) and self-reports (interviews) (Denzin & Lincoln, 2018; Polit & Beck, 2018; Shenton, 2004). The credibility is also strengthened with a sufficient sample size (Shenton, 2004). The PhD project involved a substantial sample representing the HCPs, managers, and professional development nurses all involved in the CIP. The managers and professional development nurses performed the sampling, and the researchers did not intervene in this process.

A prolonged engagement is recommended to achieve an understanding of the empirical setting and establish trust between the researcher and participants (Lincoln & Guba, 1985; Shenton, 2004). During the PhD project, the researcher attended the homecare districts regularly for approximately three years, became a recognised person and connected to the CIP for many participants. Having small conversations with several persons during the visits at the homecare office became natural.

Rich field notes on the observations promoted credibility by describing the participants' behaviour, action, conversations and processes in the two homecare districts. At the beginning of the PhD project, as a new researcher, the field notes were sent to the supervisors to be reviewed. Then, discussions and guidance were offered on how the field notes should be conducted. The details of the notes are descriptive and thus reveal the actual situation. Therefore, notes were recorded during observations to describe actual quotes and recall the situation until the shift was finished; the observations were then described as accurately as possible (Patton, 2015).

The data collection was conducted according to the plan in studies 1 and 2. In study 3, the focus group interviews were difficult to realise due to the COVID-19 pandemic. Five of six (planned) focus groups were gathered, and guidelines for infection prevention resulted in fewer participants in the groups. The reduction of participants in the groups may have affected the discussions and resulted in fewer differences in perspectives (Morgan, 1997; Patton, 2015). The PhD researcher and supervisors discussed the situation and assessed the information power to be satisfactory considering the use of complementary data methods in the study (Malterud et al., 2016).

The participants' opinion on the findings was asked for during the PhD project. The results were presented and discussed during visits to the homecare districts at staff meetings and seminars where representatives from the homecare districts were present. The three scientific articles were also sent to the managers and professional development nurses. They found the findings recognisable and in compliance with how they experienced the CIP implementation.

4.8.2 Transferability

Transferability is the aspect of applicability and to what extent the findings can be transferred and applied in other settings (Polit & Beck, 2018; Shenton, 2004). This aspect is debated within qualitative research

but can be managed by providing sufficient descriptions of the research process. Providing opportunities for the readers to relate to the findings would reflect transferability. The thesis provides descriptions of the homecare districts and the research process. The homecare districts were located in different municipalities, were organised differently and had urban and rural settings. Additionally, the HCP sample included a complex group of nurses, skilled health workers and assistants, which is similar to the situation in other primary care settings. The findings were presented with direct descriptions of the situations, including rich quotes, to enable readers to align with the findings.

4.8.3 Dependability

Dependability refers to the consistency of data over time and changing conditions (Lincoln & Guba, 1985; Polit & Beck, 2018; Shenton, 2004).

A project plan for the PhD was initially formed and guided the research through all the phases. As qualitative research is a flexible process (Polit & Beck, 2018), the researcher and supervisors conducted numerous discussions during the project. These inputs, discussions and reflections were substantial in the guidance of the research and significantly contributed to the dependability of the thesis. Together with the supervisors, the PhD researcher actively guided all phases of the PhD project: contact with the homecare districts, data collection, analysis and dissemination of the results. This action enhanced consistency (Lincoln & Guba, 1985) and provided an overview of the research.

Moreover, through detailed descriptions of every step of the research process, other researchers can assess its dependability (Lincoln & Guba, 1985). The design and steps of the study can be repeated within other healthcare contexts. Nevertheless, the replicability of the results may be difficult because healthcare organisations are different and changing (Shenton, 2004). This thesis shows that a CIP in two homecare districts had different outcomes. Such findings provide knowledge of the

differences, barriers and facilitators and can be replicable and valued in other studies (Lau et al., 2016; Shenton, 2004).

4.8.4 Confirmability

Confirmability concerns the aspect of objectivity in the research process and involves reflections on the researcher's decision-making process and critical appraisal of the evidence and interpretations (Lincoln & Guba, 1985; Shenton, 2004).

During the individual and focus group interviews, whether the participants understood the message needed to be determined. Therefore, the researcher in the individual interviews and the supervisors (as an observer) in the focus groups interview summarised the answers in the end to gain confirmation of the researcher's perception. Additionally, at the start of the analysis, the PhD researcher and supervisors read the data material and met at analysis workshops. During these workshops they presented information they considered as overall findings, which was fundamental to the analysis.

Transparency in the analysis is a key factor in gaining confirmability and credibility. A careful selection of appropriate units of analysis resulting in themes (study 1) and concepts (studies 2 and 3) was important. The PhD researcher led this process and worked together with the supervisors as a research group to gain confirmability. They followed the steps of the analysis and agreed on the results representing the data material. Rich descriptions including quotes from the participants made the results recognisable and credible for the readers (Graneheim & Lundman, 2004; Kyngäs et al., 2020).

4.8.5 Reflexivity

Reflexivity refers to the process of being a researcher as the self and notions of personal values and experiences may affect the data collection and interpretation (Polit & Beck, 2018).

I am an intensive care nurse and have a long clinical experience in primary care (homecare) and at hospital (in the emergency department and intensive care unit). Entering the homecare districts was recognisable given my long clinical experience. I am knowledgeable of the context and how the health professionals worked. I have also been in contact with many patients and found the interaction natural.

My experience as a nurse in homecare was many years ago, thus establishing a distance to the service. Nevertheless, my reflections as a researcher rather than as a nurse were necessary. How to behave as a researcher and how to report the findings were discussed with the supervisors. Reporting all the findings explicitly was challenging. Initially, I aimed to report the findings implicitly because I am aware of all the challenges and efforts made by the practice field. Reflections made with the supervisors were important to understand and act as a researcher.

During the participant observations, whether the background and experiences as an intensive care nurse could influence the participants, lead to increased uncertainty or caused stress for the HCPs during the patient visits was discussed. My own clinical observational competence is at an expert level, and therefore, my background and experiences were not mentioned unless asked for. Certain participants asked for the background and were then told. The participants did not reveal any stress; rather, others stated that my background could be useful in specific situations. Information on my background could alco increase credibility by knowing the context being studied, having competence in nursing and clinical observation and knowing what to look for during home visits. The position of myself as an observer could be difficult to find in certain instances. Particular shifts were busy and challenging, and I needed to decide whether to observe only or help the HCPs. In situations where two HCPs were needed, I was asked if I could help with tasks such as moving a patient. In other situations, I made breakfast for the patient and handed medical equipment to the HCPs.

4.9 Research ethics

The study was approved by the Norwegian Centre for Research Data (No. 54855). All participants were informed of their right to withdraw at any time and that their confidentiality was protected. They provided informed written consent. Transcripts were made anonymous by deleting identifying information. The participants were assured that the data tapes and transcripts were stored in line with ethical guidelines and would be deleted after completing the PhD project.

4.9.1 Vulnerable patients

In studies 1 and 3, participant observations indirectly involved observing patients during the visits of HCPs. The PhD researcher signed a declaration of confidentiality in the two homecare districts. The patients in the studies were considered third parties in the research and anticipating negative effects and initiating actions was decisive (NESH, 2021). The researcher was presented to the patients by the HCPs and requested approval to stay in the home together with the HCPs. In the situation, it was important to take care of the patent's integrity and privacy. The researcher did not intrude more than necessary, which included how to enter the patient's home and how to interact dynamically with them (Patton, 2015). In the patients' home, the researcher remained in the background and intervened minimally. In situations of personal care, the researcher stayed in another room, often in the hallway, and only listened to the conversation between the HCP and the patient.

4.9.2 The researcher's role

The researchers influence on the participants was an important ethical consideration. A freely given consent indicates that the consent should be obtained without external pressure (NESH, 2021). The participants may be influenced by or requested to participate by the organisation, managers or colleagues, as well as the presence of the researcher.

However, when the PhD researcher met the participants for the first-time during observation, the researcher emphasised again the importance of informing thoroughly and highlighted the possibility to withdraw at and time.

During participant observations, the PhD researcher was close to the participants on many occasions, especially when following different HCPs during their shifts. The researcher was alone with the participants for several hours: in the patient's home and driving together in the car. The reflection between proximity and distance is crucial (Alver & Øyen, 2007). In practice, responses to ethical situations are important. These responses involve the researcher's preparedness to acknowledge ethical challenges and the ability to recognise situations and evaluate and respond properly.

As a healthcare professional, the researcher had professional legislation requirements to notify in situations where the participants are at risk. During observations, the researcher noted situations where patients were not provided with proper care. Such situations were discussed with the supervisors and managers of the homecare districts. Professional ethics would take a higher priority than researcher neutrality (Guillemin & Gillam, 2004), and HCPs would be notified if adverse situations arose. On a few occasions the PhD researcher asked the HCPs to reconsider the situation, as when a patient had a very high respiration rate which was not noted by the HCP. Consequently, the vital signs were measured and the general practitioner contacted.

4.10 Methodological considerations

This section will present methodological considerations including the strengths and weaknesses of the thesis.

4.10.1 Data collection

Several data collection components provided different perspectives to the aim of the thesis, thereby strengthening the interpretations and understanding of clinical observation in homecare (Hesse-Biber & Johnson, 2015; Morse, 2009). Observation as a method is used less frequently in homecare, and Leverton et al. (2019) highlight the possibilities evolving in the triangulation of methods in the homecare setting. Furthermore, the longitudinal perspective offered an important insight into the sustainability of the CIP and an understanding of the degree and direction of change over time (Hesse-Biber & Johnson, 2015). To enable the longitudinal design, the PhD project was conducted over six years

4.10.2 Applied methods

Potential biases regarding the methods used need to be addressed. Observations are limited to the actual situations the researcher participated in and are dependent on the perception and interpretation of the researcher (Patton, 2015). Thus, important situations may not have been observed. Particularly, in homecare B, where clinical observation was limited after the CIP and the measurement of the vital signs was rare, we considered whether the reason was that the researcher was not present during the right situation. Nevertheless, the interviews confirmed the findings from the observations.

In the focus group interviews, the participants may influence each other, and characteristics, such as being extrovert and introvert, affect how they speak out and share opinions. In study 1, several participants in the group of skilled health workers in homecare A were dissatisfied with their managers. On several occasions, the interview lost track, and certain participants were dominant in the group. As a result, two researchers were needed to continue the interviews: one acting as an interviewer and the other observing and moderating the situation. The moderator ensured

that everyone was included in the interview, raised complementary questions to understand the situation and helped get the interview back on the right course. Despite the engagement, discussions and disagreement on certain points, the skilled health workers pronounced in the end that they were not daunted. They found the conversations valuable, informative and interesting. They stated that they had not been together previously, talking in an organised setting.

Individual interviews were conducted with managers and professional development nurses. The managers initiated the CIP and were responsible for its successful implementation and could answer according to their particular interests. A manager consistently mentioned the accomplishment of the CIP, which was different from other participants' experiences. Evidently, the manager was distant from the current situation in the homecare district. Brinkmann (2013) highlights that this situation only becomes a problem if it remains unacknowledged in the analysis.

4.10.3 Analysis

Content analysis was used in all three studies, inductively built to remain close to the datasets. Study 1 was based on Graneheim and Lundman (2004), and studies 2 and 3 adopted Kyngäs et al.'s (2020) content analysis. Different content analysis approaches were employed as Graneheim and Lundman's (2004) process from condensed meaning units to themes was assessed as difficult to manage for the extensive data material of study 2 and 3. Thus, Kyngäs et al.'s (2020) content analysis was selected as the process starts with sorting the material through open coding. Common codes were grouped, allowing the process to handle a large material effectively. Additionally, in study 2, a theoretical framework of change (Pettigrew et al., 1992) was used, and a deductive approach in line with Kyngäs et al. (2020) was adopted. The analysis was inductively built within the sorted material of the three theoretical dimensions WHY, WHAT and HOW (Pettigrew et al., 1992).

4.10.4 Other relevant methods

A qualitative approach was selected, as the homecare context is insufficiently studied, particularly regarding the clinical observation of frail older patients (Gray et al., 2018a). As a concept, competence also has theoretical (knowledge) and active perspectives (skill, judgement) (ICN, 2010). These components enhanced the significance of observation as a method. Nevertheless, a quantitative design could be appropriate by using a competency self-assessment questionnaire (Bing-Jonsson et al., 2013; Cowan et al., 2008). In the thesis, nurses, skilled health workers and assistants are included, though we cannot distinguish fully between their actual knowledge. We made assumptions based on their statements and what they did during observation. A survey could have informed us of such differences in competence (Bing-Jonsson et al., 2013; 2015).

4.10.5 Theoretical framework

This thesis used the 'conceptual framework of change in primary care' (Lau et al., 2016) as a theoretical framework. Lau et al. (2016) claim that other frameworks, such as the Normalisation Process Theory (May et al., 2007) and Consolidated Framework for Implementation Research (Damschroder et al., 2009), may also be adopted to study change or improvement. The Consolidated Framework for Implementation Research has a meta-theoretical perspective, whereas the Normalisation Process Theory is constructed based on sociological perspectives. Pettigrew et al.'s (1992) framework of change could also have been used in the thesis as it was used in study 2. The framework gives insight into the power of change and suggests key factors for creating a receptive context for change (Pettigrew et al., 1992). This framework does not integrate an improvement initiative implemented across professionals, organisations and external contexts as is the case in Lau et al.'s (2016) framework. The Knowledge-to-Action framework (Straus et al., 2013) could also form a relevant and appropriate framework as it aims to

achieve knowledge translation in healthcare organisations. Nevertheless, an important part of the knowledge creation and the action circle in the framework were not informed by this thesis. Lau et al.'s (2016) framework was selected as it was developed from reviews on improvement programmes in primary care and is thereby based on this actual context. Simultaneously, it provides an overview of context levels, which have especially guided the discussion of this thesis.

5 Results

This chapter summarises the findings of studies 1–3 of this thesis. Furthermore, relationships between the findings across the three studies are presented.

5.1 Study 1

> Strømme, T., Aase, K., & Tjoflåt, I. (2020). Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study. *Journal of Clinical Nursing*, *29* (13-14), 2429-2440.

Study 1 aimed to develop knowledge of the HCPs' observational competence in early recognition of deterioration in frail older patients before the CIP. The data analysis resulted in two main themes describing the HCPs' practices and experiences: (1) patient-situated assessment of the changed clinical condition of the patients and (2) organisational environment.

Patient-situated assessment of changed clinical condition describes how the HCPs focused on knowledge about the patients, their changed physical and mental function and basic understanding of vital signs as part of their observational competence. Knowledge about the patient's normal situation was emphasised as important and a key starting point for detecting clinical deterioration. Furthermore, a patient's changed physical and mental conditions formed a vital basis for the HCPs' observational practice. Communicating with the patient was highlighted together with precise nursing documentation. This process enabled the HCPs to detect changes and remain updated on the patient's situation. Before the CIP, the basic understanding and use of vital sign measurements were low in the two homecare districts, and early detection of deterioration was an unfamiliar practice. The vital signs

were measured infrequently and, most often, in relation to a patient becoming critically ill.

The organisational environment impacted HCPs' performance of vital sign measurements for detecting early deterioration in patients. Tasks covering a patient's needs were included in preplanned fixed work plans, and a patient's changed condition was not reflected in these plans. These work plans were vital drivers for HCPs' practices. In contrast, collaboration and collegial support were also important for HCPs' practices as they mostly visited the patients alone. Willingness to help each other was described as a vital element of the organisational environment that supported HCPs' observational competence.

5.2 Study 2

Strømme, T., Tjoflåt, I., & Aase, K. (2020). Systematic Observation of Frail Older Patients in Homecare–Implementing a Competence Improvement Program. *Tidsskrift for omsorgsforskning*, *6*(2), 23-39.

Study 2 aimed to describe and analyse the implementation of the CIP for systematic observation of frail older patients. The framework of strategic change (Pettigrew et al., 1992) was used to sort and structure the data material. As a result, three main categories were presented according to three theoretical dimensions: (1) WHY (the purpose of the CIP), (2) WHAT (the content of the CIP) and (3) HOW (the implementation process of the CIP).

Improved observational competence (WHY) demonstrated that HCPs experienced that the purpose of the CIP was to promote competence, confidence and certainty in situations with deteriorating patients. Guidelines should generate common expectations of patient deterioration assessments. HCPs also perceived that the CIP would improve communication by using a shared language, including terms for vital sign measurements. Finally, they perceived the CIP as important for

patients as it would improve HCPs' observational competence in their homecare districts.

A complex multi-component educational programme (WHAT) described HCPs' experiences with the learning resources and the contents of the CIP. The dissemination and application of the learning resources were difficult to comprehend and viewed as unclear in several instances. Furthermore, the learning resources were applied differently in the two homecare districts, regarding how they were used and to what extent HCPs participated. All the HCPs had a positive experience with the availability of equipment bags and backpacks, which reminded them of the importance of the CIP.

A demanding implementation process (HOW) described that the HCPs perceived the CIP as extensive, demanding and time-consuming in a homecare district with limited resources available. Information about the programme provided to the HCPs was limited, whereas managers and professional development nurses described it as satisfactory. Simulation-based training was unfamiliar to the HCPs and was more challenging to implement than anticipated. Much effort and time were required to overcome feelings of embarrassment and fear. Homecare assistants were less involved in the CIP, and their role in detecting deteriorating patients was not clarified.

5.3 Study 3

Strømme, T., Tjoflåt, I., & Aase, K. (2022). A competence improvement programme for the systematic observation of frail older patients in homecare: qualitative outcome analysis. *BMC Health Services Research*, *22*(1), 1-15.

Study 3 aimed to describe the outcomes of the CIP for the systematic observation of frail older patients in homecare. The outcomes were represented through the HCPs' clinical judgement, the impact of the CIP and the interrelation between the CIP and the homecare context. The data

analysis generated five concepts describing the outcomes. The CIP activities were enacted differently by the HCPs, depending on the implementation process and the homecare context.

The *frequency of vital sign measurements* was variable in the two homecare districts two years after the implementation of the CIP. The frequency increased in homecare A, where the HCPs' focus increased as well as their measurement of vital signs for new patients and in cases of patient falls. In homecare B, vital signs were measured less frequently, and the HCPs perceived the CIP as inactive.

Situation awareness related to the deterioration of patients remained insufficient among the HCPs after the implementation of the CIP in both homecare districts. Although vital sign measurements were conducted for new patients and in cases of patient falls in homecare A, situation awareness had not improved in other situations where the patient's condition had changed. In homecare B, HCPs experienced acute patient situations as rare. Therefore, vital sign measurements and improved situation awareness were not seen as important. Detection of clinical deterioration remained insufficient.

Expectations and coping levels of the HCPs improved as the ISBAR form guided them during clinical observations and in their communication with other healthcare professionals. In homecare B, where the ISBAR form was only used occasionally, the form guided the HCPs when they needed to call the general practitioner, emergency room or alarm central. Then, they were expected to picture the patient's situation with measurements of vital signs, enabling them to take vital signs before they called.

Activities for sustained improvement were scheduled regularly and integrated into the HCPs' daily work routines in homecare A. These activities included weekly simulations, discussions on vital sign measurement in different meetings and requirements to bring and use equipment bags and backpacks. In homecare B, activities to sustain focus

on the CIP were not prioritised, and simulation-based learning had not been conducted over the last year. Several HCPs were not familiar with the programme.

Organisational issues affecting CIP focus were experienced by the HCPs in both homecare districts. Nevertheless, homecare A managed to prioritise organisational needs to sustain the CIP activities. In homecare B, the organisational situation was challenging and hindered continued focus on the CIP. The homecare had a high level of sick leave, personnel turnover, busy work plans and reorganisation at the managerial level, with several new employments over the study period.

5.4 Relationships between the studies

The three studies included in this thesis contribute to a longitudinal focus on the CIP for systematic observation of frail older patients in homecare over four years (autumn 2017-spring 2020). In sum, they contribute new knowledge on clinical observation in homecare before a CIP, during the implementation of a specific CIP and on its outcomes. Moreover, the thesis documents how the CIP produces different outcomes across the two homecare districts. Studies 1–3 of this thesis have three common findings. They describe that (1) an indecisive situation awareness among HCPs is a major characteristic of clinical observation in homecare; (2) conflicts exist between fixed work plans and the ability to exercise situation awareness; and (3) CIP sustainability is challenged by context and prioritisation.

5.4.1 Indecisive situation awareness

HCPs' situation awareness of deteriorating patients in both homecare districts can be characterised as indecisive. Their continuous attention, perception and process of noticing the patients' clinical situation and their detection of changed conditions vary and are insufficient in many situations. In study 1, the HCPs in both homecare districts described

knowledge about the patient and deviations from the normal condition as important aspects of their clinical observation to detect deterioration. These deviations involved physical and cognitive changes. Nevertheless, only in a few situations, this aspect served as a decision-making process to notify the situation and act by measuring vital signs. Early detection of deterioration was rarely considered. In study 3, the frequency and practice of the vital sign measurements improved across the two homecare districts. Clear expectations to measure vital signs of new patients and after a patient's fall increased the frequency and led to the early detection of deterioration in several situations in homecare A. However, beyond these routine situations, clinical observations remained variable, and in many cases were indecisive.

5.4.2 Conflicts between fixed work plans and situation awareness

Situation awareness related to real-time issues of changes in a patient's clinical condition is a situation that is nearly impossible to specify in a work plan. Study 1 documented that preplanned tasks (medication, hygiene, clothing, food) allocated at a set time were conducted, whereas limited awareness was given to the patient's clinical condition. Study 2 described HCPs' expectations of the CIP to improve their observational competence, promote confidence and make them feel 'safer' in situations with deteriorating patients. Nevertheless, study 3 documented that HCPs continued to conduct few tasks beyond the work plans and rarely measured vital signs based on the patient's condition. This finding indicates a possible conflict between how homecare practice is organised in fixed work plans and the HCPs' ability to enact situation awareness of the patient's day-to-day condition.

5.4.3 CIP sustainability is challenged by context and prioritisation

Sustainable outcomes of the CIP require that HCPs maintain their competence in recognising and responding to deteriorating frail older patients. Study 1 revealed that the HCPs have an insufficient basic understanding of vital sign measurements. In most cases, vital signs were measured when planned for in the fixed work plans, and nurses measured vital signs in situations with critically ill patients. In study 2, most HCPs had a positive experience with the CIP and expected to improve their focus and coping skills in the clinical observation of deteriorating patients. Study 3 documented that CIP activities were applied differently in the two homecare districts. In homecare A, the HCPs improved their coping skills in their clinical observations as their focus on CIP activities was active. In homecare B, activities were not prioritised, and the HCPs experienced that the CIP was 'put on hold'. Several of them missed the CIP as an active programme. Furthermore, the two homecare districts had different organisational situations, which affected their ability to focus on the CIP. Consequently, a low CIP focus challenged the sustainability of the programme and the HCPs' competence in recognising and responding to deteriorating frail older patients.

6 Discussion

This thesis has demonstrated that clinical observation in homecare is multifaceted and that improvement of such competence is challenging. This chapter discusses the main findings and relates them to previous research and the theoretical perspectives of the thesis. The discussion is structured according to the four levels of Lau et al.'s (2016) conceptual framework of change in primary care: improvement programme (intervention), professionals, organisation and external context.

6.1 Improvement programme

Improvement depends on the characteristics and design of the improvement activity or intervention (Damschroder et al., 2009; Dixon-Woods, 2019; Lau et al., 2016), in this case, a CIP for HCPs.

6.1.1 Programme complexity

The HCPs stated that the CIP's content and multiple learning resources were complex. The literature describes that complex improvement programmes are challenging (Damschroder et al., 2009; Lau et al., 2016) stating that the number of steps and different processes, long duration and disruptiveness are associated with low adoption. The CIP did not provide a clear and transparent design and a sound application strategy for the two homecare districts. Moreover, the learning resources were used differently and not fully utilised. The CIP activities included in the daily work facilitated improvement, while when the activities were not prioritised, the CIP was 'put on hold'. Lau et al. (2016) emphasise that good designs guide improvement processes. However, the mechanisms of change are often poorly specified for optimal system performance (Dixon-Woods, 2019). This situation encourages and favours a stringent design that highlights the importance of including CIP activities in daily activities, such as weekly simulations and reflecting on situations of

patients' deterioration at meetings. However, one improvement design does not fit all, and it is committed to balancing a full and consistent approach with the need for flexibility and adaptation to the local contexts (Coles et al., 2020; Damschroder et al., 2009; Dixon-Woods, 2019). The managers and HCPs of homecare B did not manage to maintain the CIP activities. A copy of the design for homecare A does not necessarily provide an answer for positive outcomes in homecare B. A distinction must be made between the core and non-negotiable elements of a programme versus what can be locally customised in the actual context (Damschroder et al., 2009; Dixon-Woods, 2019).

6.1.2 Simulation: the need for a safe learning environment

A main component of the CIP was simulation-based training sessions, which the homecare districts prioritised. However, as a learning method, simulation was not widely known to most of the HCPs. Many of them described their experiences with simulation sessions using expressions, such as 'intimidating', 'scary', 'unnatural', 'embarrassing' and 'challenging'. Due to negative comments on simulation-based training at the beginning of the programme, several HCPs refused to participate. They were nervous about being exposed and that their knowledge gaps were revealed. Barriers to simulation are important to pinpoint as well as their impact on learning. Barriers include experiences of the professional hierarchy, fear of making mistakes and uncertainty (Lackie et al., 2022). A safe learning environment is an important first step towards full participation in simulation (Palominos et al., 2019). This approach involves a pre-briefing and debriefing, constructive feedback, skilled facilitators, no-blame culture, an evidence-based simulation design and moderating the HCPs' mistakes into learning opportunities (Lackie et al., 2022; Palominos et al., 2019; Rudolph et al., 2014). Dieckmann et al. (2007) emphasise a misleading belief that simulation leads to improved competence. The success of simulation depends on various factors

beyond the fidelity or validity of the simulator or simulation procedures. As a complex social activity with many requirements, the simulation needs to be optimally utilised.

6.1.3 Programme evaluation and modifications

Evaluation and modification of the CIP made a difference in the homecare districts. The CIP in homecare A was modified, where simulation became a weekly activity in the HCPs' work plan, and vital signs were included in conversations at meetings. HCPs were involved in the CIP; their inputs were gathered and changes were made in the initial plan. Dixon-Woods et al. (2012) emphasise that transparent evaluation facilitates learning and has an important role in securing compliance, providing evidence of success and contributing to the establishment of shared norms. The modification of the CIP was an active reminder of the programme. It facilitated the inclusion of all HCPs in the simulation, and observational competence was given a central place in the homecare district.

In homecare B, the CIP was to a much lesser degree evaluated and modified. The professional development nurse was largely responsible for the CIP, the HCPs did not feel included, and they stated that the CIP was not active. Taylor et al. (2014) reviewed studies on the application and consistency of a widely used quality improvement method, the Plan-Do-Study-Act method. They noted low compliance with the key principles of the method, such as the use of the iterative circle intended for learning and improvement. Evaluation or the 'study' stage was reported in only 9% of the papers (Taylor et al., 2014). In many improvement programmes, evaluation is perceived as unnecessary spending of resources, and urgency in projects is often observed. Many issues need to be addressed, and the answer to solve the problem is often seen as evident without evaluation efforts. In study 2, Pettigrew et al.'s (1992) framework was used to analyse and learn about the CIP retrospectively. We identified factors of and barriers to success regarding

context, content and process. The framework could be used as a basis for evaluation and identification of factors of success in improvement work (Stetler et al., 2007).

6.2 Professionals

Professionals and the use of professional judgement have a central role in improvement programmes (Lau et al., 2016) as it did in the CIP in homecare.

6.2.1 Incomplete clinical observation

The results of this thesis showed that early detection of deteriorating patients in homecare was limited. The CIP improved the focus on measuring vital signs to a certain degree. Furthermore, differences remained in clinical observation among HCPs and how they recognised deterioration. 'Finding patients before they crash' is argued as essential in improving care delivery in the hospital context (Bates & Zimlichman, 2015). Early detection of deteriorating patents is recently highlighted as a central strategy also in homecare. Homecare must handle acute and life-threatening conditions to provide care for the patients (Gray et al., 2018a; Helsedirektoratet, 2020; Kajander-Unkuri et al., 2021; Vincent & Amalberti, 2016). The nurses in the study of Fjørtoft et al. (2020a) identified assessment of patients' health and changing conditions as a core task in homecare and central in enabling the patients to stay in their homes. Further awareness of the situations identified aspects that required observation. A recent review of Walshe et al. (2021) identified that failure of situation awareness contributed to patient harm related to not being able to detect deteriorating patients in hospital wards. They sought to examine implications for practice and suggested the need to understand situation awareness in the actual context as standardised protocols would unlikely enhance the professionals' awareness. This thesis comprised HCPs with different competence levels, all with critical roles in identifying and escalating the care of deteriorating frail older

patients and in enacting situation awareness that requires attention and perception of the patients' situation. Clinical observations were incomplete in the homecare districts as the HCPs continuous attention, perception and process of observing the patient's clinical situation and possible changes varied and were insufficient in many situations. The study of Fjørtoft et al. (2020a) underlined the relationship between required competence and situation awareness of the patients. This might have affected the HCPs understanding of the patients' clinical situation also in this thesis.

6.2.2 Emphasising individualised care

The HCPs in the thesis reflected on important issues in detecting changed clinical condition. They emphasised the importance of 'knowing the patient', recognising changes in the patient's physical and mental conditions and communication with the patient in the process of early detection. This finding is supported by other studies in homecare, documenting that knowledge about the patients and HCPs' role and position in assessing the patient's clinical situation are critical in identifying and escalating care. Individualised assessment of care plays an important role in identifying acute care situations (Ekstedt et al., 2022; Fjørtoft et al., 2020b; Kajander-Unkuri et al., 2021; Walshe et al., 2021). However, studies 1 and 3 showed that the HCPs' knowledge about and communication with the patients rarely lead to further actions. Other studies also report this finding (Janssen et al., 2014; Turjamaa et al., 2014) describing that healthcare professionals do not necessarily address patients' needs based on their assessment. This behaviour is explained by HCPs being task oriented (Turjamaa et al., 2014). Fjørtoft et al. (2020b) describe homecare as 'a discourse practice', indicating that requirements and logics on what takes precedence are conflicting. They emphasised that nurses strive to balance individualised care and organisation of work.

In line with other studies, the HCPs in this thesis worked mainly alone and needed to make autonomous decisions with limited collegial support (Andersson et al., 2017; Beer et al., 2014; Flöjt et al., 2014; Gray et al., 2018a; Melby et al., 2018). Therefore, clinical observation depends on individualised care that requires the competence of the HCPs and represents their capability to integrate knowledge, skills and judgement into their performance (ICN, 2010; World Health Organization, 2022). Competence is significant in the relationship between the HCP and the patient and thereby represents the HCPs capability (Eraut & Boulay, 2000). Professionals, HCPs have a responsibility to integrate the required competence into their individualised care for patients.

6.2.3 Confidence

In study 3, the HCPs experienced increased coping levels and a feeling of self-confidence after their attendance to the CIP. This outcome is prevalent among the skilled health workers in homecare A. They were given considerable responsibilities, and several of them described that competence gave them the courage to act in situations of deteriorating patients. They called the general practitioner or emergency room themselves, which was noted as a substantial challenge before the CIP. Dixon-Woods (2019) argues that the role of professionals needs more respect in healthcare and that regulations, oversight and surveillance are the norm and often displace their competence. The study of Aase et al. (2021) emphasised that healthcare professionals' competence needed to be empowered, and competence to care for frail older patients is furthermore seen as a challenge (Bing-Jonsson et al., 2016a; 2016b).

The role of assistants in the CIP was discussed as they did not have a formal health education (studies 2 and 3). They were deliberately included in the CIP, participated in simulation and were given clear guidance on how to act in situations of deteriorating patients. Martin et al. (2015) underline that empowering the competence of healthcare professionals must be underwritten by collective and organisational

arrangements. The assistants in this thesis were taking care of different patients with numerous care needs, and their low formal competence emphasises the need for a balance between the organisational guidelines and support for their competence needs.

6.3 Organisation

The influence of organisational context on quality improvement efforts has been underlined, with knowledge that improvement programmes cannot be understood without the setting of their implementation (Coles et al., 2020; Øvretveit, 2014). The two districts implementing the CIP had similarities as both services entailed homecare, though organisational differences affected their ability to utilise the CIP.

6.3.1 Managers' engagement

The managers in the two homecare districts emphasised the need for a CIP and signed up for the programme in their respective homecare district. They were responsible for supporting, facilitating and prioritising the programme. Evaluations demonstrate that managers and leadership affect the outcomes of improvement programmes (Coles et al., 2020; Dixon-Woods et al., 2012). In homecare B, nurses expressed the lack of time available for professional development. A nurse referred to a meeting with a current manager, where the nurse did not experience the manager being hands-on in the development.

During the CIP implementation, homecare B was reorganised, and a management position was re-employed several times. A newly employed manager explained that he/she was aware of the programme but did not know about its content and was not involved. Johannessen et al. (2021) report the importance of managers' continuity to perform actions as planned for quality improvement. In their review on the characteristics of healthcare organisations that struggle to improve quality, Vaughn et al. (2019) characterises leadership turnover as a 'system shock'. Such

events were a unique finding in struggling organisations, for example those characterised with disconnected leaders and a non-collaborative environment. The managers in homecare B mentioned that they were distant to the CIP and that it did not facilitate change. Hibbert et al. (2021) describe the importance of managers' active involvement in quality improvement programmes by being highly visible in the process, approachable and actively available to interact with and equally solve challenges. In sum, this was not the case in homecare B.

6.3.2 Sufficient organisational capacity

Organisational capacity was demanding in the two homecare districts, and activities beyond patient care requiring in-depth focus were challenging, particularly in homecare B. This finding entailed the capacity of the homecare to fulfil the CIP and involved planned development of knowledge, skills and other capabilities to improve HCPs observational competence. Capacity is challenging in all improvement programmes (Dixon-Woods et al., 2012) involving the right amount of professionals being engaged (Mery et al., 2017). Lau et al. (2016) furthermore highlight the importance of available time, funding equipment and administrative support. In study 3, the professional development nurse in homecare B expressed frustration at the insufficient maintenance of the programme. Organisational capacity for quality improvement was perceived as vulnerable as he/she mostly managed the CIP alone. Additionally, most of the working hours of the professional development nurse were devoted to patient work; thus, he/she could not plan for any new CIP activities. Newly employed HCPs were not familiar to the CIP and needed an introduction to the programme. Lack of time and prioritisation were experienced as barriers to success with the programme.

In homecare A, the CIP was prioritised, and the managers and professional development nurse were transparent in their activities. They

involved HCPs as participants in the programme and this prioritisation was essential for the positive outcomes.

6.3.3 Involvement of HCPs

HCPs' involvement in the CIP was a deliberate strategy in homecare A. HCPs were engaged together with the professional development nurse. They formed a group that focused on the CIP, organised and conducted simulations, participated in planning and evaluation meetings and formed a positive drive for the programme in the organisation. Mery et al. (2017) highlights the power of working in teams and Hibbert et al. (2021) confirm that the right people working together in teams are significant for a robust quality improvement.

Information and continuous communication facilitate implementation and are required to achieve a common understanding of the improvement programme (Lau et al., 2016). In study 2, at the beginning of the CIP, HCPs in both homecare districts expressed that the process of implementation was demanding and flow of information was difficult. They experienced not being informed, whereas the managers and professional development nurses thought the information was widely disseminated in the organisation.

6.4 External context

External or the outer context refers to the fixed, distant and unalterable aspects of the environment and encompasses areas such as policy and legislation, technology and infrastructure (Bate, 2008; 2014; Lau et al., 2016).

6.4.1 Compatible initiatives

Competence improvement became a joint initiative across national, regional and local agenda in the Norwegian context at the first time of

this PhD project. The USHT initiated the CIP in 2016 as municipalities experienced the need for increased observational competence. In 2017, early recognition and response to deteriorating patients became a national initiative. In line with these initiatives, the HCPs in this thesis considered the CIP important for their own competence, for the patients and expected it to improve their ability to detect deterioration. Several studies describe the importance of external guidelines and demands in facilitating changing needs and influencing improvement works (Coles et al., 2017; Gjestsen et al., 2017; Kaplan et al., 2010; Ree & Wiig, 2019). Conversely, the results in this thesis displayed a mismatch between external requirements, their daily practice and the contextual setting at their workplace. Wiig et al. (2019) describe that external demands could be overwhelming and hinder the ability to improve quality. The HCPs' expected actions in this thesis were organised around detailed work plans, which were not compatible to the CIP. Although the CIP was complex in many ways, how to make it compatible to the homecare districts' daily work organisation was not discussed and attained. A compatibility between the improvement programme, the local and national initiatives and priorities would have promoted adoption.

6.4.2 Provision of support

The USHT was an important provider of the CIP; it arranged and conducted the teaching seminars, developed the ISBAR form together with the homecare districts, organised all equipment in the bag and backpacks and contributed further guidance, reflections and support during the improvement period. These contributions were carried out in learning networks together with care services in other municipalities. Lau et al. (2016) pinpoint that having an internal or external 'buy-in stakeholder' promotes implementation by having multidisciplinary support and aligning with the improvement plan.

In this thesis, the managers and professional development nurses were gathered in workshops to share experiences, come across barriers, and

share solutions and actions. Studies highlight the importance of such forming of social structures in networks to secure improvement programmes (Dixon-Woods, 2019; Johannessen et al., 2021; Wiig et al., 2021). The USHT was in a central position to contribute to facilitating interaction between professionals in and between different services in the municipalities. Nevertheless, Sørensen et al. (2018) state that the relationships and collaborations between practices and between professionals and institutions in primary care in Norway are inadequate. Exchanges should occur in supportive relations consisting of trust, interdependence and reputation to ensure the exchange of competence and encourage change (Dixon-Woods, 2019). Sørensen et al. (2018) also held that initiatives of support and collaboration provide a much needed system-level infrastructure, formalised expectations and procedures and personal relationships for primary care services.

6.5 HCPs clinical observation

The discussion has identified and explained how a CIP has changed competence in clinical observation in the Norwegian homecare context. Figure 6 illustrates the major elements.

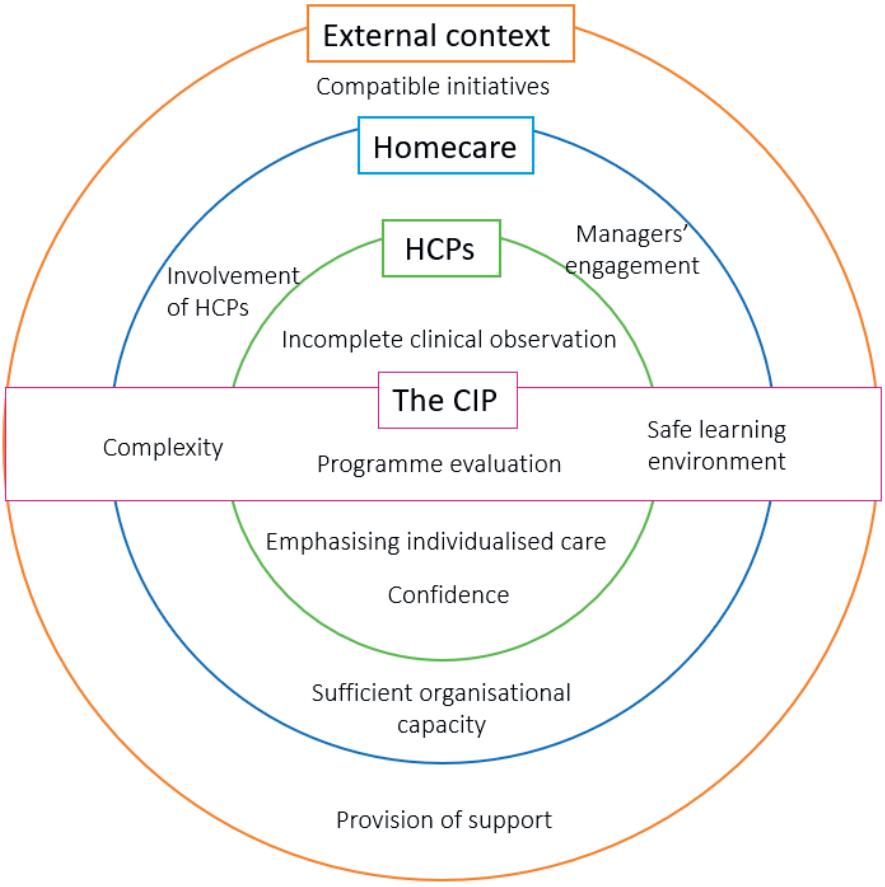

Figure 6. Framework of change in clinical observation in Norwegian homecare

Using Lau et al.'s (2016) framework of change in primary care, this thesis has documented that the CIP, HCPs, the homecare organisation and the external context define the level of changed clinical observation over a two-year period.

Lau et al.'s framework is based on a review of studies and summarises knowledge on barriers and facilitators to implementation of diverse improvement programmes (Lau et al., 2016). The CIP described in this thesis is a single improvement programme implemented in two homecare districts, resulting in differences in the set of contributing factors influencing change. Specificity is needed on how the improvement initiative, professionals, the organisation and the external context influence implementation and change in diverse settings. Figure 6 displays such specificity in the Norwegian homecare context, contributing to application of Lau's framework. Thus, a basis for further development and comparison with other settings is created.

7 Conclusions

This thesis investigated the clinical observation of homecare professionals and how an improvement programme changed their competence in systematic observation of frail older patients. The results show that before the CIP, clinical observation had a low focus in the homecare districts. Vital signs were rarely used as tools for detecting patients' deterioration situations. Recognition of patients' changed physical and mental function were indications of deterioration. Thus, familiarity with the patients' normal situation was highlighted by the HCPs. Change was attained after the CIP focused on measurements of vital signs in clearly defined situations. Nevertheless, clinical observation was incomplete, as the HCPs' situation awareness of the patients' changed clinical situation varied and were absent in many situations. Clinical observation depended on individualised care, and competence and confidence were central to situations of deteriorating patients.

This thesis shows that implementation of an improvement programme is a demanding process. Thus, a set of contributing factors regarding the improvement programme, professionals, organisation and external context should be addressed to achieve successful improvement. The thesis demonstrates that homecare organisations are essential and affected largely how HCPs enact on an improvement programme and how clinical observation is changed. The managers' engagement was especially emphasised. Attention to organisational capacity and involvement of HCPs was necessary to make the CIP operative. An external facilitator of the programme also needs consideration.

7.1 Implications

Based on the findings of this thesis, the following suggestions to improve clinical observations can be considered for practice and for research.

Implications for practice

- Clinical observation needs further attention in homecare settings focusing the topics in for example reports, meetings and courses.
- HCPs' situation awareness of patients' clinical situation needs especial attention through discussions of what constitutes individualised care together with clear guidelines on when to measure vital signs.
- Improvements programmes must be included into the daily practice of the homecare organisation with allocated time and activities included into the HCPs workplan.
- Improvement programmes need a clear design and tailoring to the actual homecare context.
- Improvement programmes should use a theoretical framework to guide both the development and the implementation process.
- Systematic evaluation and modification of improvement programmes need attention and prioritisation, increasing the chance of positive outcomes.
- Competence on simulation is needed to develop the use of simulation as a safe learning arena in homecare. Simulation can serve as a reflective space for HCPs working mostly alone, contribute with new improved competence, and might act as an indication on competence needs.

- There is a need to develop evaluation and learning arenas for the HCPs to discuss experiences and establish collegial support.
- Arenas for support and cooperation between different homecare services in different municipalities useful competence improvement work.
- Competence measures such as education, courses and lifelong learning should be developed and valued.
- Homecare assistants need opportunities to improve their competence in line with increasing demands.
- Clinical observation in frail older patients need more attention in healthcare education at the upper secondary school level and at university colleges and universities (bachelor's degree and master degree).

Implications for research

- The national initiative 'KlinObsKommune' should be the topic of evaluative research in different contexts.
- More research is needed on situation awareness regarding deteriorating patients in the primary care contexts.
- There is a need to study how HCPs experience fixed work plans, and how they assess their own responsibility for addressing patients' needs that go beyond these plans.
- More observational studies in the homecare context are needed to understand context, how care is delivered and competence demonstrated.

- Quantitative research on competence self-assessment among professionals is needed, especially on the development of a tool for observational competence in homecare.
- Mixed method studies where surveys are combined with qualitative methods can expand the research field of competence in homecare.

References

Alver, B.G & Øyen, Ø. (2007) Challenges of Research Ethics: An Introduction. In Alver, B.G., Fjell, T.I. & Øyen, Ø. (Eds). *Research Ethics in Studies of Culture and Social life*. Helsingfors: Academia Scientiarum Fennica, pp 11-55.

Andersson, H., Lindholm, M., Pettersson, M., & Jonasson, L.-L. (2017). Nurses' competencies in home healthcare: an interview study. *BMC nursing*, *16*(1), 1-8. https://doi.org/10.1186/s12912-017-0264-9

Batalden, P. B., & Davidoff, F. (2007). What is "quality improvement" and how can it transform healthcare? In (Vol. 16, pp. 2-3): *BMJ Quality & Safety*. http://dx.doi.org/10.1136/qshc.2006.022046

Bate, P. (2014). Context is everything. In: *Perspectives on context. A selection of essays considering the role of context in successful quality improvement.* London: Health Foundation, file:///C:/Users/2912514/Downloads/PerspectivesOnContext_fullversion%20(1).pdf

Bate, P., Mendel, P., & Robert, G. (2008). *Organizing for quality : the improvement journeys of leading hospitals in Europe and the United States*. Radcliffe Publishing.

Bates, D. W., & Zimlichman, E. (2015). Finding patients before they crash: the next major opportunity to mprove patient safety. *BMJ Qual Saf*, *24*:1-3. https://doi.org/10.1136/bmjqs-2014-003499

Beer, J. M., McBride, S. E., Mitzner, T. L., & Rogers, W. A. (2014). Understanding challenges in the front lines of home health care: a human-systems approach. *Applied Ergonomics*, *45*(6), 1687-1699. https://doi.org/10.1016/j.apergo.2014.05.019

Berger, P. L., & Luckmann, T. (1967). *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Open Road Integrated Media, Inc.

Bernecker, S. (2006). *Reading epistemology : selected texts with interactive commentary*. Blackwell.

Bing-Jonsson, P. C., Bjørk, I. T., Hofoss, D., Kirkevold, M., & Foss, C. (2013). Instruments measuring nursing staff competence in community health care: A systematic literature review. *Home Health Care Management & Practice*, *25*(6), 282-294. https://doi.org/10.1177/1084822313494784

Bing-Jonsson, P. C., Bjørk, I. T., Hofoss, D., Kirkevold, M., & Foss, C. (2015). Competence in advanced older people nursing: development of 'Nursing older people - Competence evaluation tool'. *International*

Journal of Older People Nursing, *10*(1), 59-72 14p. https://doi.org/10.1111/opn.12057

Bing-Jonsson, P. C., Foss, C., & Bjørk, I. T. (2016a). The competence gap in community care: Imbalance between expected and actual nursing staff competence. *Nordic Journal of Nursing Research*, *36*(1), 27-37. https://doi.org/10.1177/0107408315601814

Bing-Jonsson, P. C., Hofoss, D., Kirkevold, M., Bjørk, I. T., & Foss, C. (2016b). Sufficient competence in community elderly care? Results from a competence measurement of nursing staff. *15*(5). https://doi.org/10.1186/s12912-016-0124-z

Bjørk, I. T., & Kirkevold, M. (2000). From simplicity to complexity: developing a model of practical skill performance in nursing. *Journal of clinical nursing*, *9*(4), 620-631. https://doi.org/10.1046/j.1365-2702.2000.00328.x

Bjørk, I. T. (1999). What constitutes a nursing practical skill? *Western journal of nursing research*, *21*(1), 51-70. https://journals.sagepub.com/doi/pdf/10.1177/01939459922043703

Boscart, V. M., Crutchlow, L., Taucar, L. S., Schelling, S., Fung, E., Betini, R. S., Heckman, G., & Hirdes, J. (2019). Improving clinical care outcomes for Canadian seniors: findings of a pilot study evaluating an applied simulated and integrated learning approach (ASILA) for home care workers. *Educational Gerontology*, *45*(10), 612-623. https://doi.org/10.1080/03601277.2019.1677043

Boyatzis, R. E. (2011). Managerial and leadership competencies: A behavioral approach to emotional, social and cognitive intelligence. *Vision*, *15*(2), 91-100. https://doi.org/10.1177/097226291101500202

Bradshaw, C., Atkinson, S., & Doody, O. (2017). Employing a qualitative description approach in health care research. *Global qualitative nursing research*, *4*, 1-8. https://doi.org/10.1177/2333393617742282

Brangan, E., Banks, J., Brant, H., Pullyblank, A., Le Roux, H., & Redwood, S. (2018). Using the National Early Warning Score (NEWS) outside acute hospital settings: a qualitative study of staff experiences in the West of England. *BMJ open*, *8*(10), e022528. http://dx.doi.org/10.1136/bmjopen-2018-022528

Brim, B., Fromhold, S., & Blaney, S. (2021). Older adults' self-reported barriers to aging in place. *Journal of Applied Gerontology*, *40*(12), 1678-1686. https://doi.org/10.1177/0733464820988800

Brinkmann, S. (2013). *Qualitative interviewing*. Oxford University Press.

Brinkmann, S. (2018). The interview. In *The SAGE handbook of qualitative research*. pp 576-599. Sage Publications.

Calman, L., Brunton, L. & Molassiotis, A. (2013). Developing longitudinal qualitative designs: lessons learned and recommendations for health services research. *BMC medical research methodology*, *13*(1), 1-10. https://doi.org/10.1186/1471-2288-13-14

Cappelletti, A., Engel, J. K., & Prentice, D. (2014). Systematic Review of Clinical Judgment and Reasoning in Nursing. *Journal of Nursing Education*, *53*(8), 453-458 456p. https://doi.org/10.3928/01484834-20140724-01

Chan, P. S., Jain, R., Nallmothu, B. K., Berg, R. A., & Sasson, C. (2010). Rapid response teams: a systematic review and meta-analysis. *Archives of internal medicine*, *170*(1), 18-26. https://doi.org/10.1001/archinternmed.2009.424

Coles, E., Anderson, J., Maxwell, M., Harris, F. M., Gray, N. M., Milner, G., & MacGillivray, S. (2020). The influence of contextual factors on healthcare quality improvement initiatives: a realist review. *Systematic reviews*, *9*(1), 1-22. https://doi.org/10.1186/s13643-020-01344-3

Coles, E., Wells, M., Maxwell, M., Harris, F. M., Anderson, J., Gray, N. M., Milner, G., & MacGillivray, S. (2017). The influence of contextual factors on healthcare quality improvement initiatives: what works, for whom and in what setting? Protocol for a realist review. *Systematic reviews*, *6*(1), 1-10. https://doi.org/10.1186/s13643-017-0566-8

Connell, C. J., Endacott, R., Jackman, J. A., Kiprillis, N. R., Sparkes, L. M., & Cooper, S. J. (2016). The effectiveness of education in the recognition and management of deteriorating patients: A systematic review. *Nurse Education Today*, *44*, 133-145. https://doi.org/10.1016/j.nedt.2016.06.001

Considine, J., & Currey, J. (2015). Ensuring a proactive, evidence-based, patient safety approach to patient assessment. *Journal of clinical nursing*, *24*(1-2), 300-307. https://doi.org/10.1111/jocn.12641

Cowan, D. T., Norman, I., & Coopamah, V. P. (2005). Competence in nursing practice: a controversial concept -- a focused review of literature. *Nurse Education Today*, *25*(5), 355-362. http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=106527902&site=ehost-live

Cowan, D. T., Wilson-Barnett, D. J., Norman, I. J., & Murrells, T. (2008). Measuring nursing competence: development of a self-assessment tool for general nurses across Europe. *International Journal of Nursing Studies*, *45*(6), 902-913. https://doi.org/10.1016/j.ijnurstu.2007.03.004

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation Science*, *4*(1), 1-15. https://doi.org/10.1186/1748-5908-4-50

Den nasjonale forskningsetiske komite for samfunnsvitenskap of humeniora (NESH) (2021). *Forskningsetiske retningslinjer for samfunnsvitenskap og humaniora* (5. utgave, desember 2021). https://www.forskningsetikk.no/globalassets/dokumenter/4-publikasjoner-som-pdf/forskningsetiske-retningslinjer-for-samfunnsvitenskap-og-humaniora

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

Denzin, N. K. & Lincoln, Y. S. (2018). *The SAGE handbook of qualitative research* (5th ed.). Sage.

DeWalt, K. M. & DeWalt, B. R. (2011). *Participant observation : a guide for fieldworkers* (2nd ed.). AltaMira Press.

Dieckmann, P., Gaba, D. & Rall, M. (2007). Deepening the theoretical foundations of patient simulation as social practice. *Simulation in Healthcare*, *2*(3), 183-193. https://doi.org/10.1097/SIH.0b013e3180f637f5

Dixon-Woods, M. (2014). The problem of context in quality improvement.In:*Perspectives on context. London: Health Foundation*, pp 87-101. file:///C:/Users/2912514/Downloads/PerspectivesOnContext_fullversion%20(1).pdf

Dixon-Woods, M. (2019). Harveian Oration 2018: Improving quality and safety in healthcare. *Clinical Medicine*, *19*(1), 47-56. https://doi.org/10.7861%2Fclinmedicine.19-1-47

Dixon-Woods, M., McNicol, S. & Martin, G. (2012). *Overcoming challenges to improving quality*. The Health Foundation. https://books.google.no/books?hl=no&lr=&id=2tGJhwIJrzgC&oi=fnd&pg=PR1&dq=Overcoming+challenges+to+improving+quality&ots=A_dt1KPWj8&sig=Wmynp9-ACiS5ehrRuPqZO0S2G2s&redir_esc=y#v=onepage&q=Overcoming%20challenges%20to%20improving%20quality&f=false

Downey, C., Tahir, W., Randell, R., Brown, J. & Jayne, D. (2017). Strengths and limitations of early warning scores: a systematic review and

narrative synthesis. *International Journal of Nursing Studies*, *76*, 106-119. https://doi.org/10.1016/j.ijnurstu.2017.09.003

Ekstedt, M., Schildmeijer, K., Backåberg, S., Ljungholm, L. & Fagerström, C. (2022). 'We just have to make it work': a qualitative study on assistant nurses' experiences of patient safety performance in home care services using forum play scenarios. *BMJ open*, *12*(5), e057261. http://dx.doi.org/10.1136/bmjopen-2021-057261

Elo, S. & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107-115. https://doi.org/10.1111/j.1365-2648.2007.04569.x

Endsley, M. R. (1995). Measurement of Situation Awareness in Dynamic Systems. *Human Factors*, *37*(1), 65-84. https://doi.org/10.1518/001872095779049499

Eraut, M. (1994). *Developing professional knowledge and competence*. Falmer Press.

Eraut, M. (2005). Professional knowledge in medical practice. *La Profesion Medica: Los Retos del Milenio, Monografias humanitas, Fundacion Medicina y Humanidades Medicas, Barcelona, pp47-67.[English version from author]*. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=4a98047b099c3ececb1b773c3774b5fbfeddad97

Eraut, M. (2010). Knowledge, working practices, and learning. In S. Billett (Ed.), *Learning through practice* (pp. 37-58). Springer.

Eraut, M. (1998). Concepts of competence. *Journal of interprofessional care*, *12*(2), 127-139. https://doi.org/10.3109/13561829809014100

Eraut, M. & de Boulay, B. (2000). Developing the attributes of medical professional judgement and competence: a review of the literature. *Cognitive Science Research Paper-University Of Sussex CSRP*. http://www.sussex.ac.uk/informatics/cogslib/reports/csrp/csrp518.pdf

Eurostat. (2019). *Ageing Europe - looking at the lives of older people in the EU - Eurostat 2019 report*. European Union. https://www.age-platform.eu/publications/ageing-europe-looking-lives-older-people-eu-eurostat-2019-report

Eurostat. (2021). *Old-age dependency ratio increases across EU regions,*. Eurostat. Retrieved from 26.08.2022 https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20210930-1

Fjørtoft, A. K., Oksholm, T., Delmar, C., Førland, O. & Alvsvåg, H. (2020a). Home-care nurses' distinctive work: A discourse analysis of what takes precedence in changing healthcare services. *Nursing Inquiry*, *28*(1), e12375. https://doi.org/10.1111/nin.12375

Fjørtoft, A. K., Oksholm, T., Førland, O., Delmar, C. & Alvsvåg, H. (2020b). Balancing contradictory requirements in homecare nursing—A discourse analysis. *Nursing open*, *7*(4), 1011-1019. https://doi.org/10.1002/nop2.473

Flin, R., Crichton, M.. & O'Connor, P. (2008). *Safety at the sharp end: a guide to non-technical skills*. Ashgate Publishing, Ltd.

Flöjt, J., Hir, U. L. & Rosengren, K. (2014). Need for preparedness: Nurses' experiences of competence in home health care. *Home Health Care Management & Practice*, *26*(4), 223-229. https://doi.org/10.1177/1084822314527967

Forskrift om ledelse og kvalitetsforbedring i helse- og omsorgstjenesten, (2017). In English: Regulation on management and quality improvement in the healthcare sevice. Norwegian Ministry of Health and Care (FOR-2016-10-28-1250). *Lovdata* https://lovdata.no/dokument/LTI/forskrift/2016-10-28-1250

Furåker, C. (2012). Registered nurses' views on competencies in home care. *Home Health Care Management & Practice*, *24*(5), 221-227. https://doi.org/10.1177/1084822312439579

Furåker, C. & Agneta, N. (2013). Registered nurses' views on nursing competence at residential facilities. *Leadership in Health Services*, *26*(2), 135-147. https://doi.org/10.1108/17511871311319722

Gascoigne, N. & Thornton, T. (2013). *Tacit knowledge*. Acumen.

Gautun, H. & Syse, A. (2013). Samhandlingsreformen: Hvordan tar de kommunale helse-og omsorgstjenestene i mot det økte antallet pasienter som skrives ut fra sykehusene? NOVA rapport 8/13 http://hdl.handle.net/11250/2486174

Gautun, H. & Syse, A. (2017). Earlier hospital discharge: a challenge for Norwegian municipalities. *Nordic Journal of Social Research*, *8*(1), 1-17. https://doi.org/10.7577/njsr.2204

Genet, N. Boerma, W., Kroneman, M., Hutchinson, A. & Saltman, R. B. (2012). *Home Care across Europe – Current structure and future challenges*. WHO, World Health Organization. Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0008/181799/e96757.pdf?ua=1

Genet, N., Boerma, W. G., Kringos, D. S., Bouman, A., Francke, A. L., Fagerström, C., Melchiorre, M. G., Greco, C. & Devillé, W. (2011). Home care in Europe: a systematic literature review. *BMC health services research*, *11*(1), 1-14. https://doi.org/10.1186/1472-6963-11-207

Gjestsen, M. T., Wiig, S. & Testad, I. (2017). What are the key contextual factors when preparing for successful implementation of assistive

living technology in primary elderly care? A case study from Norway. *BMJ open*, *7*(9), e015455. http://dx.doi.org/10.1136/bmjopen-2016-015455

Gjevjon, E. R., Eika, K. H., Romøren, T. I. & Landmark, B. F. (2014). Measuring interpersonal continuity in high-frequency home healthcare services. *J Adv Nurs*, *70*(3), 553-563. https://doi.org/10.1111/jan.12214

Glette, M. K., Røise, O., Kringeland, T., Churruca, K., Braithwaite, J. & Wiig, S. (2018). Nursing home leaders' and nurses' experiences of resources, staffing and competence levels and the relation to hospital readmissions–a case study. *BMC health services research*, *18*(1), 1-15. https://doi.org/10.1186/s12913-018-3769-3

Glette, M. K. & Wiig, S. (2021). The role of organizational factors in how efficiency-thoroughness trade-offs potentially affect clinical quality dimensions–a review of the literature. *International Journal of Health Governance*, 26(3), 250-265 https://doi.org/10.1108/IJHG-12-2020-0134

Gobbens, R. J., Luijkx, K. G., Wijnen-Sponselee, M. T. & Schols, J. M. (2010). Toward a conceptual definition of frail community dwelling older people. *Nursing Outlook*, *58*(2), 76-86 https://doi.org/10.1016/j.outlook.2009.09.005

Graneheim, U. H., Lindgren, B.-M. & Lundman, B. (2017). Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Education Today*, *56*, 29-34. https://doi.org/10.1016/j.nedt.2017.06.002

Graneheim, U. H. & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, *24*(2), 105-112. https://doi.org/10.1016/j.nedt.2003.10.001

Gray, E., Currey, J., & Considine, J. (2018a). Hospital in the home nurses' assessment decision making: An integrative review of the literature. *Contemporary Nurse, 54*(6), 603-616. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/30319020

Gray, E., Currey, J., & Considine, J. (2018b). Hospital in the Home nurses' recognition and response to clinical deterioration. *Journal of Clinical Nursing, 27*(9-10), 2152–2160. http://doi.org/10.1111/jocn.14076

Guillemin, M. & Gillam, L. (2004). Ethics, reflexivity, and "ethically important moments" in research. *Qualitative Inquiry*, *10*(2), 261-280. https://doi.org/10.1177/1077800403262360

Halcomb, E., Stephens, M., Bryce, J., Foley, E. & Ashley, C. (2016). Nursing competency standards in primary health care: an integrative review.

Journal of clinical nursing, *25*(9-10), 1193-1205. https://doi.org/10.1111/jocn.13224

Harrison, M. B., Keeping-Burke, L., Godfrey, C. M., Ross-White, A., McVeety, J., Donaldson, V., Blais, R. & Doran, D. M. (2013). Safety in home care: a mapping review of the international literature. *International Journal of Evidence-Based Healthcare*, *11*(3), 148-160. https://doi.org/10.1111/1744-1609.12027

Health and Care Services Act. (2011). Act relating to municipal health and care services. (LOV-2011-06-24-30) Lovdata: https://lovdata.no/dokument/NL/lov/2011-06-24-30

Helsedirektoratet. (2017). *Tiltakspakke om forverret tilstand lagt ut*. Helsedirektoratet, i trygge hender 24/7. Norwegian Directorate of Health Retrieved from https://www.itryggehender24-7.no/aktuelt/nyheter/tiltakspakke-om-forverret-tilstand-lagt-ut 02.02.2023

Helsedirektoratet. (2017). *Årsrapport 2016 for omsorgsplan 2020*. (IS-2691). Helsedirektoratet. Norwegian Directorate of Health. Retrieved from https://www.helsedirektoratet.no/rapporter/omsorg-2020-arsrapport/%C3%85rsrapport%202016%20for%20omsorgsplan%202020.pdf/_/attachment/inline/b52dfa4b-8fbc-4728-9c2c-bb2f52e5e89c:3dc25d2cd30929c1d629fa825b9a2b485c7ab101/%C3%85rsrapport%202016%20for%20omsorgsplan%202020.pdf 02.02.2023

Helsedirektoratet. (2019). *Nasjonal handlingsplan for pasientsikkerhet og kvalitetsforbedring 2019-2023*. The Norwegian Directorate of Health. Retrieved from https://www.helsedirektoratet.no/veiledere/ledelse-og-kvalitetsforbedring-i-helse-og-omsorgstjenesten/Nasjonal%20handlingsplan%20for%20pasientsikkerhet%20og%20kvalitetsforbedring%202019-2023.pdf/_/attachment/inline/79c83e08-c6ef-4adc-a29a-4de1fc1fc0ef:94a7c49bf505dd36d59d9bf3de16769bad6c32d5/Nasjonal%20handlingsplan%20for%20pasientsikkerhet%20og%20kvalitetsforbedring%202019-2023.pdf 02.02.2023

Helsedirektoratet. (2020). *Tidlig oppdagelse or rask respons ved forverret somatisk tilstand. Nasjonale faglige råd*. Norwegian Directorate of Health. Retrieved from https://www.helsedirektoratet.no/faglige-rad/tidlig-oppdagelse-og-rask-respons-ved-forverret-somatisk-tilstand 02.02.2023

Hesse-Biber, S. N. & Johnson, R. B. (2015). *The Oxford handbook of multimethod and mixed methods research inquiry*. Oxford University Press.

Hibbert, P. D., Basedow, M., Braithwaite, J., Wiles, L. K., Clay-Williams, R. & Padbury, R. (2021). How to sustainably build capacity in quality improvement within a healthcare organisation: a deep-dive, focused qualitative analysis. *BMC health services research*, *21*(1), 1-13. https://doi.org/10.1186/s12913-021-06598-8

Holm, S. G., Mathisen, T. A., Sæterstrand, T. M. & Brinchmann, B. S. (2017). Allocation of home care services by municipalities in Norway: a document analysis. *BMC health services research*, *17*(1), 1-10. https://doi.org/10.1186/s12913-017-2623-3

Hoogendijk, E. O., Afilalo, J., Ensrud, K. E., Kowal, P., Onder, G. & Fried, L. P. (2019). Frailty: implications for clinical practice and public health. *The Lancet*, *394*(10206), 1365-1375. https://doi.org/10.1016/S0140-6736(19)31786-6

Hulscher, M. E. J., Laurant, M. G. H. & Grol, R. P. T. (2003). Process evaluation on quality improvement interventions. *Quality & Safety in Health Care*, *12*(1), 40-46. http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=106869022&site=ehost-live

Innst. 2012 S (2009-2010). *Innstilling fra helse- og omsorgskomiteen om samhandlingsreformen og in en ny velferdreform,*. Retrieved from https://www.stortinget.no/no/Saker-og-publikasjoner/Publikasjoner/Innstillinger/Stortinget/2009-2010/inns-200910-212/?lvl=0 02.02.2023

International Council of Nursing (ICN). (2010). *Scope of Nursing Practice and Decision-Making Framework TOOLKIT*. Geneva, Switzerland: Consultant Nursing and Health Policy International Council of Nurses Retrieved from https://www.icn.ch/sites/default/files/inline-files/2010_ICN%20Scope%20of%20Nursing%20and%20Decision%20making%20Toolkit_eng.pdf

Institute of Medicine (IOM). (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academies Press. https://doi.org/10.17226/10027

Institute of Medicine (IOM). (2000) In, Donaldson, M. S., Corrigan, J. M. & Kohn, L. T. *To Err Is Human: Building a Safer Health System*. Washington, D.C: National Academies Press.

Janssen, B. M., Van Regenmortel, T. & Abma, T. A. (2014). Balancing risk prevention and health promotion: towards a harmonizing approach in care for older people in the community. *Health Care Analysis*, *22*(1), 82-102. https://doi.org/10.1007/s10728-011-0200-1

Jeppestøl, K., Kirkevold, M. & Bragstad, L. K. (2020). Applying the Modified Early Warning Score (MEWS) to assess geriatric patients in home care settings: A qualitative study of nurses' and general practitioners' experiences. *Research Square.* https://doi.org/10.21203/rs.2.16666/v2

Johannessen, T., Ree, E., Aase, I., Bal, R. & Wiig, S. (2020). Exploring challenges in quality and safety work in nursing homes and home care - a case study as basis for theory development. *BMC health services research*, *20*(1), 1-12. https://doi.org/10.1186/s12913-020-05149-x

Johannessen, T., Ree, E., Aase, I., Bal, R. & Wiig, S. (2021). Exploring managers' response to a quality and safety leadership intervention: findings from a multiple case study in Norwegian nursing homes and homecare services. *BMJ open quality*, *10*(3), e001494. http://dx.doi.org/10.1136/bmjoq-2021-001494

Jones, A., Valverde, R. & Harris-Kojetin, L. D. (2012). *Characteristics and use of home health care by men and women aged 65 and over*. US Department of Health and Human Services, Centers for Disease Control and Preventio. National Center for health statistics. https://www.cdc.gov/nchs/data/nhsr/nhsr052.pdf

Jones, B., Kwong, E. & Warburton, W. (2021). *Quality Improvement Made Simple: What Everyone Should Know about Healthcare Quality Improvement: Quick Guide*. The Health Foundation. https://doi.org/10.37829/HF-2021-I05

Jones, D., Mitchell, I. Hillman, K., & Story, D. (2013). Defining clinical deterioration. *Resuscitation*, *84*(8), 1029-1034. https://doi.org/10.1016/j.resuscitation.2013.01.013

Josefsson, K. (2015). District nurses' experience of working in home care in Sweden. *Healthy Aging Research*, *4*(37). https://www.diva-portal.org/smash/get/diva2:868078/FULLTEXT01.pdf

Kajander-Unkuri, S., Kämäräinen, P., Hartikainen, T. & Turjamaa, R. (2021). Effectiveness of a combined web-based and simulation-based continuing education on home-care professionals' competence to evaluate older people's acute care needs in Finland. *Health & social care in the community*. 30(5), 1765-1774 https://doi.org/10.1111/hsc.13605

Kaplan, H. C., Brady, P. W., Dritz, M. C., Hooper, D. K., Linam, W. M., Froehle, C. M. & Margolis, P. (2010). The influence of context on quality improvement success in health care: a systematic review of the literature. *The Milbank Quarterly*, *88*(4), 500-559. https://doi.org/10.1111/j.1468-0009.2010.00611.x

Knight Frank. (2020). *European Healthcare Elderly Care Market, Research 2020*. https://content.knightfrank.com/research/656/documents/en/european-healthcare-care-homes-elderly-care-market-2020-6902.pdf

Kok, L., Berden, C. & Sadiraj, K. (2015). Costs and benefits of home care for the elderly versus residential care: a comparison using propensity scores. *The European journal of health economics*, *16*(2), 119-131. https://doi.org/10.1007/s10198-013-0557-1

Korstjens, I. & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *Eur J Gen Pract*, *24*(1), 120-124. https://doi.org/10.1080/13814788.2017.1375092

Kristinsdóttir, I. V., Jónsson, P. V., Hjaltadóttir, I. & Bjornsdottir, K. (2021). Changes in home care clients' characteristics and home care in five European countries from 2001 to 2014: comparison based on InterRAI-Home Care data. *BMC health services research*, *21*(1), 1-12. https://doi.org/10.1186/s12913-021-07197-3

Kyngäs, H., Mikkonen, K. & Kääriäinen, M. (2020). *The Application of Content Analysis in Nursing Science Research*. Springer. http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=2285425&scope=site

Lackie, K., Hayward, K., Ayn, C., Stilwell, P., Lane, J., Andrews, C., Dutton, T., Ferkol, D., Harris, J. & Houk, S. (2022). Creating psychological safety in interprofessional simulation for health professional learners: a scoping review of the barriers and enablers. *Journal of interprofessional care*, 37(2) 1-16. https://doi.org/10.1080/13561820.2022.2052269

Lang, A., Edwards, N. & Fleiszer, A. (2008). Safety in home care: a broadened perspective of patient safety. *International Journal for Quality in Health Care*, *20*(2), 130-135. https://doi.org/10.1093/intqhc/mzm068

Langins, M. & Borgermans, L. (2015). *Strengthening a competent health workforce for the provision of coordinated/integrated health services*. WHO Regional Office for Europe Retrieved from https://apps.who.int/iris/handle/10665/362099

Lau, R., Stevenson, F., Ong, B. N., Dziedzic, K., Treweek, S., Eldridge, S., Everitt, H., Kennedy, A., Qureshi, N. & Rogers, A. (2016). Achieving change in primary care - causes of the evidence to practice gap: systematic reviews of reviews. *Implementation Science*, *11*(1), 1-39. https://doi.org/10.1186/s13012-016-0396-4

Lawati, M. H. A., Dennis, S., Short, S. D. & Abdulhadi, N. N. (2018). Patient safety and safety culture in primary health care: a systematic review.

BMC family practice, *19*(1), 104. https://doi.org/10.1186/s12875-018-0793-7

Leverton, M., Burton, A., Rees, J., Rapaport, P., Manthorpe, J., Downs, M., Beresford-Dent, J. & Cooper, C. (2019). A systematic review of observational studies of adult home care. *Health & social care in the community*, *27*(6), 1388-1400. https://doi.org/10.1111/hsc.12831

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Lindblad, M., Flink, M. & Ekstedt, M. (2018). Exploring patient safety in Swedish specialised home healthcare: an interview study with multidisciplinary teams and clinical managers. *BMJ open*, *8*(12), e024068. http://dx.doi.org/10.1136/bmjopen-2018-024068

Macdonald, M. T., Lang, A., Storch, J., Stevenson, L., Barber, T., Iaboni, K. & Donaldson, S. (2013). Examining markers of safety in homecare using the international classification for patient safety. *BMC Health Serv Res*, *13*(1), 191-191. https://doi.org/10.1186/1472-6963-13-191

Mah, J. C., Stevens, S. J., Keefe, J. M., Rockwood, K. & Andrew, M. K. (2021). Social factors influencing utilization of home care in community-dwelling older adults: a scoping review. *BMC geriatrics*, *21*(1), 1-21. https://doi.org/10.1186/s12877-021-02069-1

Malterud, K., Siersma, V. D. & Guassora, A. D. (2016). Sample size in qualitative interview studies: guided by information power. *Qualitative health research*, *26*(13), 1753-1760. https://doi.org/10.1177/1049732315617444

Manetti, W. (2019). Sound clinical judgment in nursing: A concept analysis. *Nurs Forum*, *54*(1), 102-110. https://doi.org/10.1111/nuf.12303

Martin, D., Long, O. & Kessler, L. (2019). Planning for aging in place: incorporating the voice of elders to promote quality of life. *Journal of Housing for the Elderly*, *33*(4), 382-392. https://doi.org/10.1080/02763893.2019.1593280

Martin, G. P., Armstrong, N., Aveling, E.-L., Herbert, G. & Dixon-Woods, M. (2015). Professionalism redundant, reshaped, or reinvigorated? Realizing the "third logic" in contemporary health care. *Journal of Health and Social Behavior*, *56*(3), 378-397. https://doi.org/10.1177/0022146515596353

Martinsen, B., Mortensen, A. S. & Norlyk, A. (2018). Nordic homecare nursing from the perspective of homecare nurses - a meta-ethnography. *British Journal of Community Nursing*, *23*(12), 597-604. https://doi.org/10.12968/bjcn.2018.23.12.597

May, C., Finch, T., Mair, F., Ballini, L., Dowrick, C., Eccles, M., Gask, L., MacFarlane, A., Murray, E. & Rapley, T. (2007). Understanding the implementation of complex interventions in health care: the

normalization process model. *BMC health services research*, *7*(1), 148. https://doi.org/10.1186/1472-6963-7-148

May, C. R., Mair, F., Finch, T., MacFarlane, A., Dowrick, C., Treweek, S., Rapley, T., Ballini, L., Ong, B. N. & Rogers, A. (2009). Development of a theory of implementation and integration: Normalization Process Theory. *Implementation Science*, *4*(1), 29. https://doi.org/10.1186/1748-5908-4-29

Melby, L., Obstfelder, A. & Hellesø, R. (2018). "We tie up the loose ends": Homecare nursing in a changing health care landscape. *Global qualitative nursing research*, *5*, 1-11 https://doi.org/10.1177/2333393618816780

Meld. St. 10 (2012–2013). *High Quality - Safe Services, Quality and Patient safety in the Health and Care Services*. Retrieved from https://www.regjeringen.no/contentassets/b9f8d14c14634c67a579a1c48a07c103/en-gb/pdfs/stm201220130010000engpdfs.pdf

Meld. St. 11 (2014–2015). *Kvalitet og pasientsikkerhet 2013*. Retrieved from https://www.regjeringen.no/contentassets/4db4ebe7d94a4687946baa063cd683d5/no/pdfs/stm201420150011000dddpdfs.pdf

Mertens, D. M. & Tarsilla, M. (2015). Mixed methods evaluation. In S.N. Hesse-Bieber & R..B. Johnson (Eds.) *The Oxford handbook of multimethod and mixed methods research inquiry*. Oxford University Press

Mery, G., Dobrow, M. J., Baker, G. R., Im, J. & Brown, A. (2017). Evaluating investment in quality improvement capacity building: a systematic review. *BMJ open*, *7*(2), e012431. http://dx.doi.org/10.1136/bmjopen-2016-012431

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D. & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: a consensus approach. *BMJ quality & safety*, *14*(1), 26-33. http://dx.doi.org/10.1136/qshc.2004.011155

Mok, W. Q., Wang, W. & Liaw, S. Y. (2015). Vital signs monitoring to detect patient deterioration: An integrative literature review. *International Journal of Nursing Practice*, *21*, 91-98. https://doi.org/10.1111/ijn.12329

Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd ed., Vol. 16). Sage Publications.

Morley, J. E., Vellas, B., Van Kan, G. A., Anker, S. D., Bauer, J. M., Bernabei, R., Cesari, M., Chumlea, W., Doehner, W. & Evans, J. (2013). Frailty consensus: a call to action. *Journal of the American Medical Directors Association*, *14*(6), 392-397. https://doi.org/10.1016/j.jamda.2013.03.022

Morse, J. M. (2010). Simultaneous and sequential qualitative mixed method designs. *Qualitative Inquiry*, *16*(6), 483-491. https://doi.org/10.1177/1077800410364741

Morse, J. M. (2009). Mixing qualitative methods. *Qualitative health research*, *19(11) 1523–1524*. https://doi.org/10.1177/1049732309349360

Morse, J. M. & Niehaus, L. (2009). *Mixed method design : principles and procedures* (Vol. 4). Left Coast Press.

Næss, G., Kirkevold, M., Hammer, W., Straand, J. & Wyller, T. B. (2017). Nursing care needs and services utilised by home-dwelling elderly with complex health problems: observational study. *BMC health services research*, *17*(1), 1-10. https://doi.org/10.1186/s12913-017-2600-x

Ogrinc, G., Davies, L., Goodman, D., Batalden, P., Davidoff, F. & Stevens, D. (2015). SQUIRE 2.0 (Standards for QUality Improvement Reporting Excellence): revised publication guidelines from a detailed consensus process. *American Journal of Critical Care*, *24*(6), 466-473. https://doi.org/10.3928/00220124-20151020-02

Orique, S. B., Despins, L., Wakefield, B. J., Erdelez, S. & Vogelsmeier, A. (2019). Perception of clinical deterioration cues among medical-surgical nurses. *Journal of Advanced Nursing*, *75*(11), 2627-2637. https://doi.org/10.1111/jan.14038

Palominos, E., Levett-Jones, T., Power, T. & Martinez-Maldonado, R. (2019). Healthcare students' perceptions and experiences of making errors in simulation: An integrative review. *Nurse Education Today*, *77*, 32-39. https://doi.org/10.1016/j.nedt.2019.02.013

Pasientsikkerhetsprogrammet, I trygge hender 24-7. (2014a). *Sluttrapport for pasientsikkerhetskampanjen I trygge hender 24-7 2011–2013*. https://omsorgsforskning.brage.unit.no/omsorgsforskning-xmlui/bitstream/handle/11250/2445319/Sluttrapport%20for%20pasientsikkerhetskampanjen%202011-2013.pdf?sequence=1

Pasientsikkerhetsprogrammet I trygge hender 24-7. (2014b). *Strategi 2014-2018*. https://www.regjeringen.no/contentassets/2dc3e411143d40258d48913ea80a9200/strategi_pasientsikkerhetsprogrammet_2014-2018.pdf?id=2287974

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth Edition). Sage.

Pettigrew, A., Ferlie, E. & McKee, L. (1992). *Shaping strategic change : making change in large organizations: the case of the National Health Service*. Sage.

Pialoux, T., Goyard, J. & Lesourd, B. (2012). Screening tools for frailty in primary health care: a systematic review. *Geriatrics & Gerontology International*, *12*(2), 189-197. https://doi.org/10.1111/j.1447-0594.2011.00797.x

Polanyi, M. (2009). *The tacit dimension*. University of Chicago Press.

Polit, D. F., & Beck, C. T. (2018). *Essentials of nursing research : appraising evidence for nursing practice* (9th ed.). Wolters Kluwer.

Powell, R. A. & Single, H. M. (1996). Focus groups. *International Journal for Quality in Health Care*, *8*(5), 499-504. https://doi.org/10.1093/intqhc/8.5.499

Rechel, B., Grundy, E., Robine, J.-M., Cylus, J., Mackenbach, J. P., Knai, C. & McKee, M. (2013). Ageing in the European union. *The Lancet*, *381*(9874), 1312-1322. https://doi.org/10.1016/S0140-6736(12)62087-X

Ree, E., Johannessen, T. & Wiig, S. (2019). How do contextual factors influence quality and safety work in the Norwegian home care and nursing home settings? A qualitative study about managers' experiences. *BMJ open*, *9*(7), e025197. http://dx.doi.org/10.1136/bmjopen-2018-025197

Royal College of physicians. (2017). National early warning score (news) 2: standardising the assessment of acute-illness severity in the NHS. updated report of a working Party. Retrived from https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2 02.02.2023

Rudolph, J. W., Raemer, D. B. & Simon, R. (2014). Establishing a safe container for learning in simulation: the role of the presimulation briefing. *Simulation in Healthcare*, *9*(6), 339-349. https://doi.org/10.1097/SIH.0000000000000047

Russler, D. (2009). Clinical Observation. In L. Liu & M. T. ÖZsu (Eds.), *Encyclopedia of Database Systems* (pp. 359-360). Springer US. https://doi.org/10.1007/978-0-387-39940-9_61

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & Quantity*, *52*(4), 1893-1907. https://doi.org/10.1007/s11135-017-0574-8

Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English language teaching*, *5*(9), 9-16. http://dx.doi.org/10.5539/elt.v5n9p9

Sheikh, A., Panesar, S. S., Larizgoitia, I., Bates, D. W. & Donaldson, L. J. (2013). Safer primary care for all: a global imperative. *The lancet global health*, *1*(4), e182-e183. https://doi.org/10.1016/S2214-109X(13)70030-5

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, *22*(2), 63-75. https://doi.org/10.3233/EFI-2004-22201

Sosial- og Helsedirektoratet. (2005). *Og bedre skal det bli! Nasjonal strategi for kvalitetsforbedring i sosial- og helsetjenesten. Til deg som leder og utøver*. (IS-1162). Retrieved from https://www.helsedirektoratet.no/veiledere/oppfolging-av-personer-med-store-og-sammensatte-behov/metoder-og-verktoy-for-systematisk-kvalitetsforbedring-for-helhetlige-og-koordinerte-tjenester/de-seks-dimensjonene-for-kvalitet-i-tjenestene-er-sentrale-sjekkpunkter-i-forbedringsarbeidet/Og-bedre-skal-det-bli-nasjonal-strategi-for-kvalitetsforbedring-i-sosial-og-helsetjenesten-2005-2015-IS-1162-bokmal.pdf/_/attachment/inline/985d47ad-c5cc-47e4-8e4d-2d3ae1a05bbe:cdbc34628eed68ec59098b3a2f41e0f8a28a44ee/Og-bedre-skal-det-bli-nasjonal-strategi-for-kvalitetsforbedring-i-sosial-og-helsetjenesten-2005-2015-IS-1162-bokmal.pdf

SSB, (2021, 16.06.2021). *Care Sevices*. SSB (Statistics Norway). https://www.ssb.no/en/helse/helsetjenester/statistikk/sjukeheimar-heimetenester-og-andre-omsorgstenester

St.meld nr.47 (2008-2009). *Samhandlingsreformen, Rett behandling – på rett sted – til rett tid,*. Retrieved from https://www.regjeringen.no/contentassets/d4f0e16ad32e4bbd8d8ab5c21445a5dc/no/pdfs/stm200820090047000dddpdfs.pdf

Steinseide, E. G., Potrebny, T., Ciliska, D. & Graverholt, B. (2022). Systems for early detection of clinical deterioration in older people in non-hospital settings – a systematic scoping review. *Sykepleien forskning, 1*. e-88361. https://doi.org/10.4220/Sykepleienf.2022.88361

Stetler, C. B., Ritchie, J., Rycroft-Malone, J., Schultz, A. & Charns, M. (2007). Improving quality of care through routine, successful implementation of evidence-based practice at the bedside: an organizational case study protocol using the Pettigrew and Whipp model of strategic change. *Implementation Science*, *2*(3), 1-13. https://doi.org/10.1186/1748-5908-2-3

Stones, D., & Gullifer, J. (2016). 'At home it's just so much easier to be yourself': older adults' perceptions of ageing in place. *Ageing & Society*, *36*(3), 449-481. https://doi.org/10.1017/S0144686X14001214

Straus, S., Tetroe, J. & Graham, I. D. (2013). *Knowledge translation in health care: moving from evidence to practice*. John Wiley & Sons.

Strømme, T., Tjoflåt, I. & Aase, K. (2020). Systematic Observation of Frail Older Patients in Homecare - Implementing a Competence Improvement Program. *Tidsskrift for omsorgsforskning*, *6*(02), 23-39. https://doi.org/10.18261/issn.2387-5984-2020-02-03

Strømme, T., Tjoflåt, I. & Aase, K. (2022). A competence improvement programme for the systematic observation of frail older patients in homecare: qualitative outcome analysis. *BMC health services research*, *22*(1), 1-15. https://doi.org/10.1186/s12913-022-08328-0

Strømme, T., Aase, K. & Tjoflåt, I. (2020). Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study. *Journal of clinical nursing*, 29(13-14), 2429-2440. https://doi.org/10.1111/jocn.15255

Sørensen, M., Stenberg, U. & Garnweidner-Holme, L. (2018). A scoping review of facilitators of multi-professional collaboration in primary care. *International Journal Of Integrated Care*, *18*(3). https://doi.org/10.5334%2Fijic.3959

Tanner, C. A. (2006). Thinking like a nurse: A research-based model of clinical judgment in nursing. *Journal of Nursing Education*, *45*(6), 204 – 211. https://www.researchgate.net/profile/Christine-Tanner-3/publication/7003793_Thinking_Like_a_Nurse_A_Research-Based_Model_of_Clinical_Judgment_in_Nursing/links/0c9605294f14427681000000/Thinking-Like-a-Nurse-A-Research-Based-Model-of-Clinical-Judgment-in-Nursing.pdf

Tarricone, R. & Tsouros, A. D. (2008). *Home care in Europe: the solid facts*. (9289042818). WHO Regional Office Europe Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0005/96467/E91884.pdf

Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D. & Reed, J. E. (2014). Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ quality & safety*, *23*(4), 290-298. http://dx.doi.org/10.1136/bmjqs-2013-001862

Thomas, A., Menon, A., Boruff, J., Rodriguez, A. M. & Ahmed, S. (2014). Applications of social constructivist learning theories in knowledge translation for healthcare professionals: a scoping review. *Implementation Science*, *9*(1), 1-20. https://doi.org/10.1186/1748-5908-9-54

Turjamaa, R., Hartikainen, S., Kangasniemi, M. & Pietilä, A. M. (2014). Living longer at home: a qualitative study of older clients' and

practical nurses' perceptions of home care. *Journal of clinical nursing*, *23*(21-22), 3206-3217. https://doi.org/10.1111/jocn.12569

United Nations. (2019). World Population Aging 2019. Department of Economic and Social Affairs, Population Division. https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf

Utviklingssenter for sykehjem og hjemmetjenester (USHT). (2020). *KlinObsKommune*. Retrieved from https://www.utviklingssenter.no/klinisk-observasjonskompetanse

Utviklingssenter for sykehjem og hjemmetjenester (USHT). (2022). Om oss. Retrieved from https://www.utviklingssenter.no/om-oss

Vabø, M., Christensen, K., Jacobsen, F. F. & Trætteberg, H. D. (2013). Marketisation in Norwegian eldercare: preconditions, trends and resistance. In G. Meagher & M. Szebehely (Eds.), *Marketisation in Nordic eldercare: A research report on legislation, oversight, extent and consequen*ces. Department of Social Work, Stockholm University. *https://core.ac.uk/download/pdf/60534989.pdf#page=165*

Vaughn, V. M., Saint, S., Krein, S. L., Forman, J. H., Meddings, J., Ameling, J., Winter, S., Townsend, W. & Chopra, V. (2019). Characteristics of healthcare organisations struggling to improve quality: results from a systematic review of qualitative studies. *BMJ quality & safety*, *28*(1), 74-84. http://dx.doi.org/10.1136/bmjqs-2017-007573

Vincent, C. & Amalberti, R. (2016). Safer healthcare. *Cham: Springer International Publishing*.

Walshe, N., Ryng, S., Drennan, J., O'Connor, P., O'Brien, S., Crowley, C. & Hegarty, J. (2021). Situation awareness and the mitigation of risk associated with patient deterioration: A meta-narrative review of theories and models and their relevance to nursing practice. *International Journal of Nursing Studies*, *124*, 104086. https://doi.org/10.1016/j.ijnurstu.2021.104086

Wensing, M., Grol, R. & Grimshaw, J. (2020). *Improving patient care : the implementation of change in health care* (3rd ed.). Wiley Blackwell.

Wiig, S., Ree, E., Johannessen, T., Strømme, T., Storm, M., Aase, I., Ullebust, B., Holen-Rabbersvik, E., Thomsen, L. H., Pedersen, A. T. S., Bovenkamp, H., Bal, R. & Aase, K. (2018). Improving quality and safety in nursing homes and home care: the study protocol of a mixed-methods research design to implement a leadership intervention. *BMJ open*, *8*(3), e020933. http://dx.doi.org/10.1136/bmjopen-2017-020933

Wiig, S., Aase, K. & Bal, R. (2021). Reflexive spaces: Leveraging resilience into healthcare regulation and management. *Journal of Patient Safety*, *17*(8), e1681. https://doi.org/10.1097%2FPTS.0000000000000658

Wiig, S., Aase, K., Johannessen, T., Holen-Rabbersvik, E., Thomsen, L. H., van de Bovenkamp, H., Bal, R. & Ree, E. (2019). How to deal with context? A context-mapping tool for quality and safety in nursing homes and homecare (SAFE-LEAD Context). *BMC Research Notes*, *12*(1), 1-8. https://doi.org/10.1186/s13104-019-4291-3

Wiles, J. L., Leibing, A., Guberman, N., Reeve, J. & Allen, R. E. (2012). The meaning of "aging in place" to older people. *The Gerontologist*, *52*(3), 357-366. https://doi.org/10.1093/geront/gnr098

Winters, B. D. & DeVita, M. A. (2010). Rapid Response Systems History and Terminology. In M A. DeVita, K. Hillman & R. Bellomo (Red) *Textbook of Rapid Response Systems. Consept of Implemetation* (pp. 3-12). New York, NY: Springer New York. https://doi.org/10.1007/978-0-387-92853-1_1

Winters, B. D., Weaver, S. J., Pfoh, E. R., Yang, T., Pham, J. C. & Dy, S. M. (2013). Rapid-Response Systems as a Patient Safety Strategy A Systematic Review. *Ann Intern Med*, *158*(5), 417-425. https://doi.org/10.7326/0003-4819-158-5-201303051-00009

World Health Organization. (2015). The growing need for home health care for the elderly: home health care for the elderly as an integral part of primary health care services. https://applications.emro.who.int/dsaf/EMROPUB_2015_EN_1901.pdf?ua=1

World Health Organization. (2021). Towards eliminating avoidable harm in health care. *Global patient safety action plan 2021 - 2030*. https://www.who.int/teams/integrated-health-services/patient-safety/policy/global-patient-safety-action-plan

World Health Organization. (2022). Global competency framework for universal health coverage. In *Global competency framework for universal health coverage*. https://www.who.int/publications/i/item/9789240034662

Øvretveit, J. (2014). How does context affect quality improvement. In: *Perspectives on context. A selection of essays considering the role of context in successful quality improvement. London: The Health Foundation*, 59-85. https://www.health.org.uk/publications/perspectives-on-context

Aase, I., Ree, E., Johannessen, T., Strømme, T., Ullebust, B., Holen-Rabbersvik, E., Thomsen, L. H., Schibevaag, L., van de Bovenkamp, H. & Wiig, S. (2021). Talking about quality: how 'quality'is conceptualized in nursing homes and homecare. *BMC health services research*, *21*(1), 1-12. https://doi.org/10.1186/s12913-021-06104-0

Part II

List of papers

Paper 1

Strømme, T., Aase, K. & Tjoflåt, I. (2020). Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study. *Journal of Clinical Nursing*. 29 (13-14), 2429-2440.

Paper 2

Strømme, T., Tjoflåt, I. & Aase, K. (2020). Systematic Observation of Frail Older Patients in Homecare - Implementing a Competence Improvement Program. *Tidsskrift for omsorgsforskning. 6*(02), 23-39.

Paper 3

Strømme, T., Tjoflåt, I. &Aase, K. (2022). A competence improvement programme for the systematic observation of frail older patients in homecare: qualitative outcome analysis. *BMC Health Services Research. 22*(1), 1-15.

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Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study

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Abstract

Aim and objectives: To develop knowledge about homecare professionals' observational competence in early recognition of deterioration in frail older patients.

Background: The number of frail older patients in homecare has been rising, and these patients are at higher risk of deterioration and mortality. However, studies are scarce on homecare professionals' recognition and response to clinical deterioration in homecare.

Design: This study applies an explorative, qualitative, mixed-methods design.

Methods: The data were collected in two homecare districts in 2018 during 62 hr of participant observation, as well as from six focus group interviews. The data were subjected to qualitative content analyses. The Standards for Reporting Qualitative Research (SRQR) checklist was used to report the results.

Results: The data analyses revealed two main themes and five sub-themes related to homecare professionals' observational practices. The first main theme entailed patient-situated assessment of changes in patients' clinical condition, that is, the homecare professionals' recognised changes in patients' physical and mental conditions. The second theme was the organisational environment, in which planned, practical tasks and collaboration and collegial support were emphasised.

Conclusions: The homecare professionals in the two districts varied in their ability to recognise signs of patient deterioration. Their routines are described in detailed work plans, which seemed to affect assessment of their patients' decline.

Relevance for clinical practice: The results can inform homecare services on how homecare professionals' observational competence and an appropriate organisational system are essential in ensuring early detection of deterioration in frail older patients.

KEYWORDS

assessment, clinical observation, deterioration, frail older patients, healthcare professionals, homecare

1 | INTRODUCTION

This paper will address how healthcare professionals in homecare observe their patients' deterioration. Recent developments in health care have brought care "closer to home" (Genet, Boerma, Kroneman, Hutchinson, & Saltman, 2012), resulting in a rising number of frail care-dependent older patients who need advanced homecare (Tarricone & Tsouros, 2008). Expectations in homecare have grown with the demand for care coordination and possibilities for complex treatment at home (Genet et al., 2012).

Frail patients have a higher risk of deterioration and increased mortality (Gobbens, Luijkx, Wijnen-Sponselee, & Schols, 2010), so early recognition and response to clinical deterioration improve patient outcomes (Padilla & Mayo, 2018). Active clinical observation, early recognition, interventions to slow patients' deterioration and the potential for deterioration are all emphasised (Gray, Currey, & Considine, 2018a; Odell, Victor, & Oliver, 2009).

Healthcare professionals in homecare comprise a mix of nurses, skilled health workers and assistants (Genet et al., 2012). These workers play an important role in noticing and responding to patients' deterioration (Gray et al., 2018a; Padilla & Mayo, 2018). Greater expectations in homecare have resulted in a disparity between competence demands and actual worker competence (Bing-Jonsson, Foss, & Bjørk, 2016; Genet et al., 2011; Maybin, Charles, & Honeyman, 2016).

What does this paper contribute to the wider global clinical community?

- Homecare professionals' observational practice of detecting early deterioration in frail older patients is variable, and vital signs are measured infrequently.
- Improving homecare professionals' observational competence by organising for timely and appropriate treatment is essential in successful recognition of deteriorating, frail older patients.
- This first known Norwegian study of homecare professionals' observational competence in deteriorating frail older patients provide new knowledge to health professionals and policymakers engaged in homecare globally.

2 | BACKGROUND

Frail and dependent patients are common in community health and pose clinical challenges for healthcare professionals. *Frailty* is associated with a higher risk of falls, loss of mobility and functional decline, leading to frequent hospitalisations, institutionalisation, acute events and death (De Vries et al., 2011; Gobbens et al., 2010). Deteriorating patients undergo a clinical decline, increasing their health risks and morbidity chances. Therefore, subjective and objective clinical observations, including vital signs and healthcare professionals' intuition, are important (Jones, Mitchell, Hillman, & Story, 2013; Padilla & Mayo, 2018).

Healthcare professionals in homecare mostly work alone in patients' homes without any bedside support (Genet et al., 2012; Gray et al., 2018a). This autonomous role means that these healthcare professionals carry a substantial responsibility for detecting deterioration in patients' conditions (Gray et al., 2018a; Gray, Currey, & Considine, 2018b). Three factors influence the assessment of a patient: (a) the relationship between education and experience, including clinical assessment and decision-making skills, in homecare workers; (b) homecare workers' assessment-informed decision-making, taking into account data provided by the patient and/or the patient's family; and (c) homecare workers' knowledge about the patient's environmental and individual needs (Gray et al., 2018a).

Enhanced patient acuity and complexity, heavier workloads and changes in care delivery comprise increased challenges for professional decision-making (Gillespie & Peterson, 2009). Clinical judgement and reasoning are essential elements of such decision-making processes (Cappelletti, Engel, & Prentice, 2014). Decision-making is, along with situational awareness, an important nontechnical skill, comprising cognitive and social skills that complement technical skills. Situational awareness and assessment often are used in tandem, describing the building and maintenance of awareness of a workplace situation or event (Flin, O'Connor, & Crichton, 2017). Tanner (2006) describes a model for clinical judgement in nursing, comprised of four features: (a) the knowledge that the nurse brings to the situation, (b) knowledge about the patient, (c) knowledge of the context in which the situation occurs and the nursing unit's culture, and (d) the ability to use a variety of reasoning patterns alone or in combination.

Variability exists in how healthcare professionals recognise and respond to clinical deterioration, often as a result of practice-based and contextual factors (Jones et al., 2013). The homecare context in which professionals make their decisions is markedly different from that of hospitals (Gray et al., 2018a, 2018b). Assessment of deterioration in patients has been conducted in hospital-based research with the goal of reducing in-hospital deaths (Chan, Jain, Nallmothu, Berg, & Sasson, 2010). However, little is known about homecare professionals' recognition of and response to clinical deterioration, and studies of homecare professionals beyond nurses are even more scarce (Gray et al., 2018a). Therefore, this study's aim is to develop knowledge about homecare professionals' observational competence in early recognition of deterioration in frail older patients.

We base our understanding of observational competence as professionals' ability to perform their tasks and meet their obligations (Boyatzis, 1982; Eraut, 1994) using different features of clinical judgement (Tanner, 2006). To specify the aim, the following research question will guide the study: How can homecare professionals' practices and experiences with early recognition of deterioration in frail older patients be described? This paper reports the first phase of a process evaluation of an improvement project designed to

improve homecare professionals' competency and skills in recognising and responding to deteriorating older patients.

3 | METHODOLOGY

Given the limited knowledge of observational competence in the context of homecare, an explorative, qualitative mixed-methods design (Morse & Niehaus, 2009) was deemed appropriate.

3.1 | Design

The qualitative mixed-methods design comprised two methods: participant observation (homecare professionals' practices) and focus group interviews (homecare professionals' experiences). While mixed-methods designs often are associated with studies that combine quantitative and qualitative methods, they also are acknowledged when designing studies involving multiple qualitative methods (Morse, 2010). Morse and Niehaus (2009) claim that in a qualitative mixed-methods design, the two qualitative components should not be weighted equally, and thus, one of the data materials should form the core, while the other should be viewed as supplemental. In this study, participant observation comprised the core component and, thus, involved the main part of data collection. Focus group interviews comprised the supplemental component, that is, the interview data collected were used to complement and better understand the observational data. The data sets were collected simultaneously (Morse & Niehaus, 2009). According to Morse (2010), the use of mixed methods contributed complementary data sources to provide a more nuanced picture of the topic under study—in this case, homecare professionals' observational competence. The Standards for Reporting Qualitative Research (SRQR) checklist was used to report qualitative research (see Supplementary File 1; O'Brien, Harris, Beckman, Reed, & Cook, 2014).

TABLE 1 Characteristics of the two homecare districts

Homecare	A	B
Municipality inhabitants	Over 100.000	20.000
Homecare professionals	80	65
Nurses	30	20
Skilled health workers	30	30
Assistants	20	15
Patients	400	280
Geographic areas	Two	Two
Organisation	Three groups of homecare professionals	Two groups of homecare professionals

3.2 | Setting

The study was carried out in two different municipalities in western Norway. Both municipalities have several homecare districts, and one homecare district (A and B) in each of the municipalities participated in the study (see Table 1).

As observed in these two homecare districts, the professionals visited the patients in their own homes, usually alone. Sometimes, due to the patient's needs, two homecare professionals visited the patient together.

A work shift in homecare started with the homecare professionals reading up on their patients using the documentation system. They attended a meeting at the homecare office, where messages were conveyed, special concerns or issues relating to patients were discussed and patient medications were delivered to the homecare professionals according to their patient lists. The homecare districts organised their daily work according to preplanned work plans, and the homecare professionals visited patients according to their assigned lists. The work plans stated times and schedules for home visits, estimated durations of visits and tasks required. Assigned homecare professionals were responsible for preparing the lists daily. Specific clinical procedures—such as injections, catheterisations and wound care—were expected to be performed by nurses and, thus, had to be taken into account when assigning patient lists to homecare professionals.

3.2.1 | Sample

Homecare professionals comprise nurses (with bachelor's degrees), skilled health workers (with healthcare education at the upper secondary school level) and assistants (without any healthcare education). Most assistants are temporary workers, and some are nursing students who mainly work on weekends. In the remainder of this paper, we will use the abbreviation *HCP* to represent all homecare professionals, including nurses, skilled health workers and assistants.

3.2.2 | Homecare A

Homecare A is located in a city covering two densely populated geographic areas. The HCPs were organised into three groups. Group 1 comprised nurses who visited patients who needed special nursing tasks in both geographic areas. Groups 2 and 3 comprised skilled health workers and assistants who visited patients in the two areas. These two groups included a "resource nurse" who had a consultancy role with the other HCPs and also was visiting patients due to a preplanned working list. One department manager was responsible for all HCPs in the three groups. When home visits were conducted, the HCPs had printouts of their daily work plans. They did not have a digital version of the patient journal system while they conducted home visits, so they needed to update patient journals at the homecare office before and after homecare visits.

3.2.3 | Homecare B

The municipality in homecare B comprised a combination of urban and rural areas. The HCPs were organised into two groups comprising nurses, skilled health workers and assistants, with a department manager supervising each of the groups. The digital work plans were available on HCPs' smartphones; thus, they could update and edit patient journals continuously during visits.

3.3 | Recruitment

The county's Centre for Development of Institutional and Home Care Services (USHT) initiated the improvement project and required researchers to follow the project. A project manager at the USHT organised and led the improvement project. The homecare districts were asked to participate in the improvement project and in the research following the process. Both districts were eager to participate in the project and found the research useful and interesting.

The USHT project manager established contact between the two homecare districts and the researcher. A meeting was arranged at the homecare offices between the first author and the department managers and development nurses. The meeting's purpose was to share information about the research related to the project and to agree on the researcher's role in the two homecare districts.

The professional development nurses in each district acted as contacts for the study, and the department managers in both homecare districts recruited participants for data collection. The department managers asked different HCPs to participate in observations, and the HCPs were recruited in accordance with their time periods and shifts. The first author was not present when the HCPs were asked to participate.

The first author then met at the homecare district at the agreed upon shift to greet and follow the recruited participants. They were also informed about observation as a research method in which the aim was to learn how current practices worked. The department managers also recruited participants for the focus group interviews. Different HCPs were recruited in three different groups based on their competence levels (i.e. nurses, skilled health workers and assistants). The managers informed the first author about dates, times and numbers of participants assigned to the three focus group interviews. The interviews were scheduled with the HCPs' approval and were carried out at the homecare office during their work shifts.

3.4 | Data collection

Data collection was conducted using participant observation and focus group interviews with HCPs.

3.4.1 | Participant observation

Moderate and active participant observations were conducted (DeWalt & DeWalt, 2011) to gain knowledge about HCPs' practices during home visits with patients. The researcher appeared at the office of the homecare district at the start of the work shift (day or evening) and shadowed an HCP (i.e. registered nurse, skilled health worker or assistant) during the shift. Moderate participant observation was used during patient home visits (DeWalt & DeWalt, 2011). During each visit, the researcher remained in the background and did not intervene in any situations or provide any care. To move physically between the patients' home visits, a car was necessary. Active participant observation was used while travelling from one patient's home to the next (DeWalt & DeWalt, 2011). During this travel time, the homecare professional and researcher discussed or reflected on each patient's situation. The HCP shared his or her thoughts on the visit, and the researcher asked supplementary questions for clarification (DeWalt & DeWalt, 2011). An observational guide (see Supplementary File 2) was used during home visits and focussed on work practices, performance of skills related to observation of patient deterioration, interaction between HCP and the patient, job and competency demands, the use of discussions and reflections, and contextual factors. During patient home visits, a few keywords, for example phrases or key elements, were noted. Furthermore, while travelling between patients' homes or while at the homecare district's office, more written information was added. Detailed field notes were written immediately after each observed shift.

The observational core component of the study comprised approximately 62 hr of observation (32 in municipality A, 30 in municipality B) resulting in 51 written pages of field notes.

3.4.2 | Focus group interviews

The study's simultaneous focus group interview component was carried out in the two homecare districts (Morgan, 1997). Six focus group interviews with 30 informants were completed, three in each homecare district. Most of the groups comprised five to seven personnel, with one containing two workers. A semi-structured interview guide was developed (see Supplementary File 3), focusing on how the HCPs detected deterioration in patients, observational routines and practices, which vital signs normally were checked and when, and questions about the organisational structure.

The first author led the interviews and guided the discussions. The second and third authors took field notes and observed interactions in the group. The interviews, lasted about one hour each, were tape-recorded and yielded 82 pages of transcripts. The HCPs in the focus groups showed great interest in the topics.

3.5 | Analysis

The transcripts from the participant observations and focus group interviews were analysed separately (Morse, 2010). Qualitative

TABLE 2 Analysis of observational data related to the theme "Patient-situated assessment of changed clinical condition"

Meaning units	Condensed meaning units	Codes	Sub-themes	Theme
We are talking about clinical deterioration, and I wonder why the nurse thinks she detects deterioration. She is telling it is probably the "clinical sign" then, and laughs…I guess it is about a changed normal condition. And she continues talking about a situation from last Monday. She is visiting a patient who was not feeling well and had a poor appetite. They visited the patient later, the condition had worsened… and they contacted the general practitioner).	The nurse is detecting deteriorating because of changes in the normal clinical condition. The patient she visited had a poor appetite and did not feel well. Later the condition worsened.	Knowing the patient's normal condition/ situation	Knowledge of the patient	Patient-situated assessment of changed clinical condition
While driving the car a nurse is talking about a patient who had fallen on several occasions, and whose condition was worsening.	The patient has fallen lately, deteriorating.	Changed condition	Changed physical and mental function	
The assistant was visiting a patient whose condition has lately changed. Normally the patient managed to stand and walk. The assistant reported the change and the situation was discussed during the report. The general practitioner was contacted and the patient was hospitalised with pneumonia.	The patient did not manage to stand and walk as normal. The changed condition was reported and the patient hospitalised with pneumonia.	Worsened physical condition		

content analysis was used to structure both data sets (Graneheim & Lundman, 2004). The observational data were analysed, with the focus group interviews following the same procedure. The analysis and interpretation of data comprised four stages. In the first stage, all three co-authors read the transcribed data several times to find similarities and differences between parts of the texts. The authors have varied backgrounds in nursing and health services research. The first author has a nursing background and specialises in intensive care nursing, the second author has an engineering background and specialises in quality and safety, and the third author has a nursing background and specialises in operating theatre nursing. The authors discussed the data text in meetings to arrive at a common understanding of the data and tentative codes. In the second stage, the content then was divided into meaning units of related words and statements with the same central meaning. The first author then condensed these meaning units. In stage three, the text was reduced, the core content was preserved, with codes used to label the meaning units. In the fourth stage, the codes were sorted into themes and sub-themes. A discussion of manifest or latent content was central. *Manifest content* comprises descriptions close to the participants, and *latent content* is the underlying meaning (Graneheim & Lundman, 2004). This was a process of working both independently (first author) and collectively, reviewing and discussing the data across all three authors in several meetings. Table 2 offers an example of the analysis related to one of the themes.

After the observational and focus group interview data were analysed, the two data analyses were combined to produce the results descriptions at the point of interface (Morse & Niehaus, 2009), illustrated in Figure 1. The results from both data sets were written together as a single textual description, following the research question. Consistent with our qualitative mixed-methods design, data from the focus group interviews were supplemental to the core observational data and, therefore, were added or used to verify components of the observational data (Morse, 2010).

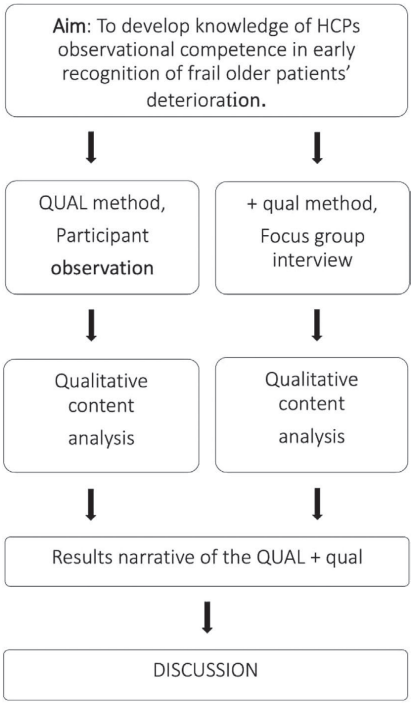

FIGURE 1 The mixed-methods analysis process

3.5.1 | Transparency

Saturation was discussed among the co-authors during data collection and during the analysis process. Assessment of the amount of data needed until no new issues appeared was a continuous process (Saunders et al., 2018). Data collection was discontinued when no additional data were found. Furthermore, the researchers discussed saturation during the analysis process. We found that the complementary data justified the themes emerging from the observations and focus group interviews. We concluded that saturation was reached and was consistent with the research question.

The results from the analysis were presented to HCPs at staff meetings in both homecare districts. The feedback from HCPs was that they recognised the findings and could relate to them as characteristic of their work practices.

3.6 | Ethics

The study was approved by the Norwegian Centre for Research Data (NSD; no 54855). All participants were informed of their right to withdraw at any time and that their confidentiality was protected. All participants provided informed written consent. Transcripts were made anonymous through deletion of identifying information. The participants were assured that the data tapes, and transcripts were stored in line with ethical guidelines and would be deleted after the study was completed. One of the participants in a focus group interview chose to withdraw, and the associated data in the form of interview quotes were not used.

The participant observation involved observing patients during visits from homecare professionals. The first author, who conducted the observations, signed a declaration of confidentiality in the two homecare districts.

The department managers of the two homecare districts were informed that professional ethics would take a higher priority than researcher neutrality (Guillemin & Gillam, 2004), that is, HCPs would be notified if adverse situations arose, but none did.

4 | RESULTS

As a result of the analysis, which entailed integrating observational data with the focus group interview data into common descriptions, two main themes and five sub-themes emerged, as presented in Table 3 and described below.

The themes and sub-themes are described with quotes from the observational data and focus group interviews with the nurses, skilled health workers and assistants. The quotes are labelled to identify type of data collection, homecare district and homecare professional quoted.

TABLE 3 Themes and sub-themes related to early recognition of homecare patients' deterioration

Sub-theme	Theme
Knowledge of the patient	Patient-situated assessment of changed clinical condition
Changed physical and mental function	
Basic understanding of vital signs	
Focus on planned practical tasks	Organisational environment
Collaboration and collegial support	

4.1 | Patient-situated assessment of changed clinical condition

The HCPs focussed on the importance of knowing their patients. Knowing patients was a prerequisite for detecting changed clinical conditions, which were observed as changes in patients' physical or mental conditions. Communication with the patient was emphasised, and the HCP described the documentation system as an important tool for acquiring knowledge about the patient. The HCPs rarely monitored vital signs to detect changed clinical conditions.

4.1.1 | Knowledge of the patient

The HCPs highlighted the importance of knowing the patient well, as knowledge of the patient's normal situation made it easier to detect signs of deterioration. Not knowing the patient seemed to hinder assessment of the patient and affected the HCP's consideration of any changes in condition. Several homecare professionals found it difficult to assess clinical condition when they did not know the patient well:

> We are now going to a patient the nurse does not normally visit. The patient is usually on the skilled health workers' list. The nurse talks about a situation a few weeks ago, when the alarm phone called, and the patient described chest pain. The nurse considered the need for hospitalisation and called the emergency number. The pain was not related to the heart, and the patient was not hospitalised. The nurse says that she did not know the patient well enough.
>
> *(observation, homecare A, nurse)*

They found it difficult to visit unfamiliar patients. When the patient's normal clinical situation was unknown, it was difficult to assess whether the patient's condition changed. Therefore, the HCPs preferred to visit patients regularly. They described this as continuity in their work, in which they could compare a patient's condition from one day to the next and be able to notice changes in the patient's clinical condition early:

> It is easier when the patient is well known. Then I can see the changed clinical condition by using the 'clinical eye'. It is also of great help when patients describe their clinical conditions as changed or bad. Often we come to a patient we do not know—for example on acute alarms—then it is very difficult to discover changes.
>
> *(focus group interview, homecare A, nurse)*

Visits to patients often started with a "Hello," "How are you" or "How do you feel?" When the HCPs visited the patients, they asked questions about each patient's clinical condition and usually asked follow-up questions reflecting the patient's responses or what they knew about their problems or challenges. Findings from the focus group interviews confirm this situation. The informants talked about communication as a tool to detect changed conditions. One nurse explained: "I discover changes by listening to the patient and how they speak. It might also be a risk that I do not recognise possible changes" (focus group interview, homecare B, nurse). Communication was emphasised as a tool from which to elicit information about the patient's situation. Nevertheless, several situations showed that such communication did not lead to further clinical observation of the patient's situation. A gap seemed to exist between the questions asked and the clinical measures implemented:

> This morning, the skilled health worker has three patients on her list at the day care centre. She is going to hand out medications. One of the patients is suffering from COPD. When we arrive, he is eating breakfast. The skilled health worker asks him to come to the usual place to have his inhalations and eye drops. It is easy to see that the patient is struggling with his breathing, with severe obstruction. She sits down by the patient and asks, 'How are you?' and 'Is it hard to breathe?' The patient answers the questions, and talks about his difficulty breathing. She looks at the patient and continues with her planned tasks.
>
> *(observation, homecare B, skilled health worker)*

To gain knowledge about normal and changed patient conditions, the HCPs in both homecare districts attached great importance to precise nursing documentation. The two homecare districts had different documentation systems. HCPs at Homecare B updated the information on patients' situations on smartphones during the visits. This was described as an important tool with which to remain updated about patients' situations. If they needed to call the general practitioner, complete information was available:

> We have the documentation system on our handheld smartphones. There, it is possible to see what is documented about the patient, and who completed the documentation at the last home visit.... Then I can compare. It might happen that the situation is equal. Maybe it is the normal situation or maybe the situation shows a changed condition.
>
> *(focus group interview, homecare B, nurse)*

At Homecare A, the situation was different. The HCPs read and documented the nursing care when they were at the office. The HCPs found that the IT system made it difficult to remain updated on patients' conditions, especially when the HCP had to consider whether the patient's condition was normal or had changed. Furthermore, their computers were described as outdated and their access to terminals limited:

> It is very important for patient safety that I document the patients' conditions. The computers are very bad; they are garbage—they should be thrown out of the window. It is critical. And then we need to wait for an available computer because of the limited access....Documentation is necessary for patient safety. Documentation is evidence of what the homecare professional has observed regarding the patients' clinical situation. We need to have the opportunity to look back and keep updated.
>
> *(focus group interview, homecare A, skilled health worker)*

4.1.2 | Changed physical and mental function

All the HCPs focussed on their patients' clinical condition, which was described as each patient's physical and mental functioning. In many situations, the HCPs described deterioration as a general decline in physical condition, marked by decreased appetite, feeling sick, feeling weak, breathing problems, pain, inability to walk steadily, pedal oedema or falls. Recognising changed patient function was based on patients' descriptions and HCPs' observations:

> I was visiting a patient suffering from dementia. One morning, she did not answer the doorbell. Therefore, I unlocked the door. She was sitting on a chair in the kitchen. She did not speak, I observed weakness in her left foot and arm, and her mouth was drooping. I was quite sure it was a stroke. I called her son and the general practitioner. She was hospitalised and treated for stroke.
>
> *(focus group interview, homecare B, skilled health worker)*

Changed mental function was described when the patient experienced changed behaviour, seemed confused or forgot more than usual:

> I visited a patient who is normally decent and in a good mood and always greets us when we arrive. One day when I came to see her, she scolded me. I understood that something was wrong because this was unusual. I called the nurse… I do not remember what was wrong. In any case, there was a considerable clinical deterioration.
>
> *(focus group interview, homecare A, assistant)*

Many of the symptoms that the patients described were vague and could be an early sign of deterioration or a change in the patients' normal conditions. At numerous home visits, the HCPs defined the situation as normal, although the HCPs experienced variations related to patients' changed conditions. In one case, a skilled health worker visited a patient with Parkinson's disease and noticed a decline in the patient's physical and mental function. The HCP explained that sometimes the patient could walk, but other times could not, and that sometimes the patient also hallucinated. The changed function did not lead to further awareness and assessment of the patient's condition. The skilled health worker described all changed signs as a normal condition. In another situation, a skilled health worker described the following situation of a patient's changed disability in which the patient normally gave many instructions, but on this day, the situation was different:

> The last visit of this day is to a bedridden patient. The patient has nutritional challenges and has extensive need of homecare several times a day. At this visit, the skilled health worker prepared a meal while the patient gave precise orders on how to make the food…. After the visit, the skilled health worker described the patient's situation some time ago. The patient was not well. She prepared the meal as planned, but the patient didn't give any instructions. This day, the patient was somnolent and reacted only while the patient was spoken to; 'the patient was almost unconscious'.
>
> *(observation, homecare A, skilled health worker)*

No common guidelines existed for responding to patients' changed conditions. The HCPs acted differently: "It is very individual how we, as persons and professionals, consider the patients' clinical conditions and deterioration" (focus group interview, homecare A, skilled health worker). There were variations in how the homecare professionals responded to the patients' changed conditions. The assistants claimed that they always contacted nurses when patients' clinical conditions seemed to have changed. Several skilled health workers said that they were unsure what to assess when they were in situations with deteriorating patients. They viewed these situations as being difficult and called the nurses for help. The nurses acted individually. The nurse in the following quote made an extra visit to a patient due to changed physical condition, then decided to contact the general practitioner, and the patient was admitted to the hospital:

> Last Monday, she came to a well-known patient. The patient described a changed and worsening condition with decreased appetite. The information provided the basis for an extra visit in the daily work plan. Then she found a patient who was somnolent, had reduced awareness and seemed to be deteriorating. She measured the blood pressure, which was normal. Measured CRP, which was high – 97. The nurse contacted the general practitioner, and the patient was admitted to the hospital.
>
> *(observation, homecare B, nurse)*

In other situations, when HCPs worried about patients' conditions, they sometimes decided to "wait and see," monitor the patient's vital signs and/or call the general practitioner.

4.1.3 | Basic understanding of vital signs

In a few situations, the HCP monitored vital signs to detect a changed clinical condition. When vital signs were measured, differences existed between the nurses, skilled health workers and assistants.

The assistants in both homecare districts stated that they were not trained to measure vital signs. In homecare A, assistants were not expected to monitor vital signs. This decision was made as the assistants were not trained to take vital signs. However, in homecare B, the assistants measure blood pressure when asked, and when it was specified in the work plans.

The skilled health workers had different expectations in measuring vital signs. In homecare A, they did not usually measure vital signs. In homecare B, the skilled health workers did measure vital signs when planned for.

Nurses in both homecare districts measured vital signs, and in some situations, they observed early deterioration. Respiration rate rarely was checked. They stated that they detected changed respiration merely by looking at the patient, using some kind of intuition or "the clinical eye." Pulse also rarely was checked, but blood pressure was taken more frequently.

Several situations indicate a gap between the patient's clinical situation and what was assessed. In the following situation, the patient had trouble breathing, and the nurses checked the patient's blood pressure:

> On this day shift, we are visiting a patient who is over 90 years old. She lives alone in a semi-detached house. She suffers from COPD and has heart failure and diabetes II. She has just been hospitalised because of pneumonia, and the nurse expresses a concern about the patient to the student nurse while driving the car. The patient had severe heavy breathing, and at the last visit, the nurse checked the blood pressure.
>
> *(observation, homecare A, nurse)*

The nurses took vital signs more often when the patient was critically ill. During a day shift in homecare A, a nurse talked about monitoring vital signs. She described homecare with no common routines, understandings or discussions related to the assessment of vital signs. She said vital signs rarely were monitored and believed they were checked more often when the patient was in a very bad condition, or if the general practitioner (GP) had asked for them. In the following incident, a nurse took the vital signs of a severely ill patient:

> Patient, 70, is suffering from COPD. The alarm phone rings, and the patient announces that he does not feel well and is wondering whether the nurse can check his vital signs. Upon arriving, the patient is sitting on a chair outside the house. The patient has increased sputum production and is struggling to breathe. He follows the nurse and the nurse student inside the house. The nurse asks questions about his situation. He does not feel well at all. He is breathing heavily. The nurse and student nurse start to check the vital signs. The respiration rate is high, 42/min, and the saturation is low, 81%. The patient explains that he does not normally have this low saturation. Normally, it is around 96%.... The nurse wants to call the GP and asks the patient if it is OK.
>
> *(observation, homecare A, nurse)*

4.2 | Organisational environment

The daily work in the two homecare districts was organised in fixed work plans, which affected the HCPs' performance. The patients' needs were preplanned, and changes in the patients' conditions were reflected less in these plans. Furthermore, the HCPs described an organisational environment with busy workdays. Collaboration and collegial support were important, but sometimes described as challenging.

4.2.1 | Focus on planned practical tasks

The HCPs' work plans outlined patients' needs, estimated visit durations and listed what practical tasks were expected to be performed. The patients needed help with many tasks, including hygiene, clothing, administration of medications, meal preparation and feeding, wound care and procedures that included catheterisation, checking blood sugar and helping the patient put on compression stockings. Some patients needed extensive assistance, while others needed less. This was reflected in the work plans indicating allocated time for different tasks. All HCPs visited the patients, though some special practical tasks were allocated to the nurses. Sometimes, the work plan reminded the HCP to assess vital signs, mainly when the GP asked for them. All HCPs followed the work plans, which seemed to affect awareness of patients' conditions:

> It is at an evening shift, and we visit an older man living alone. The skilled health worker rings the bell, opens the door and shouts 'Hello'. The patient is sitting in the living room, without light. He has just returned from the hospital, where he was treated for pneumonia. A letter from the hospital is lying at the table. The medications have been changed, which confuses the patient. The number of tablets does not match. The skilled health worker tries to explain without reassuring. She asks if the patient needs any help. He does not want anything, and the skilled health worker says 'Goodbye'.
>
> *(observation, homecare B, skilled health worker)*

The pneumonia and the recent hospitalisation weakened the patient. The skilled health worker was unaware of the patient's condition and performed the preplanned practical tasks. Overall, limited attention was given to the patient's actual situation in several situations observed; the HCPs mainly followed preplanned tasks.

The HCPs described busy workdays with full work plans, in which their main aim was to accomplish all the tasks. When staff called in sick, it was especially busy. Then, the other homecare professionals received additional patients in their pre-established work plans:

> The day shift starts with three homecare professionals calling in sick, and their pre-planned list of patients needs to be shared with the other lists.... The homecare professionals take care of this situation themselves.... One speaks out and says: 'Today this is not OK. There are not enough of us'. Many patients need help at the same time. Another is looking at a colleague's list and says:'No, you cannot have a list like this. This patient needs to be helped by another person; she is speaking loudly to the others. Afterward, she says, 'I feel sad for this colleague. This is a heavy shift'.
>
> *(observation, homecare A, a report situation)*

The number of patients listed in the pre-established work plans often resulted in limited time for each patient; thus, the HCPs had little time to consider other actions. They tried to keep the visits as short as possible, but if additional tasks or extra visits were needed, it became difficult to finish all the tasks, which the HCPs described as frustrating.

4.2.2 | Collaboration and collegial support

The HCPs worked autonomously, mostly visiting patients alone and conducting assessments and decisions on their own. They emphasised the importance of collaboration and collegial support, which made

them more confident about different patients' situations. In particular, the skilled health workers and assistants stressed the importance of being "safe at work," which they described as having a daily overview of working tasks and a good relationship with their colleagues. Collaboration and collegial support included willingness to ask questions in unexpected situations, request help and discuss patients, which helped them trust their assessments. In some situations, they were certain, while in other situations, they did not feel "safe at work":

> I feel safe when I come to work and know what to do. It is important for me to know what to do, and that my colleagues have the knowledge and know what to do. If others do not know what to do, my burden will increase. It is also important that colleagues dare to ask questions – 'What am I supposed to do in this situation?' .... I do not always feel safe at work because I do not know what to do or how to perform some tasks. This is very frustrating.
>
> *(focus group interview, homecare A, skilled health worker)*

Several HCPs described how the organisational structure of homecare affects collaboration. In homecare A, skilled health workers experienced situations in which it was difficult to ask questions and request help. They related the collaboration problems to how the homecare district was organised. Most of the nurses were organised in a separate group and did not have enough knowledge about the patients in the other groups. Several homecare workers described situations in which nurses did not respond to their questions or concerns and found it easier to collaborate when their group had nurses with joint responsibility for their patients, which this nurse described:

> Many of the nurses only visit patients when responding to an acute alarm, but I often work as a resource nurse in the same group as the skilled health workers. They express frustration, due to the missing support from the nurses. The skilled health workers do not dare to go into the nurses' room because the answers from the nurses often are negative. I do understand their feelings. The collaboration is very difficult.
>
> *(focus group interview, homecare A, nurse)*

The nurses in homecare A described a collaborative distance between the nurses and skilled health workers. Nurses found that the skilled health workers asked many questions and lacked confidence in their judgements of patients' clinical situations. Furthermore, the nurses found it difficult to assess when their competence as nurses was particularly needed.

In homecare B, collaboration generally was viewed positively. Several times during a shift, the HCPs met and discussed patients and situations. Handheld smartphones helped facilitate collaboration between HCPs. Here, they could both visualise where the other HCP was and ask direct questions if needed.

In both homecare districts, temporary staffers were used, and many were assistants who found it easy to ask questions and request help. They described their collaborative experiences as positive.

The HCPs described both positive and negative experiences related to the collaboration. Regardless of experiences, collaboration was described as important, particularly in unexpected patient situations.

5 | DISCUSSION

In this paper, we documented that HCPs' observational competence varies and that early recognition of deterioration in frail older patients is a complex practice comprising a set of issues.

The HCPs in the two homecare districts describe and experience situations in which nonspecific signs and symptoms may be the only indicators of a patient's decline. To detect these vague conditions, HCPs emphasise the importance of knowing patients. Many find it difficult to visit unfamiliar patients to assess their clinical conditions. Knowing how HCPs describe the patient can be the basis for revealing physical and mental changes. Gray et al. (2018a) describe having different data and information sources, creating a holistic view of each patient's situation. Knowing the patient well enough to detect physical and behavioural changes is important in ensuring accurate clinical assessment and decision-making. Similar findings are reported in Odell et al.'s (2009) review of ward patients. Nursing staff in wards struggle to detect and manage patients who are in decline. Tanner (2006) claims that clinical judgement only partially rests on knowledge of the patient. While knowing the patient's salient response patterns, comparing the patient's actual situation to his or her normal situation and allowing for individual responses and interventions are important, there is a risk of taking the patient's situation for granted.

Our results document that HCPs' basic understanding of vital clinical signs and what is needed to monitor deterioration can vary. Early detection of deterioration rarely is considered, and we did not find clear differences among nurses, skilled health workers and assistants in how they notice early signs of deterioration. In a few situations, changes in physical and mental functioning led to the HCPs communicating with the patient and monitoring certain vital signs. However, in most instances, HCPs described relying on intuition and feeling a sense of concern to pinpoint signs of decline. Intuition is fundamental in clinical nursing (Dalton, Harrison, Malin, & Leavey, 2018), though clinical decision-making is complex, and the process of clinical judgement involves more aspects (Tanner, 2006). The results indicated differences when a patient's situation was vague or critical. In these situations, vital signs were measured more frequently. These findings illustrate variations in detecting early deterioration in patients' clinical conditions.

Monitoring and measuring the patient's vital clinical signs were not a priority among HCPs in the two homecare districts studied here. The HCPs expected actions and tasks during home visits to

be part of detailed work plans. This method of organising homecare services might have influenced the possibilities for making independent decisions related to patients' clinical conditions. The relationship between abnormal vital signs and clinical deterioration is well-documented (Padilla & Mayo, 2018), and the real-time issue of such possible clinical change is not specified in the work plans. HCPs then must act beyond the plan in such situations and depend on their autonomous professional role (Gray et al., 2018a; Hughes, 2008). This can in some situations be interpreted as if administrative tasks over-ride clinical practice and patient needs.

In sum, successful recognition of patient deterioration is a complex process involving a routine workflow system, measurements of clinical vital signs, HCPs' interpretation of clinical data and services that can respond rapidly to provide appropriate treatment.

6 | LIMITATIONS

Conducting a mixed-methods study in two homecare districts in Norway creates challenges related to generalisability in both local and international settings. With the aim of establishing knowledge in a new research area, the need to generate rich data using a combination of observations and focus group interviews were prioritised over generalisation. By providing detailed descriptions of HCPs' observational competence, we assert that readers can evaluate the importance of this knowledge in other home-visit contexts (Polit & Beck, 2018; Seale, Gobo, Gubrium, & Silverman, 2007).

Another limitation to address is the role of the participant observer, in which it is important to consider the researcher's influence on the HCPs being observed (DeWalt & DeWalt, 2011). The first author, who conducted all observations, specialises in nursing, which might have led to increased uncertainty among the homecare professionals during the home visits. To compensate, the first author did not mention her background and experience unless asked. There also were benefits to having a health background, including credibility, knowing what to look for and understanding practices during home visits, as well as easier integration of the researcher into the group.

7 | CONCLUSIONS

In this study, we described HCPs' practices and experiences with early recognition of deterioration in frail older patients. We found that awareness of signs of deterioration in the two homecare districts varied and sometimes was quite low. Vital signs were measured infrequently, most often in relation to critical illnesses. HCPs reported that familiarity with the patient facilitated recognition of changed physical and mental status and made dialogue about patients' conditions possible. In addition, the homecare districts' organisational environment influenced the HCPs' practices. HCPs' workdays are organised in preplanned work plans, which affect HCPs' assessments of patients' deterioration.

HCPs have an autonomous role in detecting patients' deterioration. In homecare, many frail, dependent patients exist; thus, HCPs' observational competence including assessment skills are needed to accommodate these patients' needs. Furthermore, it is essential to have an organisational system in which HCPs are expected to act beyond the detailed work plans to detect early deterioration in their patients.

More research is needed to explore how an educational intervention can improve HCPs' competence in recognising and responding to deteriorating patients. In addition, further research is needed that investigates how different organisational systems and policy guidelines affect HCPs' work practices for detecting deterioration in frail older patients.

As described, the homecare field faces a rising number of care-dependent, frail older patients with extensive needs (Genet et al., 2012). A commitment to homecare is needed, requiring increased focus at both the service and research levels.

7.1 | Relevance for clinical practice

Overall, this study's results provide managers and HCPs working in homecare services with important knowledge to consider in facilitating early recognition of deterioration in frail older patients. HCPs' observational competence of deterioration involves a complex set of practices and requirements such as knowing the patient, a basic understanding of vital clinical signs, knowing what is needed to monitor deterioration, intuition, and independent decision-making. There is therefore a need to strengthen the awareness of observational competence of deteriorating, frail older patients consisting of timely and appropriate treatment including measurement of vital signs, both within homecare settings and in educating HCPs. Furthermore, it is essential to have an organisational system in homecare in which HCPs can respond properly to patients' deterioration.

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CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

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REFERENCES

Bing-Jonsson, P. C., Foss, C., & Bjørk, I. T. (2016). The competence gap in community care: Imbalance between expected and actual nursing staff competence. *Nordic Journal of Nursing Research*, *36*(1), 27–37. https://doi.org/10.1177/0107408315601814

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. New York: Wiley.

Cappelletti, A., Engel, J. K., & Prentice, D. (2014). Systematic review of clinical judgement and reasoning in nursing. *Journal of Nursing Education*, *53*(8), 453–458. https://doi.org/10.3928/01484834-20140724-01

Chan, P. S., Jain, R., Nallmothu, B. K., Berg, R. A., & Sasson, C. (2010). Rapid response teams: A systematic review and meta-analysis. *Archives of Internal Medicine*, *170*(1), 18–26. https://doi.org/10.1001/archinternmed.2009.424

Dalton, M., Harrison, J., Malin, A., & Leavey, C. (2018). Factors that influence nurses' assessment of patient acuity and response to acute deterioration. *British Journal of Nursing*, *27*(4), 212–218. https://doi.org/10.12968/bjon.2018.27.4.212

De Vries, N. M., Staal, J. B., van Ravensberg, C. D., Hobbelen, J. S. M., Olde Rikkert, M. G. M., & Nijhuis-van der Sanden, M. W. G. (2011). Outcome instruments to measure frailty: A systematic review. *Ageing Research Reviews*, *10*(1), 104–114. https://doi.org/10.1016/j.arr.2010.09.001

DeWalt, K. M., & DeWalt, B. R. (2011). *Participant observation : A guide for fieldworkers* (2nd ed.). Lanham, MD: AltaMira Press.

Eraut, M. (1994). *Developing professional knowledge and competence*. London: Falmer Press.

Flin, R., O'Connor, P., & Crichton, M. (2017). *Safety at the sharp end: A guide to non-technical skills*. Farnham, UK: Ashgate Publishing Ltd.

Genet, N., Boerma, W. G. W., Kringos, D. S., Bouman, A., Francke, A. L., Fagerström, C., … Devillé, W. (2011). Home care in Europe: A systematic literature review. *BMC Health Services Research*, *11*(1), https://doi.org/10.1186/1472-6963-11-207

Genet, N., Boerma, W., Kroneman, M., Hutchinson, A., & Saltman, R. B. (2012). *Home care across Europe – Current structure and future challenges*. World Health Organisation (WHO). Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0008/181799/e96757.pdf?ua=1

Gillespie, M., & Peterson, B. L. (2009). Helping novice nurses make effective clinical decisions: The situated clinical decision-making framework. *Nursing Education Perspectives*, *30*(3), 164–170. Retrieved from https://search-proquest-com.ezproxy.uis.no/docview/236627947/fulltextPDF/D927B369F9F24083PQ/1?accountid=136945

Gobbens, R. J., Luijkx, K. G., Wijnen-Sponselee, M. T., & Schols, J. M. (2010). Toward a conceptual definition of frail community dwelling older people. *Nursing Outlook*, *58*(2), 76–86. https://doi.org/10.1016/j.outlook.2009.09.005

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, *24*(2), 105–112. https://doi.org/10.1016/j.nedt.2003.10.001

Gray, E., Currey, J., & Considine, J. (2018a). Hospital in the home nurses' assessment decision making: An integrative review of the literature. *Contemporary Nurse*, *54*(6), 603–616. https://doi.org/10.1080/10376178.2018.1532802

Gray, E., Currey, J., & Considine, J. (2018b). Hospital in the Home nurses' recognition and response to clinical deterioration. *Journal of Clinical Nursing*, *27*(9–10), 2152–2160. https://doi.org/10.1111/jocn.14076

Guillemin, M., & Gillam, L. (2004). Ethics, reflexivity and 'ethically important moments' in research. *Qualitative Inquiry*, *10*(2), 261–280. https://doi.org/10.1177/1077800403262360

Hughes, R. G. (Ed.) (2008). *Patient safety and quality: An evidence-based handbook for nurses*. Agency for Healthcare Research and Quality. Rockville, MD: AHRQ Publication.

Jones, D., Mitchell, I., Hillman, K., & Story, D. (2013). Defining clinical deterioration. *Resuscitation*, *84*(8), 1029–1034. https://doi.org/10.1016/j.resuscitation.2013.01.013

Maybin, J., Charles, A., & Honeyman, M. (2016). *Understanding quality in district nursing services*. London, UK: The King's Fund. Retrieved from https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/quality_district_nursing_aug_2016.pdf

Morgan, D. L. (1997). *Focus groups as qualitative research* (Vol. *16*, 2nd ed.). Thousand Oaks, CA: Sage Publications.

Morse, J. (2010). Simultaneous and sequential qualitative mixed method designs. *Qualitative Inquiry*, *16*(6), 483–491. https://doi.org/10.1177/1077800410364741

Morse, J. M., & Niehaus, L. (2009). *Mixed-method design: Principles and procedures* (Vol. *4*). Walnut Creek, CA: Left Coast Press.

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for reporting qualitative research: A synthesis of recommendations. *Academic Medicine*, *89*(9), 1245–1251. https://doi.org/10.1097/ACM.0000000000000388

Odell, M., Victor, C., & Oliver, D. (2009). Nurses' role in detecting deterioration in ward patients: Systematic literature review. *Journal of Advanced Nursing*, *65*(10), 1992–2006. https://doi.org/10.1111/j.1365-2648.2009.05109.x

Padilla, R. M., & Mayo, A. M. (2018). Clinical deterioration: A concept analysis. *Journal of Clinical Nursing*, *27*(7–8), 1360–1368. https://doi.org/10.1111/jocn.14238

Polit, D. F., & Beck, C. T. (2018). *Essentials of nursing research: Appraising evidence for nursing practice* (9th ed.). Philadelphia, PA: Wolters Kluwer.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualisation and operationalisation. *Quality & Quantity*, *52*(4), 1893–1907. https://doi.org/10.1007/s11135-017-0574-8

Seale, C., Gobo, G., Gubrium, J. F., & Silverman, D. (Eds.). (2007). *Qualitative research practice* (Concise, paperback ed.). London: Sage.

Tanner, C. A. (2006). Thinking like a nurse: A research-based model of clinical judgement in nursing. *Journal of Nursing Education*, *45*(6). Retrieved from https://www.ccdhb.org.nz/working-with-us/nursing-and-midwifery-workforce-development/preceptorship-and-supervision/tanner-2006.pdf

Tarricone, R., & Tsouros, A. D. (2008). *Home care in Europe: The solid facts*. (9289042818). WHO Regional Office Europe. Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0005/96467/E91884.pdf

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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Systematic Observation of Frail Older Patients in Homecare – Implementing a Competence Improvement Program

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Abstract
Background: The early recognition of deterioration in frail older patients is a vital competence of homecare professionals, yet there is a gap between competence demands and actual competence. The aim of this study is therefore to describe and analyse the implementation of a competence improvement program for the systematic observation of frail older patients, developed and implemented in two homecare settings in Norway.
Methodology: The study applied a descriptive qualitative design consisting of observation, focus group interviews, and individual interviews.
Results: Homecare professionals described the competence improvement program differently both within and across the two homecare districts. They gave diverse explanations for the purpose of the program, most of them involving positive expectations towards improving the current observational practice. The content of the competence improvement program was complex and consisted of multiple components, which the participating homecare professionals experienced as demanding. The process of implementing the competence improvement program was influenced by the difficult flow of information, limited available time, and challenges related to simulation.
Conclusion: The implementation of a complex competence improvement program for the systematic observation of frail older patients in homecare requires careful planning with regard to content, process, and context.

Keywords
Homecare, competence, improvement, clinical observation

What do we already know about the topic?

- Increased demands for competence in caring for frail older patients in homecare have resulted in a disparity between the demands and the actual worker competence.
- Educational programs to improve healthcare professionals' competence in recognising and responding to patients' clinical deterioration have mostly been established in hospital settings.

What does this study contribute?

- Description of a tailored, multi-component competence program in two Norwegian homecare districts, which aims to improve the homecare professionals' observational competence.
- Analysis of the competence improvement program according to a theoretical framework for change that consists of the dimensions of content, process, and context.

Introduction

This paper explores the implementation of a competence improvement program (CIP) in two homecare districts in Norway. Throughout Europe, there is a shift occurring in healthcare services, from specialised healthcare to primary healthcare. As a consequence, there is a rising number of frail older patients with complex needs in homecare (Genet, Boerma, Kroneman, Hutchinson & Saltman, 2012)

Homecare professionals (HCP) comprise a mix of nurses, skilled health workers, and assistants (Genet et al., 2012). Competence demands in caring for frail older patients in homecare is placed on these frontline staff (Gray, Currey, & Considine, 2018a; Padilla & Mayo, 2018), and greater expectations in homecare have resulted in a disparity between demands for competence and actual worker competence (Bing-Jonsson, Foss, & Bjørk, 2016; Genet et al., 2011; Maybin, Charles, & Honeyman, 2016). As homecare is a complex practice, there is a need to integrate perspectives that involve the competence of the professional, the context, and the professional interactions (Cowan, Norman, & Coopamah, 2005; Cowan, Wilson-Barnett, Norman, & Murrells, 2008).

Frail patients have a higher risk of deterioration and increased mortality (Gobbens, Luijkx, Wijnen-Sponselee, & Schols, 2010). Delayed escalation of care upon clinical deterioration of patients is associated with increased deaths in hospitals (Barwise et al., 2016; Sankey, McAvay, Siner, Barsky, & Chaudhry, 2016). A study has estimated that one third of preventable deaths in hospitals in England is associated with delayed clinical monitoring (Hogan et al., 2012). The increasing focus on patient safety in the context of hospital care continues to lack structured approaches and consensus in homecare (Masotti, McColl, & Green, 2010; Vincent & Amalberti, 2016). Patients receiving homecare may thus be more prone to adverse events due to limited available standards and fragmented approaches by HCP (Harrison et al., 2013; Jones, 2016; Vincent & Amalberti, 2016). Strømme, Aase, and Tjoflåt (2020) found that measuring the patient's vital signs and the awareness of deterioration among HCP was varying and, in many situations, absent.

It is emphasised that early recognition and response to clinical deterioration improves patient outcomes (Padilla & Mayo, 2018). Attention towards the observation, early recognition of deterioration, and managing of frail older patients is therefore important and creates a need for competence development and new approaches for managing this patient population in homecare (Gray, Currey, & Considine, 2018a, 2018b). Knowledge and experience are

identified as important factors affecting HCPs' abilities to recognise and respond to patients' clinical deterioration, and educational programs for this purpose have, overall, been implemented in hospital settings (Liaw, Scherpbier, Klainin-Yobas, & Rethans, 2011). As part of the national patient safety program, the Norwegian Health Directorate has issued a recommendation related to early recognition and response to deteriorating patients both in the hospital and primary care setting (Helsedirektoratet, 2020). Ree and Wiig (2019) in their study of patient safety in Norwegian homecare and nursing homes concluded that training and skills development should be the target of improvement efforts. The aim of this study is therefore to describe and analyse the implementation of a competence improvement program for the systematic observation of frail older patients in two homecare settings in Norway.

The description and analysis of the competence program is based on a theoretical framework for change (Pettigrew & Whipp, 1992), chosen based on the need for changes in HCPs' competence on systematic observation of deteriorating patients. The framework consists of three dimensions: (1) WHY of strategic change in terms of context, meaning the motivational drivers behind change; (2) WHAT of strategic change in terms of content, meaning organizational elements or components utilised to support the change; and (3) HOW of strategic change in terms of process, meaning methods, strategies and implementation interventions used (Pettigrew, Ferlie, & McKee, 1992; Stetler, Ritchie, Rycroft-Malone, Schultz, & Charns, 2007).

The Competence Improvement Program

The competence improvement program (CIP) was designed and initiated by the Centre for Development of Institutional and Home Care Services (USHT) in the county to improve skills and competence in recognising and responding to deteriorating frail older patients in two different homecare settings in two municipalities in Western Norway. Managers in the homecare districts were asked to participate in implementing the program in their respective homecare organisations. A project manager at the USHT organised and led the improvement program.

The multi-component CIP consisted of a written compendium, with basic knowledge related to the observation of the frail older patient, a digital learning tool, a teaching day, and simulation-based training. Further, an equipment bag/backpack and the ISBAR form were included in the program (see Table 1).

Methodology

Design

The study of the implementation of the CIP for systematic observation in homecare applied a descriptive qualitative design (Bradshaw, Atkinson, & Doody, 2017) involving observations, focus group interviews, and individual interviews.

Setting

The study was carried out in two municipalities in the western part of Norway. One homecare district (A and B) in each of the municipalities participated in the study. Homecare A is located in a city and involves two densely populated geographic areas organised into three different groups, with one responsible department manager. The municipality in homecare B has a combination of urban and rural areas. The HCPs are organised into two groups, and each group has a responsible department manager.

Table 1: The tailored, multi-component educational program

Learning resources	Purpose	When	Participants	Contents
Compendium	Theoretical knowledge about systematic observation and communication. The compendium is to be used for learning new subjects and repetition of familiar knowledge.	Available at any time	All HCPs	- Normal physiology – Disease symptoms from a geriatric perspective – The ABCDE algorithm for patient assessment (airway, breathing, circulation, disability, exposure) – Actual symptoms – Scoring tools – Structured communication tool: ISBAR (identify, situation, background, assessment, recommendation)
A digital learning tool	Provide opportunities for the HCPs to work with the material at any time.	Available at any time	All HCPs	An external learning tool for systematic clinical observation: – Different patient cases – The ABCDE algorithm – An early warning score – ISBAR – Questions related to patient cases
A teaching seminar	Description of the implementation program. Dissemination of theoretical knowledge on early recognition of deteriorating patients in municipal health. Aiming to improve HCPs' competence	Organised on two occasions: 1) 20 September 2017 2) 27 September 2017	1) 62 HCPs 2) 66 HCPs Both days: – Nurses – Skilled health care workers – Managers	- Normal physiology – Disease symptoms from a geriatric perspective – Systematic examination of an acutely ill geriatric patient according to the ABCDE algorithm (airway, breathing, circulation, disability, exposure) – Structured communication tool using ISBAR (identify, situation, background, assessment, recommendation)
Skills training	To master vital measurements	Carried out at different times in each homecare district	Nurses Skilled health care workers	Skills training in measuring respiration rate, pulse rate, and blood pressure
Simulation-based training	Learning objectives: 1) Structured observation using the ABCDE algorithm 2) Structured communication (ISBAR)	At scheduled times in each homecare district	Nurses Skilled health care workers After a while – also assistants	- Introduction – Brief – Simulation – Debrief
ISBAR form	To structure observation of patients' clinical conditions, contribute to decision-making, and structure communication	In situations where patients need systematic observation When need to call GP/emergency room or the AMK	Nurses, skilled health care workers. Assistants	The content of the form: ABCDE algorithm ISBAR communication tool q-SOFA (quick Sepsis-related Organ Failure Assessment) FAST (Stroke symptoms) NEWS (National Early Warning Score) VAS (Visual Analogue pain Scale)
Equipment bag and backpack	To have available equipment for measuring vital signs	When visiting all patients	Nurses on call carry the bags; other HCPs use backpacks	The bag: The ISBAR form Blood pressure device Stethoscope Thermometer Oxygen saturation meter Blood glucose meter Urinary test Laerdal pocket mask Rescue foil Flashlight The backpack: The ISBAR form Blood pressure device Thermometer Urinary test Laerdal pocket mask Flashlight

The HCPs in the two districts are comprised of nurses with a bachelor's degree, skilled health workers with healthcare education at the upper secondary school level, and assistants without any formal healthcare education. The assistants are mostly temporary employees. In both homecare districts, professional development nurses are responsible for the training of new employees, employees' professional development, the follow-up of students in practise, the annual teaching plan, and collaboration with managers and associates outside homecare.

Data Collection

Participant observation was used to observe the implementation of the tailored multi-component educational program. Focus group interviews and semi-structured interviews were conducted to describe the HCPs' experiences with the implementation of the CIP in the two homecare districts (see Table 2).

Table 2: Data collection

Data collection	Numbers	Participants
Observation:		
- Teaching seminar	2	70
- Simulation-based training	14	70 HCPs
- Different meetings	8	3–20 development nurses and resource nurses
Focus group interviews	6	30 participants, HCPs
Semi-structured individual interviews	6	Managers
	3	Professional development nurses

Participant observation

Participant observation was conducted (DeWalt & DeWalt, 2011) at the teaching seminars, at the simulation-based training, and at different meetings.

All three authors attended and observed the two teaching seminars. An observation guide was used to focus on the teaching, which included items related to the content, as well as the interactions, responses, and activities of the participants, and notes were taken.

The simulation-based trainings were observed mostly by the first author, who was present at all the simulations. The other authors attended only a few simulations. Both moderate and active observation (DeWalt & DeWalt, 2011) was used, as the observers mostly stayed in the background, and, in a few instances, the observer was involved in the debriefing phase (DeWalt & DeWalt, 2011). An observational guide was used, focusing on the content of the simulation trainings, the participants' involvement, and their experiences. During the simulations, notes were taken.

Moderate observation (DeWalt & DeWalt, 2011) was also completed at several meetings in the two homecare districts during the implementation period of the CIP. The first author attended the meetings and took notes.

Focus group interviews

Six focus group interviews, three in each homecare district, were conducted with the HCPs, who had different levels of competence (registered nurses, skilled health workers, and assistants) (Morgan, 1997). Most of the groups comprised five to seven HCPs, with one group

only containing two assistants due to practical issues with recruitment in one of the homecare settings. A semi-structured interview guide was developed, focusing on the HCPs' perceived knowledge of the CIP, how they were informed about it, and the CIP content. The first author led the interviews and guided the discussions while the second and third author alternated in the role of moderator. The interviews lasted for about one hour each and were tape-recorded.

Semi-structured individual interviews

Semi-structured individual interviews (Polit & Beck, 2018) were conducted with managers and professional development nurses in the two homecare districts. The interviews lasted for about an hour and were conducted at the respective homecare office. An interview guide covered the motivation of the homecare districts' representatives to attend the CIP, the implementation of the CIP, and the factors that enabled and hindered its implementation in the homecare districts.

Ethics

The study was approved by the Norwegian Centre for Research Data (NSD, no. 54855). The participants were informed, both during the observations and interviews, of their protected confidentiality and their right to withdraw at any time. A written consent form was provided. Transcripts were made anonymous through the deletion of identifying information. The participants were assured that the data tapes and transcripts were stored in line with ethical guidelines and would be deleted after the study was completed. One of the participants in a focus group interview chose to withdraw, and the associated data in the form of interview quotes were not used.

Analysis

A qualitative content analysis was used to analyse the data material (Elo & Kyngäs, 2008; Kyngäs, Mikkonen, & Kääriäinen, 2020). The material was read several times and was first sorted and structured according to Pettigrew and Whipp's (1992) three essential dimensions: *why – in this study, describing the purpose of the CIP in the homecare context, what – the contents of the CIP, and how – the process of implementing the CIP.* The *why* dimension was mainly informed by the focus group interviews and the individual interviews. The w*hat* and *how* dimensions were informed by both the observations and interviews. Second, open coding was identified in the sorted material, and headings, phrases or words were written in the margin while reading. The headings had a clear connection between the open coding and the raw data. Third, common codes were grouped together. The lists of identified open codes and the content of the groupings were checked by returning to the raw data to confirm the context of meaning. The fourth and final step was the process of identifying sub-categories, categories, and main categories. Kyngäs et al. (2020) describe this as a process of abstraction, which can proceed further as long as the concepts can be grouped together. The sub-categories, categories, and main categories in each of the three framework dimensions (Pettigrew & Whipp, 1992) related to the CIP (why, what, how) are outlined in Tables 3, 4, and 5.

Results

The results of the analysis are presented according to the three dimensions: *why* – the HCPs' perceptions of the CIP, *what* – the content of the CIP, and *how* – the implementation process of the CIP (Pettigrew & Whipp, 1992; Stetler, Ritchie, Rycroft-Malone, Schultz & Charns, 2007).

Improved Observational Practice (Why)

The analysis demonstrates that the HCPs described the rationale behind implementing the CIP in various ways (see Table 3).

Table 3: HCPs' perceptions of the CIP purpose (why)

Sub-categories	Categories	Main category
Improve communication with general practitioner (GP)/emergency room (ER)/the emergency medical communication centre (AMK)	A shared language	Improved observational practice
Skilled health worker can call GP/emergency room/AMK		
Improved communication among HCPs		
Ensure early patient treatment	Systematic patient assessment	
Assess deterioration		
Assess the patient's normal situation		
Unsystematic assessment of vital signs before the implementation of the CIP		
Assessment of the patients		
A systematic tool		
A feeling of confidence for the HCP	Promote confidence	
Safety for the patients		
Improve competence	Competence development	
Empower the HCP		
Improve awareness		

Consistently, all the participants talked about the CIP contributing to *promote confidence* among the HCPs. They described that the program will make them feel 'safer' at work, be more confident in measuring the vital signs, and more certain in situations with ill and deteriorating patients, as one HCP expressed:

> Yes, in situations where we need to measure vital signs or something needs to be done, I think we will become more confident and more aware. Then, we will measure the vital signs, as expected (HBT2, skilled health worker).

The HCPs perceived that the CIP is concerned with an increased level of *systematic patient assessments.* The participants described that, previously, the HCPs rarely measured vital signs. This task was dependent on the individual HCP, and there were no common expectations or guidelines around it. Several people talked about the "gut feeling" of the patients' clinical situations.

The HCPs found the ISBAR form very useful. The vital signs give objective answers on the patient's condition, and the assessment is easy to complete. The HCPs also believed they can assess the patient's need for extensive help.

> It is supposed to be a working tool – a structure, informing how to measure the vital signs, which is based on the situation. I do not know; I did not attend the teaching seminar. I do not know, but this is how I have understood it (HBT2, nurse).

As part of the CIP, the patient's normal situation is supposed to be registered, and the HCPs found that very useful:

> Now, it is better that we know the patient's normal condition. Then we can detect early deterioration. Because some patients maybe only initially need help preparing food. By measuring the patients' normal vital signs, we know when they are healthy and can then notice and confirm their changed conditions. I find it very, very good (HBT1, nurse).

Further, the participants thought that the CIP would lead to a *common language* in terms of using vital signs and improving the communication among the HCPs in the homecare districts, as well as the communication between the HCPs and the general physicians (GP), the emergency room (ER), and the emergency medical communication centre (AMK).

Normally, it has been the nurses who have contacted the GP in the situation of deteriorating patients. The nurses describe that, generally, the communication with the GP has been vague, such as "the patient is not good."

The skilled healthcare workers have not previously called the GP directly. In situations of patients in poor clinical condition, the skilled health workers have instead contacted the nurses. It is now expected that the skilled health workers will call the GP directly. All the participants discussed this issue, and, in general, agreed that it is a positive change.

However, some skilled health workers discussed the need to consult with other HCPs, especially nurses, around deteriorating and ill patients, as they were not used to taking the vital signs and calling the GP. Other skilled health workers found the changed expectations in the program both challenging and exciting. A skilled health worker put it this way:

> I think that in situations with deteriorating patients, the patient needs faster help. We can manage that, by using those forms and having everything ready, when, for example, we call the GP. Then everything they have to do is ready and clear (HBT2, skilled health worker).

Further, several HCPs expressed that the CIP is very important for the patients. They thought that when the HCPs can detect changing conditions and initiate proper treatments, the patients will experience a sense of being safe and well taken care of. One skilled health worker expressed it like this:

> First and foremost, it helps the patient. When we have the opportunity to measure the vital signs, the patient will feel 'safer' and know that we have control of the clinical situation (HBT1, skilled health worker).

The HCPs also mentioned that the program is about *competence development* and thought that improved knowledge contributes to better judgement. Several talked about the lack of knowledge pertaining to awareness of the patients' clinical condition. In this regard, there is a distinction between the nurses and the skilled health workers, in that the latter have not measured vital signs, while the nurses have, although not systematically. The managers expressed that performing this task will improve the HCPs' knowledge in detecting deteriorating patients and described it as *a boost of knowledge*.

A Complex Multi-Component Educational Program (What)

The CIP includes multiple components, and the HCPs saw the content as complex in several ways (presented in Table 4). During a debriefing in the simulation training, a nurse commented: "This is complex, here there are many new expressions and many new things to take care of – this isn't easy" (HBT1, nurse).

Table 4: Aspects related to the CIP content (what)

Sub-categories	Categories	Main category
Have got the necessary equipment for measuring vital signs	Available equipment for measuring vital signs	A complex multi-component program
Has had a need for equipment for measuring vital signs		
The equipment promotes the CIP		
Introduction of ABCDE and ISBAR		
NEWS has to wait		
Need for educational activity	Application of the learning resources	
Everyone did not sign up for the teaching seminar		
Who was allowed to attend the seminar		
Teaching and information as part of the simulation brief		
Little use of the digital learning tool		
Debrief		
Assistants did not attend the course	Unclear role of the assistants	
The assistants' obligations are unclear		
Assistants joined the simulation		

Consistently, the HCPs found it encouraging and important that the homecare districts are now receiving *available equipment.* Initially, the equipment became a topic of conversation, an eye catcher and a reminder of the CIP. A nurse commented: "Yes, and those backpacks are a reminder" (professional development nurse at a meeting).

Previously, when measuring vital signs, the HCPs had to leave the patients and collect the required equipment at the homecare office, which was experienced as demanding and led to delay in measuring the patients' situation. A nurse explained the situation this way:

> In situations with deteriorating patients, we now need to pick up the actual equipment at the office. Maybe we also need to take a blood sample, and then we need to drive to the nursing home, borrow the equipment, drive back to the patient, take the test, and then drive back to the nursing home and measure the result. After all this, maybe we need to call the emergency room (HBT2, nurse).
>
> Yes, now the equipment is available. We do not have to drive to the office and pick up the equipment anymore (HBT2, nurse).

The equipment is stored in red bags and backpacks, and the HCPs are expected to bring the backpacks when visiting the patients. Homecare A decided that the backpacks should stay in the cars, and homecare B opted to keep them available on a shelf in the facility.

The ISBAR form was supposed to be a part of the equipment in the bag/backpacks, and it informed the HCPs about the structure in their observation, which involved the ABCDE principles, the ISBAR, q-SOFA, FAST, VAS, and NEWS. Several HCPs mentioned during the simulation-based training that it is difficult to cover so many different expressions. The professional development nurses and the USHT experienced the same thing, and there was a need to take a step back. The focus on ABCDE and ISBAR was highlighted, and the attention to the NEWS score had to wait.

The *application of the learning resources* was different in the two home care districts, both in relation to who participated and the use of the resources.

The two homecare districts had different strategies in recruiting HCPs to the one-day teaching seminar. In homecare A, a list was posted on the wall, and the nurses and skilled health workers were allowed to register. In homecare B, the managers and the development nurses chose the participants for the teaching day because they felt it was necessary to maintain normal working routines, and also for financial reasons. Several HCPs disliked that so few had participated in the teaching day. They believed that the value of the program is dependent on everyone (all HCPs) having the same knowledge, as one HCP expressed:

> I think this program will be really good, as long as those who did not attend the one-day teaching day receive the same information and competence – so that we do not act blindly and do not know what to do (HBT2, nurse).

Further, the two homecare districts had different strategies for how the HCPs received the content of the CIP. However, the HCPs, especially those who did not attend the course, thought that the information and knowledge dissemination was unclear. Simulation-based training was prioritised, the compendium was available but not systematically handed out to the HCPs before attending the simulation-based training.

The digital learning tool was used to a very limited extent, in both homecare districts:

> No, we have not used the digital learning tool very much. But we have prioritised involving everyone in the simulation-based training, so that all HCPs have the opportunity to practise. And, we have chosen not to start using the bags and backpacks before we know for sure that all are dependent on the equipment (HBT1, professional development nurse).

The brief of the simulation-based training was used to inform the HCPs about the program, the equipment for measuring vital signs, and knowledge about the ISBAR form. Further, the participants were informed about the patient case, and the HCPs acted in the actual situation. Lastly, the debrief phase in the simulation was completed. In homecare A, the professional development nurse and the resource nurses were in charge of the simulation-based training and acted as facilitators. In homecare B, the professional development nurses had that responsibility. The simulation-based training was unknown to the professional development nurses and most of the HCPs in the homecare districts, and it was performed after the report in the middle-of-the-day shift. The professional development nurses registered the HCPs for participation in the simulation-based training.

The *role of the assistants was unclear* in the CIP. Initially, the USHT decided that the assistants would not be involved. The assistants were told that they were not included and that they were not expected to measure any vital signs. Some assistants described this as strange because, on their working lists, they were sometimes supposed to measure the vital signs. As one assistant commented: "And then we need to ask someone else to do that" (HBT1, assistants). Further, it was decided at first that the assistants would not attend the simulation-based training. However, this was reconsidered, and the assistants were involved in the simulation. One professional development nurse explained the reason for the change: "The assistants are visiting the patients, and they must detect changes in the patients' situations." However, the expectations concerning the role of the assistants in the program were unclear. In a simulation training, one assistant expressed that it was nice to be included and she found it informative, but she did not know exactly what she was expected to do.

A Demanding Implementation Process (How)

The HCPs experienced the implementation of the CIP as challenging (outlined in Table 5).

Table 5: HCPs' experiences of the implementation process (how)

Sub-categories	Categories	Main category
Knowledge of the CIP	Difficult flow of information	Demanding implementation process
Little information		
Challenging to reach everyone with information		
Resource demands	Limited time available	
Not enough time for professional development		
Time-consuming program		
Large and demanding program		
Nervousness related to simulation	Simulation considered as challenging	
Positive development of simulation over time		
Reveals knowledge needs		
Demanding to be a facilitator in the simulation-based training		
Professional development nurses in charge of the CIP	Support for CIP facilitators	
The professional development nurses need support		
The professional development nurses have excessive responsibilities		

Throughout the interviews and the different meetings, the HCPs talked about the difficult flow of information. One nurse expressed: "but the information before the one day teaching seminar was diffuse - what the CIP is really about" (HBT1, nurse)?

The professional development nurses and managers felt that the information provided about the program had been complete. However, in general, they experienced that it was challenging to reach all the HCPs in the homecare districts due to the HCPs' working schedules, many not reading e-mails, and some staff only working part-time.

Many described their *limited available time in the homecare* due to busy work schedules, as well as not having enough time for competence development. As a professional development nurse explained, implementing new improvement programs is challenging:

> It is challenging to find the time and resources to implement the program (HBT1, professional development nurse).

The HCPs experienced the program as excessive and demanding, and they were not aware of its extent. A professional development nurse expressed it this way:

> We may not have known the scope of the CIP either. So, when we actually started, we realised that this was a little bigger than we thought (HBT2, professional development nurse).

Moreover, conducting simulation-based training *was perceived as challenging.*

Initially, the HCPs were very sceptical about the simulation-based training. Very few HCPs had previously been involved in a simulation process, and it was described as scary, unnatural, and embarrassing. A professional development nurse expressed:

> It is challenging. The staff oppose simulation. It is challenging to talk about it positively, true, that's what we're trying to do, and then it's hard when people go away because they don't want to be involved in the simulation, right. For example, they take on extra tasks to avoid it. And then it is hard to make them realise that this is really nice (HBT1, professional development nurse).

Gradually, however, some HCPs found the simulation useful, educational, and pleasant.

The professional development nurses were in charge of the program, and they found the implementation challenging. They expressed a *need for support* to fulfil the program. The cooperation with USHT was seen as positive, but they expressed a desire for targeted feedback in the simulation sessions.

They experienced that there was not enough time to prepare for the training during a busy working day.

> The resource nurses found that the simulation-based training days could be very difficult. They described busy patient lists and the need to go/move directly to the simulation-based training and facilitate it. There was a need to move in and out of different tasks. They wished that the simulation was included in their work lists (HBT1, Observation meeting).

The debriefing of the simulation was also perceived as challenging. It was described as difficult to pose good questions and to include everyone in the group, and they were afraid that the HCPs felt that their knowledge was being tested. In fact, the simulation-based training did inform them about the HCPs' current knowledge in the observation of frail older patients in homecare.

The managers in the homecare districts emphasised the importance of the program and acknowledged that their responsibility was to support the implementation process. They sincerely wanted to make it work in their homecare districts.

Discussion

In the following, we will highlight three of the distinctive findings from our study that need careful consideration when planning and implementing a CIP in homecare: HCPs confidence (why), the multiple components of the CIP (what), and the HCPs experiences with simulation-based training (how). In addition, we will reflect on some issues when assessing the CIP and its implications for improved homecare for the frail older patient.

HCPs confidence (why)

HCPs highlighted that they expected the CIP to make them feel 'safer' at work. They wanted to be more confident in measuring the patient's vital signs, and to appear certain in situations with deteriorating patients. This finding might reflect that many of the HCPs perceived a feeling of uncertainty in situations with deteriorating patients and an imbalance between actual and expected competence. In the nursing literature competence has different meanings (Cowan, et al., 2005), and refers to the capability of the professionals, the performance of tasks and obligations expected of the professionals (Boyatzis, 1982; Eraut, 1994). The fact

that HCPs related the CIP to a feeling of certainty may reflect that the program meets several of the competence components; their own capability in handling deteriorating patients, knowing how to perform the tasks of measuring vital signs and understand them, ultimately leading to confidence in meeting the obligations expected of them by patients, carers, managers, and professional communities.

Multiple CIP components (what)

The CIP has been described as complex and with multiple components (see also Table 1) and the implementation process varied in the two homecare districts. The USHT (Centre for Development of Institutional and Home Care Services) initiated the program and managers of the homecare districts were informed and confirmed the participation of their respective homecare districts at an early stage. The HCPs themselves were informed at a later stage with no systematic involvement throughout the decision-making process. In addition, not all HCPs were involved in the teaching seminar, the digital learning tool was rarely used and the timing of when the HCPs received the compendium varied. As such, the HCPs' competence needs related to systematic observation of deterioration were not systematically mapped and therefore not integrated explicitly throughout the CIP. Grol (2013) describes the importance of involving the representatives of the target group (in this case the HCPs) in implementation processes. Homecare is described as a heterogeneous practice, with complex decision-making (Genet, 2012), and it is necessary to tailor the CIP according to the HCPs' needs, encountered challenges, the work setting and the actual individual. Involvement contributes to ownership of the CIP among the HCPs and encountered responsibility for the contents and implementation of the program (Grol, 2013).

HCPs experiences with simulation-based training (how)

Simulation as a learning method was unfamiliar to the HCPs in the current homecare districts and was described as frightening, unnatural and embarrassing. The HCPs expressed opposition towards the simulation, and several refused to participate. Participants might be more ready to engage in simulation if their roles are made clear, if they have a basic trust in the facilitator and if the simulation offers a safe educational environment (Dieckmann, Gaba & Rall, 2007). These issues also involve a social side of simulation, and the briefing part of simulation-based training is highlighted as important to accommodate role clarity, trust, and psychological safety (Dieckmann et al., 2007; Rudolph, Raemer & Simon, 2014). Since the HCPs were dissatisfied with the general information of the CIP the facilitators of the simulation-based training had to use the briefing session to inform the participants about the CIP components and teach them some of the basic skills related to, for example, measuring vital signs. Therefore, little time was set aside to create a safe environment for simulation, and HCPs continued their scepticism towards simulation.

Interrelations and implications

Looking across the three dimensions of why, what and how of the CIP implementation gives a complex and nuanced picture of the challenges of improving systematic observation among HCP in the current Norwegian homecare settings. The dimensions are interrelated meaning that, e.g. less experience with simulation as a CIP component (how) may influence HCPs confidence in their work tasks related to systematic observation (why). At the same time, the multiple components of the CIP (what) can have implications for the implementation success (how). These interrelations are characteristic of the fact that how to consistently improve care and patient safety across a variety of settings, has few explicit answers (Kaplan

et al., 2010; Vincent & Amalberti, 2016). Still, as the interrelation between competence in systematic observation and patient deterioration is established for hospital care we should assume that this is also true for the homecare setting. At this point, to confirm whether the CIP has resulted in improved systematic monitoring and consequently better and safer care for the frail older patient requires further research. This will be done in a forthcoming longitudinal process evaluation on the effects of the CIP.

Strengths and limitations

Few studies exist regarding competence improvement of systematic observations in the homecare setting. This study contributes to the field by its qualitative descriptive approach of a CIP aiming to understand the implementation process in depth based on direct information from HCP with various backgrounds and responsibilities experiencing the program. There may be limitations to the generalisability of the results as the study was conducted in only two homecare districts in Norway. The study applies a mix of qualitative methods with observations, focus group interviews and individual interviews, adding descriptive power to the results. One of the focus groups consisted of only two homecare assistants, which might have led to less information and reflections represented from that particular homecare district. Nevertheless, in moderating the focus group we experienced that the two assistants spoke freely and shared multiple experiences with the CIP.

Conclusions

In this study, we analysed the implementation of a competence improvement program (CIP) for the systematic observation of frail older patients in two homecare settings in Norway.

The homecare professionals described the CIP differently both within and across the two homecare districts. They perceived the purpose of the program in diverse ways, most of them reflecting positive expectations around improving the current observational practice. The content of the CIP was complex and consisted of multiple components, which the participating homecare professionals experienced as demanding. The process of implementing the CIP was influenced by a difficult flow of information, limited time available, and challenges related to simulation-based training.

It is concluded that the implementation of a complex CIP for the systematic observation of frail older patients in homecare requires careful planning with regards to the HCPs' confidence (why), the multiple components of the CIP (what), and in specific the simulation-based training component (how). Further research is warranted to establish the implications of the CIP on the quality and safety of patient care in the homecare setting.

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References

Barwise, A., Thongprayoon, C., Gajic, O., Jensen, J., Herasevich, V. & Pickering, B. W. (2016). Delayed rapid response team activation is associated with increased hospital mortality, morbidity, and length of stay in a tertiary care institution. *Critical Care Medicine, 44*(1), 54–63. https://doi.org/10.1097/ccm.0000000000001346

Bing-Jonsson, P. C., Foss, C. & Bjørk, I. T. (2016). The competence gap in community care: Imbalance between expected and actual nursing staff competence. *Nordic Journal of Nursing Research, 36*(1), 27–37. https://doi.org/10.1177%2F0107408315601814

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*: John Wiley & Sons.

Bradshaw, C., Atkinson, S. & Doody, O. (2017). Employing a qualitative description approach in health care research. *Global qualitative nursing research, 4*, 2333393617742282. https://doi.org/10.1177%2F2333393617742282

Cowan, D. T., Norman, I. & Coopamah, V. P. (2005). Competence in nursing practice: a controversial concept – a focused review of literature. *Nurse Education Today, 25*(5), 355–362. https://doi.org/10.1016/j.nedt.2005.03.002

Cowan, D. T., Wilson-Barnett, D. J., Norman, I. J. & Murrells, T. (2008). Measuring nursing competence: Development of a self-assessment tool for general nurses across Europe. *International Journal of Nursing Studies, 45*(6), 902–913. https://doi.org/10.1016/j.ijnurstu.2007.03.004

DeWalt, K. M. & DeWalt, B. R. (2011). *Participant observation: A guide for fieldworkers* (2nd ed.). Lanham, Md: AltaMira Press.

Dieckmann, P., Gaba, D. & Rall, M. (2007). Deepening the theoretical foundations of patient simulation as social practice. *Sim Healthcare, 2:* 183–193. https://doi.org/10.1097/sih.0b013e3180f637f5

Elo, S. & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107–115. https://doi.org/10.1111/j.1365-2648.2007.04569.x

Eraut, M. (1994). *Developing professional knowledge and competence*. London: Falmer Press.

Genet, N., Boerma, W., Kroneman, M., Hutchinson, A. & Saltman, R. B. (2012). *Home care across Europe – Current structure and future challenges.* WHO, World Health Organization. Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0008/181799/e96757.pdf?ua=1

Gobbens, R. J., Luijkx, K. G., Wijnen-Sponselee, M. T. & Schols, J. M. (2010). Toward a conceptual definition of frail community-dwelling older people. *Nursing Outlook, 58*(2), 76–86 https://doi.org/10.1016/j.outlook.2009.09.005

Gray, E., Currey, J. & Considine, J. (2018a). Hospital in the home nurses' assessment decision making: An integrative review of the literature. *Contemporary Nurse, 54*(6), 603–616. https://doi.org/10.1080/10376178.2018.1532802

Gray, E., Currey, J. & Considine, J. (2018b). Hospital in the home nurses' recognition and response to clinical deterioration. *Journal of Clinical Nursing, 27*(9–10), 2152–2160. https://doi.org/10.1111/jocn.14076

Grol, R. (2013). *Improving patient care: The implementation of change in health care* (2nd ed.). Chichester: Wiley-Blackwell BMJ Books.

Harrison, M. B., Keeping-Burke, L., Godfrey, C. M., Ross-White, A., McVeety, J., Donaldson, V., … Doran, D. M. (2013). Safety in home care: A mapping review of the international literature. *International Journal of Evidence-Based Healthcare, 11*(3), 148–160. https://doi.org/10.1111/1744-1609.12027

Helsedirektoratet. (2020). *Tidlig oppdagelse or rask respons ved forverret somatisk tilstand. Nasjonale faglige råd.* Retrieved from https://www.helsedirektoratet.no/faglige-rad/tidlig-oppdagelse-og-rask-respons-ved-forverret-somatisk-tilstand

Hogan, H., Healey, F., Neale, G., Thomson, R., Vincent, C. & Black, N. (2012). Preventable deaths due to problems in care in English acute hospitals: A retrospective case record review study. *BMJ Quality & Safety, 21*(9), 737-745. http://dx.doi.org/10.1136/bmjqs-2011-001159

Jones, S. (2016). Alternative perspectives of safety in home delivered health care: a sequential exploratory mixed method study. *Journal of Advanced Nursing, 72*(10), 2536–2546. https://doi.org/10.1111/jan.13006

Kaplan, H. C., Brady, P. W., Dritz, M. C., Hooper, D. K., Linam, W. M., Froehle, C. M. & Margolis, P. (2010). The influence of context on quality improvement success in health care: A systematic review of the literature. *The Milbank Quarterly, 88*(4), 500–559. https://doi.org/10.1111/j.1468-0009.2010.00611.x

Kyngäs, H., Mikkonen, K. & Kääriäinen, M. (2020). *The application of content analysis in nursing science research.* Cham: Springer.

Liaw, S. Y., Scherpbier, A., Klainin-Yobas, P. & Rethans, J. J. (2011). A review of educational strategies to improve nurses' roles in recognizing and responding to deteriorating patients. *International Nursing Review, 58*(3), 296–303. https://doi.org/10.1111/j.1466-7657.2011.00915.x

Masotti, P., McColl, M. A. & Green, M. (2010). Adverse events experienced by homecare patients: A scoping review of the literature. *International Journal for Quality in Health Care, 22*(2), 115–125. https://doi.org/10.1093/intqhc/mzq003

Maybin, J., Charles, A. & Honeyman, M. (2016). *Understanding quality in district nursing services.* The King's Fund, London. Retrieved from https://www.kingsfund.org.uk/publications/quality-district-nursing

Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd ed., vol. 16). Thousand Oaks, Calif: Sage Publications.

Padilla, R. M. & Mayo, Ann M. (2018). Clinical deterioration: A concept analysis. *Journal of Clinical Nursing, 27*(7–8), 1360–1368. https://doi.org/10.1111/jocn.14238

Pettigrew, A., Ferlie, E. & McKee, L. (1992). *Shaping strategic change: Making change in large organizations: The case of the National Health Service.* London: Sage.

Pettigrew, A. & Whipp, R. (1992). Managing change and corporate performance. In *European Industrial Restructuring in the 1990s* (pp. 227–265): Springer. https://link.springer.com/chapter/10.1007/978-1-349-12582-1_9

Polit, D. F. & Beck, C. T. (2018). *Essentials of nursing research: Appraising evidence for nursing practice* (9th ed.). Philadelphia, Pa: Wolters Kluwer.

Ree, E. & Wiig, S. (2019). Employees' perceptions of patient safety culture in Norwegian nursing homes and home care services. *BMC Health Services Research, 19*(1), 607. https://doi.org/10.1186/s12913-019-4456-8

Rudolph, J. W., Raemer, D. B. & Simon, R. (2014). Establishing a safe container for learning in simulation: The role of the presimulation briefing. *Simulation in Healthcare, 9*(6), 339–349. https://doi.org/10.1097/sih.0000000000000047

Sankey, C. B., McAvay, G., Siner, J. M., Barsky, C. L. & Chaudhry, S. I. (2016). "Deterioration to door time": An exploratory analysis of delays in escalation of care for hospitalized patients. *Journal of General Internal Medicine, 31*(8), 895–900. DOI: https://doi.org/10.1007/s11606-016-3654-x

Stetler, C. B., Ritchie, J., Rycroft-Malone, J., Schultz, A. & Charns, M. (2007). Improving quality of care through routine, successful implementation of evidence-based practice at the bedside: An organizational case study protocol using the Pettigrew and Whipp model of strategic change. *Implementation Science, 2*(1), 3. https://doi.org/10.1186/1748-5908-2-3

Strømme, T., Aase, K. & Tjoflåt, I. (2020). Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study. *Journal of Clinical Nursing.* https://doi.org/10.1111/jocn.15255

Vincent, C. & Amalberti, R. (2016). *Safer healthcare.* Cham: Springer International Publishing.

Paper 3

BMC Health Services Research

RESEARCH

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A competence improvement programme for the systematic observation of frail older patients in homecare: qualitative outcome analysis

Torunn Strømme*, Ingrid Tjoflåt and Karina Aase

Abstract

Background: The growth of frail older patients with extensive care needs in homecare creates a need for competence development. Improvement programmes are essential to fill this knowledge gap. However, the outcomes of such programmes remain unknown. Therefore, the aim of this study is to describe the outcomes of a competence improvement programme for the systematic observation of frail older patients in homecare.

Methods: This study applied a qualitative mixed-method design. Data were collected in two homecare districts using participant observation, focus group interviews, and individual interviews.

Results: The analysis revealed five concepts characterising the outcomes of the competence improvement programme: 1) frequency of vital sign measurements, 2) situational awareness, 3) expectations and coping level, 4) activities for sustained improvement, and 5) organisational issues affecting CIP focus. Substantial differences were revealed across the two homecare districts in how homecare professionals enacted new knowledge and routines resulting from the competence improvement programme. The differences were related to the frequency of vital sign measurements, coping levels, and situational awareness, in which successful outcomes were shaped by implementation issues and contextual setting. This involved whether routines and planned activities were set to follow up the improvement programme, or whether organisational issues such as leadership focus, resources, and workforce stability supported the programme.

Conclusions: This study documents the differences entailed in creating sustainable outcomes of an improvement programme for homecare professionals' competence in recognising and responding to deteriorating frail older patients. Depending on the implementation process and the homecare context, professionals enact the activities of the improvement programme differently.

Keywords: Clinical observation, Competence, Deterioration, Frail old people, Homecare, Improvement project

Background

The competence requirements for homecare professionals (HCPs) are becoming increasingly challenging due to changes in healthcare. Homecare services are multifaceted, with an increasing number of frail older patients with extensive care needs and complex requirements [1–3]. Frailty is an age-related condition characterised

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by a decline in physiological capacity and increased vulnerability where patients have a higher risk of rapid deterioration and mortality [4–6]. Failure to recognise and respond to clinical deterioration might result in adverse outcomes, and early recognition by measuring vital signs is emphasised [7]. HCPs often work alone and therefore have a fundamental role in detecting deteriorating frail older patients [8], where observational competence and clinical judgement are vital to providing appropriate patient care [9].

The accelerating growth of the homecare–dependent population creates a need for competence development and new approaches for the care of frail older patients [3, 10]. The competence demands in caring for patients are placed on frontline staff [11]; in homecare they comprise nurses (with bachelor's degree), skilled health workers (with healthcare education at the upper secondary school level), and assistants (without healthcare education) [12]. Competence refers to an individual professional's capability and consistency with job demands and the organisational environment [13, 14]. It involves a combination of knowledge, performance, skills, values, and attitudes [15, 16]. Clinical judgement is essential for healthcare professionals; as a problem-solving activity involving assessment and clinical observation [17] and is influenced by factors such as professionals' education, experience, time constraints, and work unit culture [9].

Homecare is healthcare provided in the patient's home and entails care for a wide range of patients [18]. Homecare is a comprehensive service including rehabilitative, therapeutic and assistive care, which covers help with tasks such as medications, hygiene, nutrition and clinical procedures. Daily activities are planned according to predetermined work plans, which schedule and estimate the duration of the visits and the tasks required [19].

Competence in homecare has been explored in several studies in terms of the development of standards, competency demands, and self-reports of competence [20–22]. Most studies have focused on the nursing profession, not including the skilled health workers and assistants. In their review, Bing-Jonsson et al. [23] found an imbalance between actual and expected competence in community care. A wide range of competences are expected at an advanced level, ranging from specific tasks in medication management to overarching principles such as safe practice and considerate care. These expected competences may be new to many nurses, especially those with an older degree in nursing; for skilled health workers and assistants, the imbalance between the expected and actual competence might be even higher [23]. In a previous study, we found that the HCPs' observational competence, including vital sign measurement, varied, and were in many situations insufficient [24].

An improvement programme is essential to fill the knowledge gap in homecare [25], even though implementing new knowledge is difficult [25–28]. Even after successful implementation, adherence decreases over time, and long-term sustainability of improvement initiatives remains challenging [28]. In addressing barriers and facilitators to the implementation of improvement initiatives in primary care, Lau et al. [29] highlighted the importance of and interdependence among the characteristics of the improvement effort, healthcare professionals involved, organisational features, and context. The fit between the improvement effort and the context is seen as essential. Therefore, the aim of this study is to describe the outcomes of a competence improvement programme (CIP) for the systematic observation of frail older patients in homecare.

Two research questions guided the study:

1) How are the outcomes of a CIP in two homecare districts enacted by HCPs?
2) How do implementation and context influence the CIP outcomes?

By outcomes, we refer to the results and impacts of the improvement programme [30, 31]. The outcomes then represent the HCPs clinical judgment, detection, and management of deteriorating frail older patients after the implementation of the CIP. The outcomes also comprise the impact and interrelationship between CIP implementation and the homecare context in which implementation takes place.

A competence improvement programme

The current study describes the outcomes of a CIP designed and implemented to improve HCPs' skills in recognising and responding to deteriorating frail older patients. The programme was multi-componential (Table 1) and consisted of a written compendium, a digital learning tool, a teaching day, and simulation-based training. An equipment bag, equipment backpacks, and a form to structure observation, decision-making, and communication were included in the programme [32]. The CIP was implemented during autumn 2017/spring 2018, and data were collected for the current study during autumn 2019/spring 2020.

Methodology

A qualitative mixed-method (QUAL-qual) design [33] was used to analyse the outcomes of the CIP in two homecare districts. Participant observation served as the core component of data collection (QUAL); focus group interviews with HCPs and individual interviews with

Table 1 A competence improvement programme in homecare

Learning resources	Purpose
Compendium	Theoretical knowledge about systematic observation and communication. The compendium is to be used for learning new subjects and repeating familiar knowledge.
Digital learning tool	Provides opportunities for HCPs to work with the material at any time.
Teaching seminar	Description of the implementation programme. Dissemination of theoretical knowledge in early recognition of deterioration patients in municipal health. Aiming to improve HCPs' competence.
Skills training	To master vital measurements.
Simulation-based training	Learning objectives: 1) Structured observation using the Airway, Breathing, Circulation, Disability, Exposure (ABCDE) algorithm. 2) Structured communication (ISBAR).
Equipment bag and backpack	To have available equipment for measuring vital signs.
ISBAR form	To structure observation of the patients' clinical conditions, contribute to decision-making and structure communication in situations when a patient's clinical condition is changing. The content of the form is the ABCDE algorithm, the ISBAR communication tool, quick Sepsis-related Organ Failure Assessment, Stroke symptoms, National Early Warning Score, and Visual Analogue Pain Scale.

Note: See also [32]

Table 2 Overview of the homecare districts

Homecare district	A	B
HCPs:	83	67
• Nurses	31	22
• Skilled health workers	29	30
• Assistants	23	15
Patients	380	300

managers and professional development nurses provided the supplemental component (qual).

Setting

The setting for the study was two homecare districts (A and B) (see Table 2) in two municipalities in western Norway, during their process of implementing and following up the CIP. In Norway as in several other countries, the delivery of homecare is mainly a municipal responsibility, and all inhabitants have the legal right to receive homecare free of charge [19, 34]. The homecare districts were organised as separate departments in each of the municipalities' healthcare services.

An ordinary shift in homecare started with the HCPs updating on the patients' conditions. A report meeting was conducted, where messages and patient statuses were shared, and medications were distributed. Furthermore, the HCPs visited the patients according to predetermined task-oriented work plans. At midday, they returned to the office for a break and reports about the patients, new messages, and an update on the remaining tasks of the shift were shared. After the break, the HCPs mainly visited new patients. Some HCPs conducted administrative work in the office. A car was the primary method of transportation between patient visits.

The two homecare districts had different prioritisation of how the different components of the CIP were included in their practices. For example, the organisation of simulation was carried out differently. Nurses and skilled health workers of both homecare districts were included in the CIP. The assistants were additionally involved after a while, as they also visited the patients and needed observational competence to detect deteriorating patients [32].

Homecare district A

Homecare district A was one of six homecare districts in a city-based municipality. The homecare consisted of two geographical areas, and the HCPs of the homecare were organised into three groups: 1) nurses visiting patients across the geographical areas, 2) skilled health workers and assistants visiting patients in geographical area 1, and 3) skilled health workers and assistants visiting patients in geographical area 2. The latter two groups included a nurse (named a resource nurse) who acted as a supervisor for skilled health workers and assistants and visited patients according to a predetermined workplan. The managers included a department manager with the daily responsibility for the homecare district, and a unit manager who had the overall responsibility for the homecare district and several other health services in the municipality. A professional development nurse worked full-time with competence improvement, improvement projects, and quality improvement for the HCPs.

Homecare district B

Homecare district B was one of two districts in a large municipality comprising both rural and urban settlements. All HCPs were organised into two groups, including nurses, skilled health workers, and assistants, visiting patients in two geographic areas. The homecare had two department managers having the daily responsibility for each group, and a unit manager having the overall responsibility for the homecare district and another healthcare services in the municipality. Moreover, two professional development nurses worked part-time with competence improvement, improvement projects, and quality improvement for the HCPs. During the study period, homecare district B was reorganised and had a high turnover of managers and nurses. The number of sick leaves was periodically high.

Recruitment

The CIP was initiated and followed up by a project manager at the Centre for Development of Institutional and Home Care Services (USHT), and the homecare districts were recruited by the centre. The homecare districts and researchers were introduced by USHT. Initially, each homecare and the first author met to talk about CIP implementation and to clarify the roles of the homecare and the researcher.

In both homecare districts, the professional development nurse had overall responsibility for the CIP and functioned as a contact point for the researchers. The criteria for HCPs participating in the study was that they were frontline staff conducting home visits to patients. The sample should also consist of a mix of nurses, skilled health workers and assistants. All managers and professional development nurses were recruited for the study. The managers, in cooperation with the professional development nurse, recruited participants for all parts of the data collection. The scheduled times of the observations, focus group interviews, and individual interviews were sent to the first author after the agreements were settled with the nurses, skilled health workers, and assistants.

Sample

This study included HCPs (nurses, skilled health workers, and assistants), managers, and professional development nurses. Moreover, the 21 HCPs (11 HCPs in homecare district A and 10 HCPs in homecare district B) were followed during participant observation at their shift (Table 3). HCPs also participated in focus group interviews: homecare district A had 10 HCPs across three focus groups according to their profession, and homecare district B had five HCPs across two focus groups [35]. The focus group size varied between two and five HCPs (see Table 3). All managers and professional development nurses in the two districts were interviewed in semi-structured individual interviews (three in homecare district A and five in homecare district B).

Data collection

The data collection consisted of participant observation (core component), focus group interviews, and individual interviews (supplemental components).

Participant observation

Participant observation was conducted by following nurses, skilled health workers, and assistants during day or evening shifts in both homecare districts (Table 3) for 4 months (October 2019–January 2020). All observations were completed by the first author. The researcher met during the agreed-upon shift and always asked for the

Table 3 Sample and data collection in two homecare districts

Homecare district A			Homecare district B		
Sample	**Data Collection**		**Sample**	**Data Collection**	
Nurses (5) Skilled health workers (4) Assistants (2)	Participant observation (core component)	11 different shifts	Nurses (3) Skilled health workers (5) Assistants (2)	Participant observation (core component)	10 different shifts
Nurses (3) Skilled health workers (4) Assistants (3)	Focus group interviews (supplemental component)	3 focus group interviews	Nurses (3) Skilled health workers (2)	Focus group interviews (supplemental component	2 focus group interviews
Managers (2) Professional development nurses (1)	Semi-structured individual interviews (supplemental component)	3 individual interviews	Managers (3) Professional development nurses (2) Assistant (1)	Semi-structured individual interviews (supplemental component)	6 individual interviews

HCP's permission to accompany them on the shift and highlighted that the HCP could withdraw from the study at any time. All HCPs signed written informed consent forms. The first author engaged in all aspects of a shift, including home visits to patients, car travel between home visits, shift reports, and meetings. This reflected participating in the HCPs' practices, routines, and work environment, including participants' communication and reflections [36]. Moderate participation was used in shift reports, meetings, and when the HCPs visited patients in their homes, which means that the researcher was present in the setting but not actively participating [36]. Active participation was used during car transport between the patients' houses and during lunch breaks; at these times, the researcher engaged in conversations with the HCPs [36].

An observational guide (Supplementary file 1) was used, which focused on systematic clinical observations and how this was performed in the patient's home, and in discussions and reflections during meetings at the homecare office. Furthermore, the organisational structure of the homecare districts and the collaboration between the HCPs in the homecare was a focus. Simple notes were made during the observations. These notes were written as detailed field notes, which included eyewitness observations, informal and natural conversations, or interviewing descriptions [31], resulting in 138 pages. A total of 75 h of participation across day and evening shifts for homecare district A and 70 h for homecare district B were conducted.

Focus group interviews

Five focus group interviews were conducted at the homecare office, each with HCPs with similar professional backgrounds (nurses, skilled health workers, and assistants) (Table 3). According to the literature, the focus group size is recommended with five to ten participants [31, 35]. The first author led the conversation in the focus groups, whereas the second or third author observed the interaction, took field notes, and summarised the topics discussed. A semi-structured interview guide was applied with a focus on experiences of the implementation and the outcomes of the CIP guide (Supplementary file 2). The interviews lasted for about an hour. They were tape-recorded and comprised 173 pages of transcripts.

Because of the COVID-19 situation, all the individual interviews and focus group interviews were postponed to May and June 2020 until the situation was clarified and COVID guidelines allowed researchers to visit the homecare districts. This also led to a reduction of participants in the focus group interviews, with two to five HCPs in each group (Table 3). Furthermore, in homecare district B, an individual interview was conducted with one assistant instead of a focus group interview because of the difficulties in recruitment of this professional group.

Individual interviews

Individual interviews [30, 37] were conducted with managers and professional development nurses (Table 3) at each of the homecare offices. The first author led all the interviews, and a semi-structured interview guide with a focus on the managers/professional development nurses' experiences of CIP implementation and the perceived outcomes guided the conversation guide (Supplementary file 3). The interviews were tape-recorded and comprised 100 pages of transcripts.

Analysis

Qualitative content analysis [38, 39] was used to structure the participant observations, focus group interviews, and individual interviews in both homecare districts [33, 40].

The analysis was conducted in the following steps [38, 39]: 1) the transcripts or the raw data were read through several times to become familiar with the collected data, 2) the raw data were open coded with few words or codes covering the content and with a clear connection between each code and the raw data, 3) the codes with common content were grouped into sub-concepts, and the raw data was reviewed to check the data included in the identified open codes, and 4) the sub-concepts were further grouped into five concepts (Supplementary file 4).

The first author led the analysis process, and the three authors held several meetings through all steps to discuss and achieve a common understanding.

The observational data (core component), focus group interviews, and individual interviews (supplementary components) were analysed separately, and then the datasets were combined to produce a description of the findings (Table 4) [33]. The three datasets were written as one descriptive text. The research questions guided the process. The supplemental components added information to the core component and helped the researchers address the research questions from different perspectives [41].

Table 4 The qualitative mixed-method analysis process

Aim: **To describe the outcomes of a CIP for the systematic observation of frail older patients in homecare settings**	
QUAL method	+qual method,
Participant observations	Focus group interviews Individual interview
Qualitative content analysis	Qualitative content analysis
Results narrative of the QUAL+qual	

Ethics

This study was approved by the Norwegian Centre for Research Data (NSD; no. 54855). All participants were informed of their protected confidentiality and their right to withdraw at any time. All participants provided written informed consent, and the management of both municipalities approved the study. Transcripts were made anonymously by deleting any identifying information, and the participants were guaranteed that the data tapes and transcripts were stored in line with ethical guidelines and would be deleted after study completion.

The first author, who conducted participant observations in the patients' homes, signed a declaration of confidentiality in both districts. The first author is a healthcare professional (intensive care nurse) directed by both healthcare legislation and expectations towards researcher neutrality [42]. During observation, the researcher may observe situations where a patient was not cared for according to professional regulations. Such situations were discussed with both the other authors and the managers of the homecare districts. In these situations, professional ethics should take priority over researcher neutrality [42], and healthcare professionals would be notified in case of adverse events. In a few situations, the author asked the HCP to be aware of the patients' clinical situation by measuring the vital signs. No adverse situations arose.

Results

The analysis revealed five concepts related to the outcomes of the CIP: 1) frequency of vital sign measurements, 2) situational awareness, 3) expectations and coping level, 4) activities for sustained improvement, and 5) organisational issues affecting CIP focus. The results from the two homecare districts were combined and compared in the descriptions of each of the five concepts.

Frequency of vital sign measurements

The CIP was designed and implemented to improve HCPs' observational competence, and vital sign measurements was key for early recognition of deterioration of the patient condition. The frequency of vital sign measurements by HCPs was different in the two homecare districts after CIP implementation. The frequency increased in homecare district A, the HCPs experienced an increased focus on measuring vital signs whereas in homecare district B, most HCPs rarely measured vital signs after CIP implementation.

In homecare district A, the increased frequency of vital sign measurements was experienced by the managers as an important outcome of the CIP:

> *Currently, vital signs are measured at an earlier stage, and clinical observations seem more precise. The situation has changed from HCPs stating that 'the patient doesn't feel well' to more detailed explanations of the patient's status and situation […]. More HCPs know how to conduct observations. (Individual interview 1, homecare district A, manager)*

The patient's clinical situation was assessed by consistently measuring vital signs for all new patients and in cases of patient falls. The vital signs of all new patients were highlighted as a measure to gain knowledge of their 'normal' condition. A nurse described this during an observation:

> *The nurse experienced that a substantial change had taken place in the homecare district. A routine is in place expecting measurements of normal vital signs for all new patients. She sees this as a very good thing in that HCPs are familiar with what is expected by them and that it makes is easier to collaborate. […] They all seem to think differently and assess the patient's clinical situation at an earlier stage. The 'wait and see' attitude is less visible. (Observation 4, homecare district A, nurse)*

Prior to the CIP, in the case of a patient fall, HCPs helped the patient up and checked for pain and injury. After the CIP, vital signs were consistently measured in these situations in homecare district A. They found it important to identify an underlying cause for the fall, which could reflect early deterioration. During a day shift, the following situation occurred:

> *During the report at the nursing station, a safety alarm for one of the patients is activated. A skilled health worker (who has the patient on her list) drives the car directly to the patient's house. When arriving at the patient's apartment, the patient is lying on the floor in her bedroom, probably because of a fall. 'Here you are, how are you?' the health worker says, 'Are you in pain?' The patient denies having pain, and the health worker states that they will help her. A nurse then arrives at the apartment, wondering how the fall happened. The patient said she thought she slipped on the floor when she got out of bed and did not really fall. She insists that she still wants to go to the day centre. The nurse and the skilled health worker check the patient for injuries and help the patient in a chair. The nurse proceeds to other work tasks, and the skilled health worker helps the patient to the bathroom and then measures the vital signs. […] Respiration rate is 27/min, pulse is 88/min, and blood pressure is 140/83. The skilled health worker reflects on the fact that the respiration rate is high*

and wonders what to do. The patient is still persistent in his desire to attend the day centre. The skilled health worker then concludes that it should be okay, although it is important to report the change in vital signs and conduct new measurements during the evening shift. (Observation 2, homecare district A skilled health worker)

The patient was admitted to the hospital the same evening after new vital signs were measured by HCPs at the next shift; the respiration rate was still high. The patient was diagnosed as having pneumonia and was treated for a few days at the hospital before being discharged.

HCPs experienced that they were currently more "hands-on" changed patient conditions. The normal vital signs acted as a comparison between the patient's present condition and normal situation. They thus helped them indicated patients' deterioration. In homecare district A, the HCPs did not have the normal vital signs available during home visits as they did not have a digital version of the patient's journal. Normal vital signs were documented in the journal, which was available at the office. The HCPs resolved this by calling the office for information about the patient's normal situation.

In homecare district B, several HCPs noted that the CIP was inactive, and vital signs were rarely measured when the patients' condition had changed. During an observation, an HCP described the situation as follows:

The skilled health worker experiences that measuring vital signs is not often required. However, the CIP has been an important input. The skilled health worker smiles a little and expresses that the vital signs should probably be measured more often. (Observation 6, homecare district B, skilled health worker).

There were several situations in homecare district B when changes in patient condition were noted, including confusion, or not feeling well, and vital signs should have been measured to identify possible deterioration and the need to respond to the change. The following situation during an evening shift shows a patient describing a change in patient condition both regarding not feeling well and inhalation without normal effect. All signs of possible deterioration in which vital signs should have been measured:

During a home visit, the nurse is asking the patient, 'How are you?'. The patient replies that he is not feeling well and has a hard time breathing. He says that the inhaler is not working properly […]. The nurse responds that perhaps the patient should contact the general practitioner […] and ends the conversation by repeating that he should not hesitate to call the HCPs if the deterioration continues. (Observation 7, homecare district B, nurse).

HCPs in homecare district B expressed an uncertainty about when the measurements of vital signs were required. During this evening shift, a patient was very tired, and the skilled health worker experienced a change in patient condition.

During an evening shift, a skilled health worker is visiting a male patient, and we arrive in a dark apartment. […] The patient is lying in bed, and the skilled health worker wonders why he is so tired. It's only 5 p.m. The patient does not want to get up and replies that he is tired and wants to stay in bed. The skilled health worker tries to persuade the patient to get up to at least get some food. According to the patient, it is not necessary as he has had dinner. The skilled health worker wonders if he is usually that tired. Afterwards, when returning to the car, the skilled health worker reflects whether something is wrong with the patient as he is so tired and perhaps, she should have measured the vital signs. (Observation 1, homecare district B, skilled health worker)

In both situations, the HCPs perceived a change in patient condition but did not measure their vital signs to detect deterioration. Lack of consistency in vital sign measurements were confirmed by managers and professional development nurses. The HCP was responsible for detecting early deterioration during the patient visit. Thus, this was not considered satisfactory, and the CIP needed to be revisited.

Situational awareness

In homecare district A, other than situation of falls and new patients, no common descriptions of when the HCPs should measure vital signs were laid down. In two situations of a change in the patient's physical function, one HCP measured vital signs, whereas the other HCP did not. The detection of deteriorating patients thus became random and dependent on the individual HCP. In homecare district B, HCPs described acute patient situations as rare, so they did not think it was necessary to use the ISBAR form and measure vital signs. In homecare district A, a nurse explained that it would be easier in an emergency department at a hospital.

Then, all vital signs were measured regularly. In homecare, we act more based on our 'instincts'. Measurements are taken only if there are changes in the patient's condition'. (Observation 11, homecare district A, nurse).

In homecare district A, the HCPs had experience in early detection of deteriorations by measuring vital signs in patients with fall; however, this was not generally applied to other situations of patients' change in patient condition. The awareness of the patient's clinical situation was among the HCPs individual, different, and in many situations appeared as delayed. In the following situation, the skilled health worker commented on the patient's expectorations and coughs and discussed the changed situation with the patient. Systematic observation and vital signs were missing, which could have objectively discovered the patient's clinical status:

> *This morning, a skilled health worker visits a patient who needs assistance with morning care and food preparation. The patient is right-side paralysed after a stroke […]. The patient coughs as he gets up from bed. 'Oh, you are still coughing. Does it seem like the expectoration is loosening up a bit?' the skilled health worker asks. The patient replies that he is using a soothing cough syrup to help with that. The skilled health worker says that it is important to mobilise the expectoration and wonders whether the patient has been checked by the general practitioner. The patient does not find that necessary. The skilled health worker replies that, at least, they should follow the situation closely. (Observation 2, homecare district A, skilled health worker)*

HCPs in both homecare districts consistently involved patients and asked about their subjective view of their clinical condition. However, the HCPs made little use of this information and had an individual and variable response to the patients' reported clinical situations, and vital sign measurements were missing in several situations.

In the mid-day report, the HCPs reported on the latest visits to the patients and their clinical situation. This was a suitable arena for discussion, while in many reports in both homecare districts, these reflections were missing, and vital sign measurements were suggested only in a few situations. In a report in homecare district A, an HCP described a patient 'who was delirious and rude – well, there is a change'. The feedback from a colleague was: 'Well, we need to do our best'. Reflection on the patient's cognitive change and the question of whether the alteration was an expression of physical change and deterioration, including suggestions for assessment and further actions, was absent. In another report, an HCP described a patient's changed clinical condition and received responses from colleagues:

> *During a mid-day report, an HCP described a situation involving a patient with rectal bleeding. The bleeding was declining and seemed stable. Vital signs were measured, and all HCPs discussed the situation and possible signs related to the bleeding. Should the BP be low or high? They expressed uncertainty but concluded that the patient's general condition should be as normal as possible. The HCP who visited the patient described her as nauseous, dizzy, and with blood in her diapers. The other HCPs highlighted the importance of a low threshold for calling for help, as the situation could rapidly deteriorate and become dramatic. The HCP responsible for the patient should go back and measure a new set of vital signs. […] An assistant then states that she cannot measure vital signs. (Observation 7, homecare district A, report meeting)*

Expectations and coping level

Several HCPs reported that the CIP provided a structure to use in situations when a patient's clinical condition needed assessment. The ISBAR form, which they carried with them in the equipment bags and backpacks, was available and acted as guidance during clinical observations, as well as in communication with other healthcare professionals. The form clarified expectations of how to measure vital signs, and when used, the HCPs experienced improvements in communication.

In homecare district A, HCPs described increased coping related to situations of changes in patient condition and possible deterioration. Several discussed a feeling of improved self-confidence:

> *The skilled health worker tells the researcher that she thinks differently, feeling more engaged in clinical situations now. Before the CIP, she was insecure in situations where patients were deteriorating. She used to call colleagues vague in her descriptions of the situation. Prior to the programme, she said that she did not cope well with acute situations. Currently, she knows how to think – and what to do. (Observation 5, homecare district A, skilled health worker)*

The skilled health workers in homecare district A especially experienced a higher level of responsibility in measuring vital signs and had increasingly been taking care of deteriorating patients. Prior to the CIP, measuring vital signs was a nurse responsibility, and in situations of changed patient condition, the skilled health workers called a nurse and tried to describe the situation. In general, HCPs work quite autonomously in homecare, and as such, it is important to be able to cope in such situations. The nurses confirmed the view of the skilled health workers and explained that they more frequently

took the initiative in measuring vital signs. The managers acknowledged how skilled health workers had increased their responsibilities:

> *The CIP has demonstrated that skilled health workers possess the proper knowledge and manage to measure vital signs, resulting in increased self-confidence. This is also due to the fact that skilled health workers have detailed knowledge of the patients, as they regularly visit the same patients. (Individual interview 2, homecare district A, manager)*

In homecare district B, the HCPs used the ISBAR form infrequently and subsequently measured vital signs differently. Some HCPs could not remember the last time the form was used or when they measured patients' vital signs. Some explained that they measured vital signs more often when they did not know the patient. However, when the HCP needed to call the general practitioner, the emergency room, or the alarm central, the vital signs were always measured. In the telephone, the vital signs were asked for by the other healthcare professional, and there was an expectation to picture the patient's situation with the measurements of vital signs. This made them take vital signs before they called.

> *The nurse talks about a situation where a patient had a swollen foot, and when she visited the patient, she asked the questions she had learned and measured vital signs. She found that the foot was probably colder than the other. She told the patient that she was worried and wanted to call the emergency room. The nurse at the emergency room acknowledged all her assessments. The ambulance then arrived and picked up the patient. The nurse is not sure how the hospitalisation ended or whether it was a deep vein thrombosis. But for her, it was important that the assessment was done, and that the communication worked well. (Observation 4, homecare district B, nurse)*

HCPs reported a feeling of increased safety when they used the ISBAR form and that they should have used it and measured the vital signs more often.

The HCPs indicated that the CIP resulted in a common language when the patients had a change in patient condition. Previously, there was often a vague description of the patients' condition, and after the CIP, there was a concrete description of vital signs in combination with an explanation of the situation. A skilled health worker explained, 'It is like we are speaking the same language' (Observation 6, homecare district A, skilled health worker). In both homecare districts, this was especially highlighted in the situations of calling the general practitioner, the emergency room, or the alarm central. Including the vital signs in the description of the patients' situations made the recipient understand the seriousness of the situation.

> *The nurse states that she really likes the bags, backpacks, and the ISBAR form. She valued the form as a really good tool. She also finds that the expectations are clear as to when it is necessary to call a doctor. In those situations, the required vital signs are measured, the dialogue with the doctor is clearer, and the patient needs are communicated. (Observation 4, homecare district B, nurse)*

In homecare district A, the skilled health workers also experienced that it was now easier to receive help from nurses. They were all clearer and more explicit about the patients' problems, and it was easier for the nurse to understand the seriousness of the situation and prioritise:

> *In the car between home visits, the skilled health worker talks about how it is now easier to receive help from the nurses, as well as the frequency of their own calls directly to the doctor. Prior to the CIP, she says that it was sometimes different; one had to provide good arguments for getting help from the nurses. She describes this as "it's like we are now speaking the same language". (Observation 6, homecare district A, skilled health worker)*

The assistants' involvement in the CIP and their responsibility for measuring vital signs were previously unclear. Most assistants did not have formal health education, and therefore, their competence in measuring vital signs was low. This situation was discussed during CIP implementation. The two districts chose different approaches for assistants as part of the CIP. In homecare district A, the managers and professional development nurses decided that assistants were not qualified to measure vital signs. In situations with changes in patient condition and possible deterioration, the assistants were expected to notify a nurse. The assistants were included in the simulation to gain knowledge of when to call for help. The assistants described a feeling of safety when the managers were clear about their expectations. In homecare district B, the assistants were allowed to measure vital signs if they thought they managed.

Activities for sustained improvement

CIP activities were enacted in different ways in the two homecare districts. Homecare district A completed regular planned activities to sustain the focus of the CIP in HCPs' daily work. These activities included weekly simulations, discussions on measurement of vital signs, and requirements to bring and use equipment bags and

backpacks. The activities were highlighted as important by HCPs:

The nurse states that 'the weekly simulations work as important reminders of measurements and observation of changes. So are the huddle-board meetings, as measurements are often requested there. (Observation 9, homecare district A, nurse).

Weekly simulations were implemented and completed at the homecare office in which groups of HCPs gathered in accordance with their work plans. Simulations were considered an important arena for learning and sharing experiences:

The skilled health worker reflects on the fact that what they now do in the homecare districts is quite different from what they did before the CIP. There is currently an expectation that measurements of vital signs should be taken. The health worker described it as useful, including the simulation sessions. He/she still expresses an understanding of HCPs that are stressed about the simulations. 'We are not familiar with being observed while working – we work alone most of the time – so it creates a threshold for everyone's participation'. He/she explains that the simulation focuses on learning and sharing knowledge and experiences, which is really useful. HCPs are slowly becoming more familiar with the simulation setting than their first simulation experience. (Observation 11, homecare district A, skilled health worker).

The repetitions have helped a lot – the importance of doing it over and over again. It is simply not sufficient, with one or two sessions only. To sustain the skills and make HCP secure in measuring vital signs, it takes a few years. (Focus group interview 2, homecare district A, skilled health workers).

Homecare district B integrated simulation in its yearly activity plans, to take place normally in January/February, while simulation sessions had currently not been completed over the last year. Several HCPs missed the simulations and wanted them to be conducted more often. A skilled health worker explained that the simulations were 'put on hold', and she thought simulations were crucial to re-establishing the CIP and highlighting the focus on clinical observation. This was confirmed by the professional development nurse, the CIP required to be implemented again, and a focus on simulations should include the newly employed HCP to sustain their competence. Newly employed HCPs are currently informed by coincidence about the CIP. Some explained that they had heard about it but did not know the contents of the programme. This also included HCPs coming back after a leave, newly employed nurses, skilled health workers, assistants, and temporary staff working during vacations and weekends. A nurse experienced a situation in which a newly employed nurse had not received any follow-up:

The nurse states that new employees are not familiar with the CIP. They bring the bag or backpack at their home visits as everyone else, yet they lack knowledge of how to use the equipment. The nurse observed this during a weekend shift, where several HCPs did not know how to use the bag or backpack. Therefore, she concludes that the CIP needs a better and more systematic follow-up. (Observation 10, homecare district B, Nurse).

As a component of the CIP, the homecare districts received bags and backpacks with equipment for measuring vital signs. Several HCPs expressed the importance of having the necessary equipment, which also served as a reminder of the CIP in both homecare districts. The equipment was consistently brought into the car on a shift, but not all HCPs brought it into the patients' homes. Homecare district A organised a checklist for maintenance of the contents of the bags and backpacks and incorporated this into the scheduled workplans. Homecare district B lacked a system for maintenance of the bags and backpacks. The responsibility for refilling them was unclear and not included in their work plans. Some HCPs made sure that the bags and backpacks were updated, but many did not include this responsibility in their daily work. Thus, the degree to which equipment and forms were in place differed.

In homecare district A, clinical observation was a point of discussion in several meetings. At the patient safety dashboard meeting, all patients were systematically reviewed, and vital signs became a focus area after CIP implementation. The HCPs described the dashboard meetings as an arena for learning and improved knowledge. In homecare district B, this was missing. At the start of the CIP, the programme was discussed at meetings, and simulations were conducted as important reminders. The frequency of these activities decreased, and the priority and focus on the programme were low. Several HCPs expressed that they were not aware of the CIP. At the start of an evening shift, a skilled health worker expressed this lack of focus:

At the evening shift, a skilled health worker tells the researcher that she should have been more updated on the project. The health worker says that there has been a lack of focus on the project over the last year since they had the first simulations. Even though the simulations were both instructive and useful, the homecare district should have focused more on the

project throughout the year. (Observation 1, homecare district B, skilled health worker)

Organisational issues affecting CIP focus

The organisational situation was different in the two homecare districts, which affected their ability to focus on the CIP. Homecare district A focused on organisational needs to integrate simulations into the HCPs' predetermined workplans, resulting in an alteration of planned shifts to facilitate conducting the simulations. Moreover, expectations of measuring vital signs of new patients and when patients had fallen. In homecare district B, the organisational situation was challenging with a high number of sick leaves, HCP turnover, busy work plans, and reorganisation at the manager level, with several new managers being employed during the study period. The focus on the CIP was low. One manager explained this as follows:

The nursing manager says that the work in the homecare district is currently extremely busy, with high numbers of sick leaves and need for temporary staff. So, activities beyond patient care – issues that require more in-depth focus – are challenging. To put the daily work aside and prioritise other issues is very difficult. (Observation 10, homecare district B, manager).

HCPs experienced full workplans with little time available. One nurse explained,

There is no time available whatsoever for professional development. She refers to a meeting with the current manager, as such development is his/her responsibility. Yet, the nurse does not experience the manager being hands-on in the situation. (Observation 5, homecare district B, nurse).

The HCP turnover was high, which means both vacancies and many new employees who did not know the CIP. There was no strategy for how to involve new HCPs in the CIP. Some of the new HCPs were informed of the content of the CIP by colleagues, but this happened by chance.

During CIP implementation, homecare district B was reorganised, and a management position was refilled several times. A manager explained that she did not know the content of the CIP. She had heard about the programme, but she was not involved in it. She indicated that the CIP is the professional development nurse's responsibility.

The involvement of the managers differed in the two homecare districts. In homecare district A, the HCPs described receiving support from the managers. The project was prioritised in their daily work. The professional development nurse was especially highlighted as being engaged and important and a driving force in the project. In homecare district B, several HCPs felt that the managers were insufficiently involved in the CIP. The professional development nurse was primarily responsible for the programme, but it was not prioritised in the previous year. The professional development nurse indicated that it was challenging to fulfil the plan of the programme because of the busy and difficult situation at the homecare. The tasks as a professional development nurse were set aside, and most of the working hours were devoted to direct patient contact. The improvement work in the homecare was not sufficient and the professional development nurse described this as frustrating. There was a desire to work systematically with the CIP, but in daily work, it was not a priority: 'I have taken responsibility for the entire set of planning and implementation of CIP activities. In addition, there are follow-up activities, as the CIP needs maintenance' (Individual interview 3, homecare district B, professional development nurse).

The HCPs in homecare district B missed information and activities to sustain their focus on the programme.

The nurse expressed that she sees the project as quite important but that the current situation in the homecare district is frustrating with a lot of disturbances. She hopes that the leaders will become more involved in the project over time. (Observation 5, homecare district B, nurse).

Discussion

This study determined the outcomes of a CIP for the systematic observation of frail older patients in two homecare districts. The findings document different realities regarding observational competence in the two districts two years after CIP implementation. The differences were shaped by CIP implementation in the homecare districts as well as the contextual setting, including whether routines and planned activities were set to follow up the CIP, or whether organisational issues such as leadership focus, resources, and workforce stability supported the implementation of CIP. This confirms what the literature refers to as the 'know–do' gap [25], where the relationship between the contextual setting and the successful implementation of improvement efforts constitutes a challenge [25–27, 29, 43].

A vital component of observational competence in homecare is the measurement of the patient's vital signs. Since the implementation of the CIP, considerable differences have been observed in the frequency and practice of HCPs taking these measurements across the two homecare districts. In homecare district A, nurses and

skilled health workers were clearly expected to measure vital signs of new patients and after a patient's fall. This increased the frequency of vital sign measurements, which led to earlier detection of changes in patient condition and deterioration. However, besides new patients and cases of falls, the degree to which vital signs were measured when a change in patient condition was noticed was variable. By contrast, in homecare district B, the frequency of vital sign measurement continued to remain low after CIP. Several HCPs considered the need for measurements in homecare as generally redundant. Their knowledge of when to measure vital signs appeared to be low, consistent with the literature pointing to professionals' reduced autonomy, independence, inability to practise to full scope, and lack of confidence as barriers to the implementation of improvement efforts [29]. Furthermore, the daily activities of HCPs in homecare district B seem to have been driven primarily by predetermined task-oriented work plans, whereas new routines systematising observational competence seem to have had a positive impact on the work practices in homecare district A. These processes of formalisation of knowledge appear to encourage decision-making and remove uncertainty among the HCPs [8].

Beyond the routines related to measurement of vital signs for new patients and cases of fall, there is a need to consider additional routines for changed clinical conditions such as confusion, restlessness, cognitive changes, and physical changes. Clearly defined routines for only very specific clinical conditions support rule-based decisions, which have limitations and may not be applied in situations that go beyond the scope of the routine [44]. This is the case when a patient has a more diffuse change in condition that might evolve over time. Such situations require reasoning and understanding. Cappelletti et al. [9] described clinical decision-making as a movement from understanding to action. Furthermore, decision-making is a cognitive skill in need of different strategies for action, and in both the homecare districts of this study, the movement from knowledge to actual action was influenced by factors such as experience, educational level, working routines of the units, and time pressure [9, 44].

In homecare district A, weekly simulations, routinised measurement of vital signs for new patients and with patient falls, and discussion of patients' deterioration and changed clinical conditions at huddle-board meetings all ensured sustained knowledge following the CIP. CIP activities were integrated into the existing weekly activities and included in the homecare district's work plans, and leadership focus was sustained. In this case, knowledge translation took place as a new practice was embedded into routines and no longer challenged [45]. Additionally, the CIP was experienced as important and gave HCPs increased competence in detecting deteriorating patients. The CIP clarified expectations of how to measure vital signs and resulted in a feeling of increased coping levels. In homecare district B, the CIP gradually received low priority, the implementation became inactive, and HCPs were not engaged. This highlights an important difference between the two homecare districts in that the characteristics of the implementation process influenced the outcomes [29, 43]. The CIP required an 'active process' in which the individual HCPs were engaged in sustained activities to achieve results (43, s.3). Lau et al. [29] state that the implementation process involves how the improvement initiative is integrated into the exciting workflow of the organisation, how it gains relevant benefits, and how it promotes patient safety.

Contextual factors are also significant mechanisms affecting the changes induced by improvement initiatives [46–49]. The negative outcomes in homecare district B were explained by organisational issues, such as lack of leadership involvement, low workforce stability, and limited resources. The situation changed during the implementation period, and managers explained that focusing on 'activities beyond patient care – issues that require more in-depth focus' were challenging. Successful outcomes are as such dependent on an adaption of the improvement measure and a sufficient fit with the context [29, 43]. Stability in leadership positions crucially supports the implementation processes in primary care health services [29, 50], and contextual elements are vital in quality improvement initiatives [50, 51].

Limitations

The researchers' presence and role may have influenced the study participants. In particular, the first author was present in both homecare districts at regular intervals for several years and was therefore associated with the CIP by several HCPs. This may have influenced the responses given by the participants, who may have tried to adjust them to what they thought was appropriate. This possible bias has been addressed by using a mixed-method design, including interviews and conversations with HCPs, as well as real-life observations of their work practice. The first author's specialisation in nursing might also have influenced the HCPs' practice during observation. This was mitigated by not mentioning this background unless it was asked for. The nursing background further eased entry into homecare and was seen as an essential component in understanding the activities during home visits.

The study was conducted in two homecare districts in two municipalities in Norway, thereby precluding generalisability of our results. Nevertheless, detailed

descriptions of the methods and the consequent richness and variety of results might guide readers and future researchers to relate the results to other homecare contexts [30, 51].

Conclusion

This study documents the differences entailed in creating sustainable outcomes of an improvement programme for HCPs' competence in recognising and responding to deteriorating frail older patients. Depending on the CIP implementation process and the homecare context, HCPs enact the activities of the improvement programme differently. More specifically, in one of the homecare settings, vital signs were measured more frequently after CIP implementation, activities were established to sustain an increased focus on patient deterioration, and perceptions of an improved coping level among HCPs were common. Nevertheless, after 2 years, differences remained in situational awareness among HCPs and how they understand deterioration. In the other homecare setting, despite an increased expectation of measuring vital signs, they were continued to be measured infrequently. No activities were implemented to sustain the CIP, and organisational issues such as lack of routines, leadership involvement, resources, and workforce stability hindered a focus on competence improvement.

More research, both qualitative and quantitative is required to establish knowledge of the conditions predetermining successful outcomes of observational competence improvement in homecare. Longitudinal qualitative research in different settings and contexts can further our understanding of how HCPs engage in improvement activities and how they are influenced by implementation processes and contextual factors. Observational studies of homecare practices are especially important as they better grasp the "work-as-done" as opposed to the "work-as-explained". Quantitative surveys with HCPs self-reports of observational competence can furthermore measure the impact of improvement efforts in homecare. Combining surveys with observational studies in mixed methods designs will further expand this relatively new research field.

Abbreviations

HCP: homecare professional; CIP: Competence improvement programme; ISBAR form: a form made to structure observation of the patients' clinical conditions.

Supplementary Information

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Additional file 1.

Additional file 2.

Additional file 3.

Additional file 4.

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Authors' contributions

The first author (TS) conducted the participant observations, led the conversation in the focus groups and performed the individual interviews. The second author (IT) and third author (KA) observed, took field notes, and summarised the topics discussed in the focus group interviews. TS led the analysis process and coded the content, grouping the codes into sub-concepts and concepts. All authors read the data material and held several meetings through all steps of the analysis process to discuss and achieve a common understanding. TS drafted the manuscript, with substantial inputs from IT and KA. All authors have read and approved the final manuscript.

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Availability of data and materials

The datasets generated and/or analysed during the present study are not publicly available due to restrictions regarding individual privacy; however, anonymised data are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study was approved by the Norwegian Centre for Research Data (NSD; no. 54855). The participants were informed of their protected confidentiality and their right to withdraw at any time, and they provided written informed consent. A declaration of confidentiality was signed by the first author, who conducted the participant observations in the two homecare districts. All methods were conducted in accordance with the Norwegian National Research Ethics Committees [43].

Consent for publication

Not applicable.

Competing interests

No conflicts of interest have been declared by the authors.

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References

1. Genet N, Boerma WG, Kringos DS, Bouman A, Francke AL, Fagerström C, et al. Home care in Europe: a systematic literature review. BMC Health Serv Res. 2011. https://doi.org/10.1186/1472-6963-11-207.

2. Halcomb E, Stephens M, Bryce J, Foley E, Ashley C. Nursing competency standards in primary health care: an integrative review. J Clin Nurs. 2016. https://doi.org/10.1111/jocn.13224.
3. Tarricone R, Tsouros AD. Home care in Europe: the solid facts. In: Tarricone R, Tsouros AD, editors.: WHO Regional Office Europe; 2008. https://www.euro.who.int/__data/assets/pdf_file/0005/96467/E91884.pdf. Accessed 7 Oct 2019.
4. Dent E, Martin FC, Bergman H, Woo J, Romero-Ortuno R, Walston JD. Management of frailty: opportunities, challenges, and future directions. Lancet. 2019. https://doi.org/10.1016/S0140-6736(19)31785-4.
5. Gobbens RJ, Luijkx KG, Wijnen-Sponselee MT, Schols JM. Toward a conceptual definition of frail community dwelling older people. Nurs Outlook. 2010. https://doi.org/10.1016/j.outlook.2009.09.005.
6. Hoogendijk EO, Afilalo J, Ensrud KE, Kowal P, Onder G, Fried LP. Frailty: implications for clinical practice and public health. Lancet. 2019. https://doi.org/10.1016/S0140-6736(19)31786-6.
7. Odell M, Victor C, Oliver D. Nurses' role in detecting deterioration in ward patients: systematic literature review. J Adv Nurs. 2009. https://doi.org/10.1111/j.1365-2648.2009.05109.x.
8. Gray E, Currey J, Considine J. Hospital in the home nurses' assessment decision making: an integrative review of the literature. Contemp Nurse. 2018. https://doi.org/10.1080/10376178.2018.1532802.
9. Cappelletti A, Engel JK, Prentice D. Systematic review of clinical judgment and reasoning in nursing. J Nurs Educ. 2014. https://doi.org/10.3928/01484834-20140724-01.
10. Golden AG, Tewary S, Dang S, Roos BA. Care Management's challenges and opportunities to reduce the rapid Rehospitalization of frail community-dwelling older adults. Gerontologist. 2010. https://doi.org/10.1093/geront/gnq015.
11. Bing-Jonsson PC, Bjørk IT, Hofoss D, Kirkevold M, Foss C. Competence in advanced older people nursing: development of 'Nursing older people - competence evaluation tool'. Int J Older People Nursing. 2015. https://doi.org/10.1111/opn.12057.
12. Genet N, Boerma W, Kroneman M, Hutchinson A, Saltman RB. Home Care across Europe – Current structure and future challenges. WHO, World Health Organization; 2012. file:///C:/Users/2912514/Downloads/9789289002882-eng%20(1).pdf.
13. Eraut M. Concepts of competence. J Interprof Care. 1998. https://doi.org/10.3109/13561829809014100.
14. Boyatzis RE. The competent manager: a model for effective performance: Wiley; 1982.
15. Cowan DT, Norman I, Coopamah VP. Competence in nursing practice: a controversial concept - a focused review of literature. Nurse Educ Today. 2005. https://doi.org/10.1016/j.nedt.2005.03.002.
16. ICN International Council of Nursing. Scope of Nursing Practice and Decision-Making Framework TOOLKIT. In: Nursing IICo, editor. Geneva, Switzerland: Consultant Nursing and Health Policy. International Council of Nurses; 2010.
17. Tanner CA. Thinking like a nurse: a research-based model of clinical judgment in nursing. J Nurs Educ. 2006;45(6).
18. Vabø M, Christensen K, Jacobsen FF, Trætteberg HD. Marketisation in Norwegian eldercare: preconditions, trends and resistance. In: Meagher G, Szebehely M, editors. Marketisation in Nordic eldercare: a research report on legislation, oversight, extent and consequen. Department of social work: Stockholm University; 2013.
19. Holm SG, Mathisen TA, Sæterstrand TM, Brinchmann BS. Allocation of home care services by municipalities in Norway: a document analysis. BMC Health Serv Res. 2017. https://doi.org/10.1186/s12913-017-2623-3.
20. Andersson H, Lindholm M, Pettersson M, Jonasson L-L. Nurses' competencies in home healthcare: an interview study. BMC Nurs. 2017. https://doi.org/10.1186/s12912-017-0264-9.
21. Fjørtoft AK, Oksholm T, Førland O, Delmar C, Alvsvåg H. Balancing contradictory requirements in home care nursing—a discourse analysis. Nurs Open. 2020. https://doi.org/10.1002/nop2.473.
22. Flöjt J, Hir UL, Rosengren K. Need for preparedness: nurses' experiences of competence in home health care. Home Health Care Manag Pract. 2014. https://doi.org/10.1177/1084822314527967.
23. Bing-Jonsson PC, Foss C, Bjørk IT. The competence gap in community care: imbalance between expected and actual nursing staff competence. Nordic J Nurs Res. 2016. https://doi.org/10.1177/0107408315601814.
24. Strømme T, Aase K, Tjoflåt I. Home care professionals' observation of deteriorating, frail older patients: a mixed-methods study. J Clin Nurs. 2020. https://doi.org/10.1111/jocn.15255.
25. Straus S, Tetroe J, Graham ID. Knowledge translation in health care: moving from evidence to practice. Somerset: Wiley; 2013.
26. Marshall M, Mountford J. Developing a science of improvement. J R Soc Med. 2013. https://doi.org/10.1177/0141076812472622.
27. Stetler CB, Ritchie J, Rycroft-Malone J, Schultz A, Charns M. Improving quality of care through routine, successful implementation of evidence-based practice at the bedside: an organizational case study protocol using the Pettigrew and Whipp model of strategic change. Implement Sci. 2007. https://doi.org/10.1186/1748-5908-2-3.
28. Wensing M, Grol R, Grimshaw J. Improving patient care: the implementation of change in health care. Hoboken, New Jersey, Chichester, West Sussex, England: Wiley Blackwell; 2020.
29. Lau R, Stevenson F, Ong BN, Dziedzic K, Treweek S, Eldridge S, et al. Achieving change in primary care—causes of the evidence to practice gap: systematic reviews of reviews. Implement Sci. 2015. https://doi.org/10.1186/s13012-016-0396-4.
30. Polit DF, Beck CT. Essentials of nursing research: appraising evidence for nursing practice. 9th ed. Philadelphia, PA: Wolters Kluwer; 2018.
31. Patton MQ. Qualitative research & evaluation methods: Integrating theory and practice. 4th ed: SAGE; 2015.
32. Strømme T, Tjoflåt I, Aase K. Systematic Observation of Frail Older Patients in Home care–Implementing a Competence Improvement Program. Tidsskrift for omsorgsforskning 2020; doi: https://doi.org/10.18261/issn.2387-5984-2020-02-03.
33. Morse JM. Mixing qualitative methods. Qual Health Res. 2009. https://doi.org/10.1177/1049732309349360.
34. Health and Care Services Act. ACT relating to municipal health and care services (ACT-2011-06-24). Lovdata. 2011; https://lovdata.no/dokument/NL/lov/2011-06-24-30/KAPITTEL_1#%C2%A71-1.
35. Morgan DL. Focus groups as qualitative research. 2nd ed. Thousand Oaks, CA: Sage Publications; 1997.
36. DeWalt KM, DeWalt BR. Participant observation: a guide for fieldworkers. 2nd ed. DeWalt BR, editor. Lanham, MD: AltaMira Press; 2011.
37. Brinkmann S. The interview. The SAGE handbook of qualitative research: Sage Publications; 2018. p. 576–99.
38. Elo S, Kyngäs H. The qualitative content analysis process. J Adv Nurs. 2008. https://doi.org/10.1111/j.1365-2648.2007.04569.x.
39. Kyngäs H, Mikkonen K, Kääriäinen M. The application of content analysis in nursing science research. Cham: Springer; 2020.
40. Morse JM, Niehaus L. Mixed method design: principles and procedures. Walnut Creek, Calif: Left Coast Press; 2009.
41. Morse J. Simultaneous and sequential qualitative mixed method designs. Qual Inquiry. 2010. https://doi.org/10.1177/1077800410364741.
42. Guillemin M, Gillam L. Ethics, reflexivity, and "ethically important moments" in research. Qual Inquiry. 2004. https://doi.org/10.1177/1077800403262360.
43. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009. https://doi.org/10.1186/1748-5908-4-50.
44. Flin R, Crichton M, O'Connor P. Safety at the sharp end: a guide to non-technical skills: Ashgate publishing. Ltd. 2013.
45. May C, Finch T. Implementing, embedding, and integrating practices: an outline of normalization process theory. Sociology. 2009. https://doi.org/10.1177/0038038509103208.
46. Coles E, Wells M, Maxwell M, Harris FM, Anderson J, Gray NM, et al. The influence of contextual factors on healthcare quality improvement initiatives: what works, for whom and in what setting? Protocol for a realist review. Syst Rev. 2017. https://doi.org/10.1186/s13643-017-0566-8.
47. Dixon-Woods M. The problem of context in quality improvement. Perspectives on context London. Health Foundation. 2014;87-101 https://www.health.org.uk/sites/default/files/PerspectivesOnContextDixonWoodsTheProblemOfContextInQualityImprovement.pdf.
48. Kaplan HC, Brady PW, Dritz MC, Hooper DK, Linam WM, Froehle CM, et al. The influence of context on quality improvement success in health care: a systematic review of the literature. Milbank Q. 2010. https://doi.org/10.1111/j.1468-0009.2010.00611.x.

49. Batalden PB, Davidoff F. What is "quality improvement" and how can it transform healthcare? BMJ Qual Saf. 2007. https://doi.org/10.1136/qshc.2006.022046.
50. Johannessen T, Ree E, Aase I, Bal R, Wiig S. Exploring managers' response to a quality and safety leadership intervention: findings from a multiple case study in Norwegian nursing homes and home care services. BMJ Open Quality. 2021. https://doi.org/10.1136/bmjoq-2021-001494.
51. Denzin NK, Lincoln YS. The SAGE handbook of qualitative research. 5th ed. Los Angeles, CA: Sage; 2018.

Publisher's Note

Appendices

Appendix 1. *Observation guide (study 1)*

Studie 1, observasjonsguide – helsepersonell (sykepleiere, helsefagarbeidere og assistenter) i hjemmetjenesten.

Eksisterende /dagens praksis knyttet til observasjonskompetanse		
1	**Planlegging av dagen**	
2	**Gjennomgang av dokumentasjon, rapport**	
3	**Pasient og helsepersonell møtet**	
3a	**Systematisk observasjon (ABCDE):**	
	Vurdering av uro, mental status endring, bevissthet	
	Vurdering av endret ADL og egenomsorg	
	Respirasjon (frekvens, kvalitet og O_2 metning)	
	Puls, BT og temperatut	
	Andre observasjoner/ funn	
	Bruk av verktøy, tilgengelig utstyr	
	Bruk av målrettet kommunikasjon, bruk av inspeksjon, perkusjon, palpasjon og auskultasjon	
4	**Refleksjon og diskusjon**	
4a	**Refleksjon i praksis:**	
	Vurdering av pasientens status	
	Sammenligner med tidligere funn/ status	
4b	**Refleksjon over praksis:**	
	Refleksjon og eller evaluering etter situasjon med pasienter i endret eller forverret klinisk tilstand	
	Diskusjon om situasjoner sammen med kolleger i hjemmesykepleien	
	Diskusjon om situasjoner med helsearbeidere utenfor hjemmesykepleien	

	(lege, akutt avdelinger i kommunen, spesialisthelsetjenesten)	
5	**Kommunikasjon**	
	med pasient/pårørende	
	med kolleger i hjemmesykepleien	
	med helsearbeidere utenfor hjemmesykepleien	
	Strukturert kommunikasjon (ISBAR)	
6	**Dokumentasjon**	
7	**Krav i jobbsituasjonen**	
	Arbeidsoppgaver /fordeling	
	Funksjon	
	Opplevd mestring	
8	**Arbeidsmiljø**	
	Tid	
	Samarbeid	
	Struktur og system	
	Kontekst	

Appendix 2*. Focus group interview guide (study 1 and 2)*

Studie 1, intervjuguide fokusgruppe helsepersonell (sykepleiere, helsefagarbeidere og assistenter)

Observasjon av pasienter i klinisk forverring i hjemmetjenesten - før innføring av kompetanseprogrammet.

SPØRSMÅL:

1) Kan dere fortell kort om dere selv (alder, utdannelse og erfaring)
2) Når dere oppdager at en pasient blir dårlig, eller du lurer på om pasienten er i ferd med å bli dårlig – hvordan oppdager dere det? Hva legger dere merke til? Hvilke observasjoner gjør dere? Hva ser dere etter?
    a. Tar dere noen vitale målinger? I tilfelle hvilke?
    b. Gjør dere vurdering av observasjonene? I tilfelle hvordan?
    c. Har hjemmetjenesten noen faste rutiner knyttet til observasjon av pasienters kliniske status/situasjon? Når gjør du disse observasjonene?
    d. Når du kommer på en ny vakt - hvordan får du beskjed om pasientens kliniske tilstand?
    e. Kan dere fortelle om hvordan dere dokumentere pasientens kliniske situasjon?
3) Kan dere fortell om erfaringer eller konkrete eksempler knyttet til pasienter som ble klinisk dårlige/ hadde endret klinisk situasjon/var i forverring?
        i. Fortell om observasjonene og vurderingene dere gjorde i denne situasjonen.
        ii. Hvem samarbeidet dere med når dere oppdaget/hadde denne dårlige pasienten?
        iii. Samarbeidet dere med noen andre? (andre helsepersonell i hjemmetjenesten, fastlege, legevakt og spesialisthelsetjenesten?)
        iv. Hvordan opplevde/erfarte dere disse situasjonene?
4) Hvilken kjennskap har dere til kompetanseprogrammet «i trygge hender/ABCDE»?
    a. Vet dere hva det handler om?
    b. Kjenner dere til noe av innholdet?
    c. Hvilke forventninger har dere til programmet og hva det kan bety for deg?
    d. Har dere fått informasjon om programmet? I tilfelle hvordan?
    e. Har dere deltatt på fagdag og/eller simulering?
5) Hva er det her i hjemmetjenesten som dere tenker fremmer/hemmer oppdagelse av pasient i klinisk forverring? (Faktorer utenom de selv)
    a. Organisering (soner og grupper, fordeling av pasienter)
    b. Ledelse
    c. Kunnskap og kompetanse
    d. Kommunikasjon
    e. Arbeidsmiljø
    f. Rutiner
    g. Utstyr

6) Er det vanlig med faglige samtaler eller debrief etter dere har vært i situasjoner med dårlige pasienter/ pasienter i forverring?
7) Oppsummering/ gjennomgang av det vi har snakket om (av moderator)
    a. Er det noe dere ønsker å tilføye?

Appendix 3*. Observation guide (study 2)*

Studie 2, Observasjon Kurs/fagdag, simulering og møter

Innføring av kompetanseprogrammet «I trygge hender».

Innføring av kompetanseprogrammet		
1	**KURS/FAGDAG**	
	Deltakere (antall, fordeling på de to hjemmetjenestene)	
	Program	
	Forelesere:	
	- Innhold i forelesing/undervisning	
	- Foreleseres engasjement	
	Deltakerne:	
	- Engasjement i forelesing for eksempel ved å stille spørsmål etc	
	- Tilbakemeldinger erfaringer	
	Annet innhold: lunch/ grupper - anledning til samhandling?	
	Lengde	
2	**SIMULERING**	
	Deltakere (antall, kompetanse)	
	Briefing	
	- Gjennomgang av simuleringen?	
	- Læringsmål?	
	- Rommet og utstyr?	
	Caset/scenariet	
	- Aktive deltakere	
	- Deltakere som observatører	

	- Gjennomføring av simulering	
	Debrifing	
	- Tema for gjennomgang	
	- Aktive debrifing	
	Fasilitator og operatør?	
	Vurdering av fasilitator/operatør	
	Deltakernes tilbakemelding	
	Vurdering av gjennomføring	
3	**MØTER**	
	Tilstede	
	Agenda	
	Diskusjon	

Appendix 4*. Individual interview guide (study 2)*

Studie 2_ Individuelt intervjue ledere og fagsykepleiere

- Fortell kort om deg selv (alder, utdannelse og erfaring)
- Hva er funksjon- og arbeidsområdet ditt?
- Beskriv hvordan hjemmetjenesten er organisert.
    - Hva er bakgrunnen for denne organiseringen?

- Hva tenker du ligger i begrepet kvalitet og sikkerhet i helsetjenesten?
- Hvordan arbeider avdelingen med kvalitet og sikkerhet? Hvilke aktiviteter inngår? Hvem er nøkkelpersoner?

ARBEIDET MED KOMPETANSEUTVIKLING I AVDELINGEN

- Hva tenker du ligger i kompetansebegrepet?
- Hvilke tanker har du om kompetansebehovet i hjemmetjenesten? Opplever du at kompetansebehovet har endret seg og i tilfelle hvordan?
- Hvordan jobber dere for å møte dette kompetansebehovet (individuelt, organisatorisk)?
- Hva vektlegger dere knyttet til kompetanse i avdelingen? (oppgaver, system, profesjonell etc).
- Hvordan opplever du at læring foregår i avdelingen/ Hvilke metoder for læring bruker dere (undervisning, refleksjon, anvende konkrete situasjoner)?
- Beskriv hvilken opplæring nye ansatte får i avdelingen (eks sommervikarer)?
- Dere har mange ulike yrkesgrupper, hvordan tilpasser dere kompetanseutviklingen?
- Har dere oversikt over den ansattes kompetanse?

- Hva tenker du hemmer/fremmer arbeidet med kompetanse i avdelingen?
    - Individuelt
    - Organisatorisk

En er nå i gang med et forbedringsprosjekt knyttet til systematisk observasjon og oppdagelse av pasienter i forverring.

- Hva inneholder forbedringsprosjektet ABCDE?
    - Hva er hensikt
    - Hvilke forventninger har du knyttet til effekt?
    - Hva er ditt ansvar i prosjektet?
    - Hvordan har dere til nå jobbet med implementeringen (fagdag, e-lærings verktøy, annen undervisning, simulering)?
    - Hva opplever du er bra?
    - Er det utfordringer i prosjektet
    - Hvordan er samarbeidet med leder og utviklingssenteret?
    - Hva fungerer bra?
    - Beskriv hvordan det er å engasjere de ansatte i prosjektet?

KLINISK OBSERVASJON

- Hvilke faste rutiner har der knyttet til systematisk klinisk observasjon?
- Hva er helsearbeidernes ansvar knyttet til pasienter som er klinisk dårlig/ er i klinisk forverring (sykepleier, helsefagarbeider, pleiemedhjelper/assistent)?
- Er det utfordringer knyttet til systematisk klinisk observasjon i avdelingen? Og i tilfelle hvilke?
    - Hva tenker du fremmer/hemmer at helsearbeideren oppdaget at pasienten var dårlig/ i forverring?
    - Hvilke tilbakemeldinger får du på helsearbeidernes opplevelse av å ha ansvar for klinisk dårlige pasienter i hjemmesykepleien?
    - Hvilken kompetanse vurderer du helsearbeiderne har behov for å ivareta pasienter i klinisk forverring?
    - Hvordan er samarbeidet knyttet til dårlige pasienter (i avdelingen/ i kommunen/ tverretatlig)
- Hvordan fordeles de ulike pasientene på de ulike helsepersonellet (med ulik kompetanse)? (Sammenheng mellom krav og kompetanse)
- Hva vurderer du som de store utfordringene knyttet til innføring av undervisningsprogrammet og nye rutiner?

Til slutt – er det noe du vil tilføye knyttet til temaet?

Appendix 5*. Observation guide (study 3)*

Studie 3_ Observasjonsguide - resultat av kompetanseprogrammet

Helsepersonells observasjonskompetanse i hjemmetjenesten

Eksisterende /dagens praksis knyttet til observasjonskompetanse		
1	**Planlegging av dagen**	
	- Gjennomgang av dokumentasjon, rapport	
	- Rapport	
	- Klargjøring av utstyr	
2	**Møtet mellom pasient og helsepersonell**	
a	Kommunikasjon	
b	Systematisk observasjon (ABCDE):	
	Vurdering av uro, mental status, bevissthet, fysiske endring	
	Vurdering av vitale mål (respirasjons frekvens, puls og BT)	
	Systematisk vurdering av vitale mål	
	Andre observasjoner som blodsukker eller urinstix	
	Anvender ISBAR skjemaet, ABCDE eller NEWS	
	Bruk tilgengelig utstyr i bag og rykksekk.	
3	**Refleksjon og diskusjon**	
	Med andre kollegaer	
	I møter eller i rapport	
4	**Kommunikasjon**	
	Med pasienter og pårørende	
	med kolleger i hjemmesykepleien	
	Andre helsepersonell utenfor hjemmetjenesten (eks telefon med fastlege, legevakt eller sykehus)	
5	**Organisatorisk situasjon**	

Appendix 6. *Focus group interview guide (study 3)*

Studie 3_ Fokusgruppeintervju helsepersonell (sykepleiere, helsefagarbeidere og assistenter)

1. Kan dere fortelle kort om dere selv (alder, utdannelse og erfaring)?
2. Alt i alt - hvordan tenker dere det har gått med kompetanseprogrammet «i trygge hender»?
3. Kan dere fortelle om erfaringer knyttet til kompetanseprogrammet?
    - Hvilke deler av kompetanseprogrammet har du tatt del i?
    - Hvordan vurderer du de ulike delene av kompetanseprogrammet (kompendium, undervisningsdag, e – lærings modul, simulering, utstyrsbagene og sekkene, ISBAR skjemaet)?
    - Implementeringen/iverksettingen av kompetanseprogrammet?
    - Hvordan har du vært involvert i kompetanseprogrammet?

4. Hva tenker dere (erfarer) er resultatet av kompetanse programmet?
    a. For praksis av hjemmetjenesten?
        - Rutiner knyttet til klinisk vurdering av pasientene?
        - Er det endringer knyttet til måten helsepersonalet jobber med observasjon og vurdering av pasienter i klinisk forverring? I tilfelle hvordan?
        - Hva oppfatter dere har fungert/ ikke har fungert?

    b. For helsepersonell i hjemmetjenesten?
        - Har kompetanseprogrammet endret måten helsepersonell reflekterer knyttet til klinisk observasjon og vurdering i møte med pasienter? I tilfelle hvordan kommer dette til uttrykk?
        - Hvordan erfarer du at helsepersonellets observasjonskompetanse kommer til uttrykk? Noen endringer etter kompetanseprogrammet?
        - Tenker/Erfarer du, at helsepersonellet i hjemmetjenesten har kompetansen som kreves for å oppdage pasienter i klinisk forverring? Hvorfor?

    c. For pasientene i hjemmetjenesten?
        - Har kompetanseprogrammet hatt betydning for omsorgen/behandlingen pasientene i hjemmetjenesten får? I tilfelle hvordan?
        - Har du noen konkrete situasjoner på hvordan helsepersonell har håndtert pasienter som er klinisk dårlig/ har blitt dårlige?

5. Tenker dere at Kompetanseprogrammet «i trygge hender» har gått fra å være et prosjekt til å være en del av praksis i hjemmetjenesten?
    a. I tilfelle hvorfor
    b. Hva har fremmet dette/hemmet dette?
    c. Hva må til for at prosjektet skal være en del av dagens praksis?
    d. Hvordan bidrar ansatte til endring/ bidrar ikke til endring?
    e. Hvordan bidrar du som leder/ i avdelingen bidrar/ bidrar ikke til endring?
6. Tenker dere at dette prosjektet har vært en suksess?
    a. i tilfelle hvorfor

7. Annet du ønsker å tilføye?

TUSEN TAKK!

Appendix 7. ***Individual interview guide (study 3)***

Studie 3_ Individuelt Intervju ledere og fagsykepleiere

1. Fortell kort om deg selv (alder, utdannelse og erfaring)
2. Hvordan tenker du det har det gått med kompetanseprogrammet «i trygge hender»?
3. Kan dere fortelle om erfaringer knyttet til kompetanseprogrammet?
    - Hvilke deler av kompetanseprogrammet har du tatt del i?
    - Hvordan vurderer du de ulike delene av kompetanseprogrammet (kompendium, undervisningsdag, e – lærings modul, simulering, utstyrsbagene og sekkene, ISBAR skjemaet)?
    - Hvordan har du vært involvert i kompetanseprogrammet?
    - Hvordan tenker dere selve iverksettingen av programmet fungerte?

4. Hva tenker du (erfarer) er resultatet av kompetanse programmet?
    a. For praksis av hjemmetjenesten?
        - Rutiner knyttet til klinisk vurdering av pasientene?
        - Er det endringer knyttet til måten helsepersonalet jobber med observasjon og vurdering av pasienter i klinisk forverring? I tilfelle hvordan?
        - Hva oppfatter dere har fungert/ ikke har fungert?

    b. For helsepersonell i hjemmetjenesten?
        - Har kompetanseprogrammet endret måten helsepersonell reflekterer knyttet til klinisk observasjon og vurdering i møte med pasienter? I tilfelle hvordan kommer dette til uttrykk?
        - Hvordan erfarer du at helsepersonellets observasjonskompetanse kommer til uttrykk? Noen endringer etter kompetanseprogrammet?
        - Tenker/Erfarer du, at helsepersonellet i hjemmetjenesten har kompetansen som kreves for å oppdage pasienter i klinisk forverring? Hvorfor?

    c. For pasientene i hjemmetjenesten?
        - Har kompetanseprogrammet hatt betydning for omsorgen/behandlingen pasientene i hjemmetjenesten får? I tilfelle hvordan?
        - Har du noen konkrete situasjoner på hvordan helsepersonell har håndtert pasienter som er klinisk dårlig/ har blitt dårlige?

5. Tenker dere at Kompetanseprogrammet «i trygge hender» har gått fra å være et prosjekt til å være en del av praksis i hjemmetjenesten?
    a. I tilfelle hvorfor
    b. Hva har fremmet dette/hemmet dette?
    c. Hva må til for at prosjektet skal være en del av dagens praksis?
    d. Hvordan bidrar ansatte til endring/ bidrar ikke til endring?
    e. Hvordan bidrar du som leder/ i avdelingen bidrar/ bidrar ikke til endring?
6. Tenker dere at dette prosjektet har vært en suksess?
    a. i tilfelle hvorfor
7. Annet du ønsker å tilføye?

TUSEN TAKK!

Appendix 8. *NSD approval*

Siri Wiig
Institutt for helsefag Universitetet i Stavanger
Ullandhaug
4036 STAVANGER

Vår dato: 03.03.2017 Vår ref: 52324 / 3 / IJJ Deres dato: Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 19.01.2017. Meldingen gjelder prosjektet:

52324	*Ledelse av kvalitet og sikkerhet i primærhelsetjenesten – SAFE-LEAD Primary Care (Fase 1)*
Behandlingsansvarlig	*Universitetet i Stavanger, ved institusjonens øverste leder*
Daglig ansvarlig	*Siri Wiig*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/meldeplikt/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://pvo.nsd.no/prosjekt.

Personvernombudet vil ved prosjektets avslutning, 31.12.2021, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Ida Jansen Jondahl

Kontaktperson: Ida Jansen Jondahl tlf: 55 58 30 19
Vedlegg: Prosjektvurdering

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Personvernombudet for forskning

Prosjektvurdering - Kommentar

Prosjektnr: 52324

NASJONAL SAMARBEIDSSTUDIE

Prosjektet er en nasjonal samarbeidsstudie. Universitetet i Stavanger er behandlingsansvarlig institusjon. Personvernombudet forutsetter at ansvaret for behandlingen av personopplysninger er avklart mellom institusjonene. Vi anbefaler at det inngås en avtale som omfatter ansvarsfordeling, ansvarsstruktur, hvem som initierer prosjektet, bruk av data og eventuelt eierskap.

DATAMATERIALETS INNHOLD

Vurderingen gjelder individuelle intervjuer og gruppeintervjuer med ledere ved sykehjem og i hjemmesykepleien. Dersom det i senere faser av prosjektet skal samles inn ytterligere nye personopplysninger, må dette meldes som en endringsmelding i god tid før datainnsamlingen skal starte.
http://www.nsd.uib.no/personvern/meldeplikt/skjema.html

INFORMASJON OG SAMTYKKE

Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. De reviderte informasjonsskrivene, mottatt 03.03.2017, er godt utformet.

INFORMASJONSSIKKERHET

Personvernombudet legger til grunn at forsker følger Universitetet i Stavanger sine rutiner for datasikkerhet. Dersom personopplysninger skal sendes elektronisk, bør opplysningene krypteres tilstrekkelig.

PROSJEKTSLUTT OG ANONYMISERING

Forventet prosjektslutt er 31.12.2021. Ifølge prosjektmeldingen skal innsamlede opplysninger da anonymiseres. Anonymisering innebærer å bearbeide datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjøres ved å:

- slette direkte personopplysninger (som navn/koblingsnøkkel)
- slette/omskrive indirekte personopplysninger (identifiserende sammenstilling av bakgrunnsopplysninger som f.eks. bosted/arbeidssted, alder og kjønn)
- slette digitale lydopptak

Siri Wiig
Serviceboks 604
4809 ARENDAL

Vår dato: 15.08.2017 Vår ref: 54855 / 3 / STM Deres dato: Deres ref:

Tilbakemelding på melding om behandling av personopplysninger

Vi viser til melding om behandling av personopplysninger, mottatt 23.06.2017.
Meldingen gjelder prosjektet:

54855	*Ledelse av kvalitet og sikkerhet i primærhelsetjenesten - SAFE-LEAD Primary Care (Fase 2)*
Behandlingsansvarlig	*Universitetet i Stavanger, ved institusjonens øverste leder*
Daglig ansvarlig	*Siri Wiig*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database.

Personvernombudet vil ved prosjektets avslutning, 31.07.2023, rette en henvendelse angående status for behandlingen av personopplysninger.

Dersom noe er uklart ta gjerne kontakt over telefon.

Vennlig hilsen

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Marianne Høgetveit Myhren

Siri Tenden Myklebust

Kontaktperson: Siri Tenden Myklebust tlf: 55 58 22 68 / Siri.Myklebust@nsd.no
Vedlegg: Prosjektvurdering

Personvernombudet for forskning

Prosjektvurdering - Kommentar

Prosjektnr: 54855

Dette er fase to av prosjektet Ledelse av kvalitet og sikkerhet i primærhelsetjenesten – SAFE-LEAD Primary Care. Fase 1 er meldt med prosjektnummer 52324.

Prosjektet er en internasjonal samarbeidsstudie. Universitetet i Stavanger er behandlingsansvarlig institusjon for den norske delen. Personvernombudet forutsetter at ansvaret for behandlingen av personopplysninger er avklart mellom institusjonene. Vi anbefaler at det inngås en avtale som omfatter ansvarsfordeling, ansvarsstruktur, hvem som initierer prosjektet, bruk av data og eventuelt eierskap.

UTVALG OG DATA
Utvalget består av helsepersonell og ledere på ulike nivå i sykehjem og hjemmetjenesten i et utvalg norske kommuner samt helsepersonell og ledere i et sykehjem i Nederland.

Data samles inn ved hjelp av intervjuer og observasjon. Dersom det i senere faser av prosjektet skal samles inn personopplysninger ved hjelp av andre metoder, må dette meldes som en endringsmelding i god tid før datainnsamlingen skal starte: http://www.nsd.uib.no/personvernombud/meld_prosjekt/meld_endringer.html

DISPENSASJON FRA TAUSHETSPLIKTEN
Det vil inngå observasjon av arbeidspraksis. Vi forstår det slik at pasienter vil være til stede under observasjonene. Ettersom forskerne vil få innsyn i taushetsbelagt informasjon er det vår vurdering at det må foreligge en dispensasjon fra taushetsplikten fra REK. Vi forutsetter at dere avklarer dette med REK.

Personvernombudet forutsetter at studien gjennomføres etter alle forutsetninger og vilkår REK eventuelt setter, og vi ber om at tillatelsen ettersendes til personvernombudet@nsd.no.

INFORMASJON OG SAMTYKKE
Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. Informasjonsskrivet er i all hovedsak godt utformet, men informasjonen i avsnittet som omhandler tilgang må presiseres. Det må fremgå klart av skrivet hvem som skal ha tilgang til data med personopplysninger. Videre må det opplyses om at innsamlet data vil brukt i to masteroppgaver. Navn på masterstudenter bør også påføres skrivet.

Revidert informasjonsskriv skal sendes til personvernombudet@nsd.no før utvalget kontaktes.

TILGANG
Eline Ree, Universitetet i Stavanger
Terese Johannessen, Universitetet i Stavanger
Marianne Storm, Universitetet i Stavanger

Karina Aase, Universitetet i Stavanger
Torunn Strømme, Universitetet i Stavanger
Lene Schibevaag, Universitetet i Stavanger
Line Hurup Thomsen, USHT Rogaland, Stavanger kommune
Elisabeth Holen-Rabbersvik, Universitetet i Stavanger
Berit Ullebust, USHT Sogn og Fjordane, Førde kommune
Espen Kolstø (masterstudent, Universitetet i Stavanger)
Eleni Calameti (masterstudent, Universitetet i Stavanger)

DATASIKKERHET
Personvernombudet legger til grunn at forskerne etterfølger Universitetet i Stavanger sine interne rutiner for datasikkerhet.

DATABEHANDLERAVTALE
Det kan bli aktuelt å benytte databehandler i prosjektet. Universitetet i Stavanger skal inngå skriftlig avtale med eventuell databehandler om hvordan om hvordan personopplysninger skal behandles, jf. personopplysningsloven § 15. For råd om hva databehandleravtalen bør inneholde, se Datatilsynets veileder: http://www.datatilsynet.no/Sikkerhet-internkontroll/Databehandleravtale/.

PROSJEKTSLUTT OG ANONYMISERING
Forventet prosjektslutt er 31.07.2023. Ifølge prosjektmeldingen skal innsamlede opplysninger da anonymiseres. Anonymisering innebærer å bearbeide datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjøres ved å:
- slette direkte personopplysninger (som navn/koblingsnøkkel)
- slette/omskrive indirekte personopplysninger (identifiserende sammenstilling av bakgrunnsopplysninger som f.eks. bosted/arbeidssted, alder og kjønn)
- slette digitale lydopptak

Vi gjør oppmerksom på at også databehandler må slette personopplysninger tilknyttet prosjektet i sine systemer.

Appendix 9. *REK assessment*

From: post@helseforskning.etikkom.no
To: Siri Wiig
Subject: Ikke fremleggingspliktig
Date: 31. august 2017 14:46:40

Vår ref. nr.: 2017/1669
Prosjekttittel: "Ledelse av kvalitet og sikkerhet i primærhelsetjenesten "
Prosjektleder: Siri Wiig

Til Siri Wiig.

Jeg viser til framleggingsvurdering innsendt 21.08.2017. REK vest ved sekretariatet vurderte saken.

Vår forståelse av prosjektet
Hovedformålet er å bygge ledelseskompetanse innen kvalitet og sikkerhet blant ledere i primærhelsetjenesten. I Fase 2 som denne søknaden omhandler vil en ledelsesintervensjon testes i norske sykehjem og hjemmetjenesten og prosjektet vil måle effekten av intervensjonen på kvalitet og sikkerhet ved å se på forbedring i kunnskap, holdninger og praksis i sykehjem og hjemmesykepleie. Observasjon av helsepersonell sin arbeidspraksis kan gjøre at prosjektgruppen får tilgang til taushetsbelagt informasjon om pasienter.

Det er helseforskningsloven som regulerer hvorvidt det er krav om søknad til REK eller ikke. Helseforskningsloven gjelder for medisinsk og helsefaglig forskning på mennesker,humant biologisk materiale eller helseopplysninger, jf. hfl § 2. Medisinsk og helsefaglig forskning defineres som virksomhet som utføres med vitenskapelig metodikk for å skaffe til veie ny kunnskap om helse og sykdom, jf. hfl § 4. Etter min vurder vil ikke formålet i denne studien være "ny kunnskap om helse og sykdom" som sådan, og det er dermed ikke krav til forhåndsgodkjenning av REK. Prosjektet må selvsagt forankres av ledelsen på den/de institusjoner som skal besøkes, og prosjektgruppen bør signere taushetserklæring. Dette er i tråd med rådgivning fra REK når det gjelder prosjekter av forskjellig art som av forskjellige grunner er fysisk innom en helseinstitusjon.

Jeg gjør oppmerksom på at konklusjonen er å anse som veiledende jfr. forvaltningsloven § 11. Dersom dere likevel ønsker å søke REK vil søknaden bli behandlet i komitémøte, og det vil bli fattet et enkeltvedtak etter forvaltningsloven.

Vær også oppmerksom på at dersom dere skal samle inn personopplysninger, så må prosjektet klareres med Datatilsynet/Personvernombudet for forskning.

Med vennlig hilsen
Øyvind Straume

rådgiver

post@helseforskning.etikkom.no
T: 55978497

Regional komité for medisinsk og helsefaglig
forskningsetikk REK vest-Norge (REK vest)
http://helseforskning.etikkom.no

Appendix 10*. Request for participation*

Forespørsel om deltakelse i forskningsprosjektet SAFE-LEAD

«Ledelse av kvalitet og sikkerhet i helse- og omsorgstjenesten»

Bakgrunn og formål
Dette er et spørsmål til deg om å delta i forskningsprosjektet *«Ledelse av kvalitet og sikkerhet i helse- og omsorgstjenesten» (SAFE-LEAD)»*, finansiert av Norges Forskningsråd (prosjektnr: 256681). Formålet er å utvikle, implementere og teste et forskningsbasert kvalitets- og sikkerhetsverktøy for økt ledelseskompetanse og støtte til forbedringsarbeid. Vi ønsker å få kunnskap om hvordan ledere og ansatte arbeider med kvalitet og sikkerhet i sykehjem og hjemmetjenesten og hvilke utfordringer de opplever i forbedringsarbeid. I prosjektet vil et ledelsesverktøy testes i utvalgte sykehjem og hjemmetjenester og prosjektet vil måle effekten av verktøyet ved å se på forbedring i kunnskap, holdninger og praksis knyttet til kvalitet og sikkerhet. Vi vil videre kartlegge og evaluere hvordan et konkret kvalitetsforbedringsprosjekt gjennomføres av tjenestene selv («I trygge hender ved akutt funksjonssvikt hos sårbare eldre i kommunehelsetjenesten», USHT Rogaland). Du er forespurt om å delta i dette forskningsprosjektet fordi du er leder eller ansatt i et sykehjem eller en hjemmetjeneste som inngår i studien og derfor har viktige erfaringer og kunnskap om det å arbeide med kvalitet og sikkerhet.

Universitetet i Stavanger er faglig ansvarlig for forskningsprosjektet. Stavanger, Førde og Songdalen kommune, Helsedirektoratet v/Pasient og brukerombudet i Vestfold, samt ERASMUS University, Nederland er samarbeidspartnere i prosjektet.

Hva innebærer deltakelse i studien?
I prosjektet vil vi samle data på ulike måter. Du, som leder eller ansatt, kan bli forespurt om å delta i individuelle intervju, gruppeintervju, besvare spørreskjema eller at forskere gjør observerer arbeidet som skjer i din enhet:

- Individuelle intervjuer (med lydopptak) varer i ca. 45 minutter og omfatter hvilke utfordringer du opplever i arbeidet med kvalitet og sikkerhet, hvordan det arbeides med dette i din enhet, om det har skjedd endringer over tid og eventuelt hvorfor endringer har skjedd.
- Gruppeintervjuer (med lydopptak) varer i ca. 90 min og omfatter diskusjoner om forståelse av kvalitet og sikkerhet, hvordan det arbeides med dette i organisasjonen, om det har skjedd endringer over tid og hvorfor.
- Observasjon innebærer at en forsker er tilstede i det daglige arbeidet på din arbeidsplass og deltar på møter, observerer samarbeid, hvordan man jobber med kvalitets- og sikkerhetsarbeid eller følger deg på jobb i løpet av arbeidsdagen.
- Spørreskjema innebærer å besvare et spørreskjema (ca 25-30 minutter) om kunnskap, holdninger og praksis knyttet til kvalitet og sikkerhet.
- Kartlegging av forbedringsprosjekt innebærer individuelle intervjuer, gruppeintervjuer og observasjon før, under og etter aktiviteter som inngår i prosjektet «I trygge hender ved akutt funksjonssvikt hos sårbare eldre i kommunehelsetjenesten».

Hva skjer med informasjonen om deg?
Alle personopplysninger vil bli behandlet konfidensielt. Informasjonen som registreres om deg skal kun brukes som beskrevet i formålet over. Alle opplysningene vil bli behandlet uten navn eller andre direkte gjenkjennbare opplysninger. En kode knytter deg til dine opplysninger gjennom en navneliste. Det betyr at opplysningene er avidentifisert. Det er kun prosjektteamet ved Universitetet i Stavanger som har adgang til navnelisten og som kan finne tilbake til deg. Lydbåndopptakene vil bli overført til en datamaskin og slettes like etter at intervjuet er transkribert. Medforskere fra Utviklingssenter for sykehjem og hjemmetjenester (USHT) Rogaland, v/Stavanger kommune, USHT Sogn og Fjordane, v/

Førde kommune og Songdalen kommune, samt masterstudenter som er tilknyttet prosjektet vil være med på ulike deler av datainnsamlingen og ha tilgang til transkriberte data uten navngitte personer. I de tilfeller hvor medforskere og/eller masterstudenter er med på innsamling av data vil disse også ha tilgang til datamateriale ned personopplysninger. Alt materiale som inngår i studien, inkludert personopplysninger, vil oppbevares nedlåst og utilgjengelig for utenforstående. Det vil ikke være mulig å identifisere deg når resultatene fra studien publiseres. I spørreskjemaundersøkelsen kartlegges det ikke personopplysninger. Prosjektleder har ansvar for den daglige driften av forskningsprosjektet og at opplysninger om deg blir behandlet på en sikker måte. Dato for prosjektslutt og anonymisering av alt datamaterialet er 31.7.2023.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert. Dersom du ønsker å delta, undertegner du samtykkeerklæringen under. Dersom du senere har spørsmål til prosjektet, kan du kontakte prosjektleder Siri Wiig, Universitet i Stavanger, på tlf: 51834288 eller e-post: siri.wiig@uis.no. Studien er meldt til og tilrådd av Personvernombudet for forskning, NSD - Norsk senter for forskningsdata [Ref: 52324 (15.8.2017)]

Samtykke til deltakelse i studien

Jeg har mottatt informasjon om studien, og er villig til å delta

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(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om prosjektet

(Signert av forsker, dato)

Universitetet i Stavanger

SAFE-LEAD

Appendix 11. *Data agreement*

Avtaleskisse – databehandleravtale etter personopplysningsloven

NB: Les veilederen på www.datatilsynet.no/databehandler

Databehandleravtale

I henhold til personopplysningslovens § 13, jf. § 15 og personopplysningsforskriftens kapittel 2.

mellom

Behandlingsansvarlig: Universitetet i Stavanger (UiS)

og

Databehandler: Ordfuglen (991601953)

1. Avtalens hensikt

Avtalens hensikt er å regulere rettigheter og plikter etter Lov av 14. april 2000 nr. 31om behandling av personopplysninger (personopplysningsloven) og forskrift av 15. desember 2000 nr. 1265 (personopplysningsforskriften). Avtalen skal sikre at personopplysninger om de registrerte ikke brukes urettmessig eller kommer uberettigede i hende.

Avtalen regulerer databehandlers bruk av personopplysninger på vegne av den behandlingsansvarlige, herunder innsamling, registrering, sammenstilling, lagring, utlevering eller kombinasjoner av disse.

2. Formål

Databehandler tar på seg oppdraget med å transkribere lydfiler for behandlingsansvarlig i prosjektet SAFE-LEAD. Lydfilene kan være fra både individuelle intervju og fokusgruppeintervju av ledere og ansatte i sykehjem og hjemmetjenesten fra flere kommuner i Norge. Navn på personer og enheter kan fremkomme i intervjuene.

Pris for oppdraget avtales til kr 400 per arbeidstime, eks MVA. Fakturering gjøres kvartalsvis med betalingsfrist 14 dager. For oppdraget er det avtalt følgende antall timer: omtrent 7 arbeidstimer per 60 min lydfil for fokusgrupper og 6 arbeidstimer per 60 min lydfil for individuelle intervju, avhengig av lydkvalitet.

3. Databehandlers plikter

Databehandler skal følge de rutiner og instrukser for behandlingen som behandlingsansvarlig til enhver tid har bestemt skal gjelde.

Databehandler har taushetsplikt om all informasjon som måtte fremkomme i arbeidet med transkribering av lydfiler. Denne bestemmelsen gjelder også etter avtalens opphør.

4. Bruk av underleverandør

Dersom databehandler benytter seg av underleverandør eller andre som ikke normalt er ansatt hos databehandler skal dette avtales skriftlig med behandlingsansvarlige før behandlingen av personopplysninger starter.

Samtlige som på vegne av databehandler utfører oppdrag der bruk av de aktuelle personopplysningene inngår, skal være kjent med databehandlers avtalemessige og lovmessige forpliktelser og oppfylle vilkårene etter disse.

5. Sikkerhet

Databehandler skal oppfylle de krav til sikkerhetstiltak som stilles etter personopplysningsloven og personopplysningsforskriften, herunder særlig personopplysningslovens §§ 13 – 15 med forskrifter. Databehandler skal dokumentere rutiner og andre tiltak for å oppfylle disse kravene. Dokumentasjonen skal være tilgjengelig på behandlingsansvarliges forespørsel.

Lydfiler og transkripsjoner utveksles mellom forskere hos behandlingsansvarlig og databehandler via en mappe i Dropbox. Det er kun forskere i SAFE-LEAD prosjektet og databehandler som vil ha tilgang til denne mappen.

Når lydfilene transkriberes skal navn på personer og enheter eller andre personidentifiserbare opplysninger som fremkommer i lydfilene gis pseudonym. Det skal ikke være mulig å identifisere personer eller enheter i transkripsjonene. Transkripsjonene lagres med samme kode sendte lydfiler er lagret med. Lydfiler slettes etter transkribering.

Avviksmelding etter personopplysningsforskriftens § 2-6 skal skje ved at databehandler melder avviket til behandlingsansvarlig. Behandlingsansvarlig har ansvaret for at avviksmelding sendes Datatilsynet.

6. Sikkerhetsrevisjoner

Behandlingsansvarlig kan avtale med databehandler at det gjennomføres sikkerhetsrevisjoner jevnlig for systemer og lignende som omfattes av denne avtalen.

7. Avtalens varighet

Databehandler tar på seg oppdraget med å transkribere lydfiler for behandlingsansvarlig i prosjektet SAFE-LEAD med estimert varighet på ett år.

Oppdraget skal være avsluttet 30 dager etter mottatt materiale.

Ved brudd på denne avtale eller personopplysningsloven kan behandlingsansvarlig pålegge databehandler å stoppe den videre behandlingen av opplysningene med øyeblikkelig virkning.

Avtalen kan sies opp av begge parter med en gjensidig frist på 1 måned, jf. punkt 8 i denne avtalen.

8. Ved opphør

Ved opphør av denne avtalen plikter databehandler å tilbakelevere alle personopplysninger som er mottatt på vegne av den behandlingsansvarlige og som omfattes av denne avtalen.

Etter endt oppdrag slettes lyd- og tekstfiler fra alle enheter og områder, inkludert mail med eventuelle vedlegg eller annen konfidensiell informasjon. Dette gjelder også for eventuelle sikkerhetskopier. Eventuelle utskrifter skal makuleres.

Databehandler skal skriftlig dokumentere at sletting og eller destruksjon er foretatt i henhold til avtalen innen rimelig tid etter avtalens opphør.

9. Lovvalg og verneting

Avtalen er underlagt norsk rett og partene vedtar Stavanger tingrett som verneting. Dette gjelder også etter opphør av avtalen.

***

Denne avtale er i 2 – to eksemplarer, hvorav partene har hvert sitt.

Sted og dato

Stavanger 23.4.2018 Oslo, 16 april 2018

Behandlingsansvarlig	Databehandler
Siri Wiig	
(underskrift)	(underskrift)

Prosjektleder SAFELEAD
UiS