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interCARE

A nurse-led care model to strengthen geriatric expertise in LTCFs: **Implementation and evaluation of the INTERCARE model.**

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A nurse-led care model to strengthen geriatric expertise in LTCFs: **Implementation and evaluation of the INTERCARE model.**

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About this report

This report can be downloaded from our website
https://intercare.nursing.unibas.ch/en/publications/

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Table of Contents

About this study

The current situation in Switzerland

Like other neighbouring European countries, Switzerland struggles to strengthen and maintain adequate levels of geriatric expertise and to retain personnel to work in Residential Long-Term Care Facilities (LTCFs), which leads to staff shortages alongside a growing older population. Older adults living in LTCFs require complex care to address co-morbidities and maintain healthcare quality. The COVID-19 pandemic has worsened the situation in LTCFs as care personnel have to take on extra tasks and follow special safety precautions, which take additional time and, thus, time away from direct care activities. The COVID-19 quarantine measures resulted in more staff shortages and LTCFs under increasing financial pressure. Alongside the recent pandemic and seasonal epidemics, LTCFs are challenged by an ageing population; the number of older people in need of constant nursing care is increasing, meanwhile, it is difficult to recruit and retain enough staff to work in long-term care. New models of care have proven to help LTCFs overcome transformations in healthcare service delivery and support LTCFs in tackling demographic, economic and technological challenges.

Potential solutions

Nurse-led care models are one possible solution to these challenges, as they offer comprehensive care for older people with chronic conditions by means of a targeted skill mix, the potential to strengthen geriatric expertise in place and add attractiveness to the nursing profession in the long-term care sector.

INTERCARE is one such model. Using implementation science principles, e.g., combining evidence-based interventions with contextual information, the INTERCARE nurse-led model of care was developed as a contextually appropriate, sustainable nurse-led model to improve the quality of care, foster interprofessional collaboration, and reduce unplanned hospitalisations in Swiss LTCFs. The INTERCARE study lasted 4 years (2017-2020). It was funded by the Swiss National Science Foundation (SNSF) as part of the National Research Program "Smarter Health Care" (NRP 74, Grant 407440_167458), the Nursing Science Foundation Switzerland and the Ebnet Stiftung, Switzerland. In phase A of the study, the INTERCARE nurse-led model was developed to be then tested in phase B in 11 LTCFs in the German-speaking part of Switzerland.

INTERCARE national reports

This national report is a sequel to a former report entitled "A nurse-led care model to strengthen geriatric expertise in LTCFs: The development and content of the INTERCARE model", published by the Institute of Nursing Science, University of Basel in 2021. The first INTERCARE report addresses the part of the study, phase A. It contains the description and development of a nurse-led model within the INTERCARE study ("Improving INTERprofessional CARE for better resident outcomes – INTERCARE"). A brief summary of the first report can be downloaded *here*. This second national report discusses the findings of the second part of the study, phase B, the implementation of the INTERCARE model on the facility, unit and resident levels, and the main outcomes evaluated and LTCF experiences from leaders' and INTERCARE nurses' perspectives. Indeed, the model showed effectiveness in reducing unplanned transfers and – from an implementation science perspective – was acceptable and feasible for LTCFs' staff with an overall high uptake. The INTERCARE model was more costly and effective than usual care in participating Swiss German LTCFs.

INTERCARE Research Group

The research group is composed of professionals with a wide range of skills and experience not only in long-term care but also in primary and acute care settings, as well as in private, government and non-government sectors. Professional backgrounds include clinical settings, health promotion, research, academia, and project management.

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Box 1. *INTERCARE research group.*

Stakeholders

The work of the research group is supported by a Swiss stakeholder group. The stakeholders supported the INTERCARE study during the development, implementation, and evaluation phases.

Institutions represented
Patients, residents and older people:
SPO Swiss Patient Organisation
Swiss Alzheimer Association
Dementia Network of both Cantons of Basel
Professionals:
FMH Swiss Medical Association
Swiss Society for Geriatrics (SFGG)
Swiss Association of Health Education Centers (BGS)
Academic Society for Gerontological Nursing (AFG Gerontologie)
Swiss Interest Group of Nurse Aides
Swiss Association for Nursing Science (VFP)
Swiss Professional Association for Long-Term Care
Spitex Association for Home Care Switzerland
Palliative ch, nursing expert group
IG Swiss ANP, Advanced Nursing Practice Interest Group
Swiss Nursing Association (SBK-ASI)
Swissuniversities, Bern
Healthcare providers and insurance companies:
ARTISET Branchenverband CURAVIVA Switzerland – Association of Institutions for Persons Requiring Support
Curaviva Baselland – Cantonal Association of Institutions for Persons Requiring Support
Association of Fribourg Nursing Homes (AFIPA - VFA)
Senesuisse – Swiss association of economically independent retirement and care homes
University Hospital Basel
Swiss Nurse Leaders (SNL)
Curafutura, Insurance Companies association
Tarifsuisse ag
Policymakers:
Federal Office of Public Health (FOPH)
Swiss Conference of Cantonal Health Directors (GDK/CDS)
Swiss Health Observatory (OBSAN)

Box 2. *INTERCARE stakeholder group.*

Acknowledgements

This report reflects the commitment of the research group members, the LTCFs that participated in the INTERCARE study over two years, external collaborators who conducted or supported the INTERCARE nurses' training and coaching throughout the study, and the stakeholder group members.

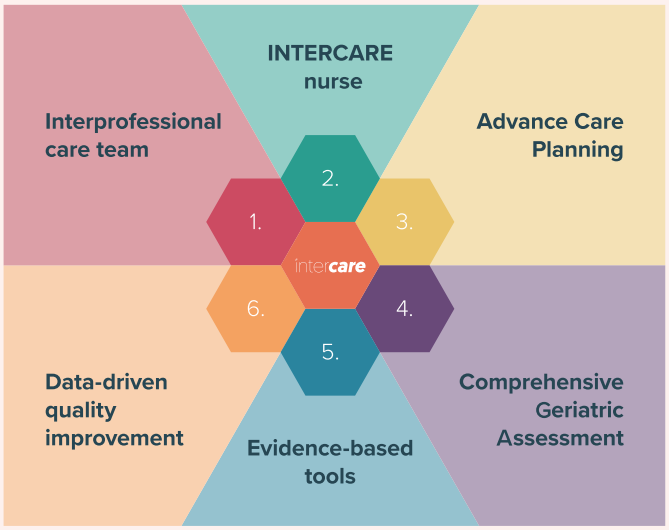
The implementation and evaluation of the INTERCARE model and this report would not have been possible without the 11 Swiss LTCFs which were willing to invest their time and resources to accomplish INTERCARE, including the INTERCARE nurses, directors of nursing, LTCF administrators, project leaders, unit leaders, physicians, and all other staff. They arduously implemented the different components of INTERCARE. They supported the data collection by filling out questionnaire surveys, participating in the interviews, collecting clinical data, and attending meetings. We thank them for their time, efforts, and commitment to the study. Additionally, at the beginning of our journey, they helped us to clarify the content of the model's core components. They gave feedback on all the documents and tools needed to successfully implement the model.

The stakeholder group was very supportive throughout the duration of the study. Their input helped build a care model that fit the Swiss context and allowed LTCFs to tackle obstacles in implementation, contributing to a sustainable intervention. We highly appreciated their engagement and participation.

Structure of the report

A short introduction to the INTERCARE study is presented in **chapter 1**. **Chapter 2** focuses on the utilization of implementation science to support the introduction of INTERCARE into LTCFs and describes the implementation strategies utilized and how sustainment was planned. **Chapter 3** gives an overall presentation of the LTCFs, their characteristics, their context for implementation and a detailed overview of the INTERCARE nurses and their profiles. **Chapter 4** focuses on the implementation outcomes measured during the study: the degree of implementation fidelity, acceptability, and feasibility of specific core components. **Chapter 5** discusses the impact of INTERCARE on successfully decreasing unplanned hospital transfers, on interprofessional collaboration, on Advance Care Planning, as well as discusses the cost-effectiveness of INTERCARE. **Chapter 6** provides information about unit leaders' perception of sustaining several core components, and **chapter 7** brings to life some of INTERCARE's successes and challenges, as well as possible improvements and recommendations.

Overview of the INTERCARE model



The INTERCARE model consists of six core elements:

1. Interprofessional care team
2. INTERCARE nurse
3. Advance Care Planning
4. Comprehensive Geriatric Assessment
5. Evidence-based tools
6. Data-driven quality improvement

The central elements of the model are the interprofessional care team and INTERCARE nurse, a registered nurse in an expanded role who has additional competencies and responsibilities compared to the traditional registered nurse's (RN) role. INTERCARE nurses, supported by the LTCF leadership, take responsibility for the clinical lead in complex resident situations, empower care teams by coaching and supporting them, and facilitate interprofessional collaboration. INTERCARE nurses address gaps in geriatric expertise to prevent harm and improve the quality of care. Moreover, they drive the implementation of Comprehensive Geriatric Assessment (CGA), Advance Care Planning (ACP), and analysing available data to monitor and optimise the quality of care, which require facility-level efforts.

Box 3. *The INTERCARE model.*

Chapter 1 – Introduction

The Swiss healthcare system

Healthcare systems are challenged due to increased life expectancy and an ageing population with multiple chronic conditions, including co-morbidities and dementia. By 2030, there will be more people sixty-five years and older than people younger than age five and currently, our health system is unprepared for the complexity of caring for this growing population of older adults (Bundesamt für Gesundheit. 2016; Bundesamt für Statistik. 2020a; Merçay et al. 2016). Parallelly, the number of medical providers and carers such as general practitioners (GPs) or nurses cannot cover the growing demand, leading to a considerable shortage of health professionals in long-term care, particularly in Residential Long-Term Care facilities (LTCFs) (Bundesamt für Statistik. 2020a).

In Switzerland, a proportion of the care delivered to LTCF residents is provided by non-tertiary level care workers with little healthcare training, education and geriatric expertise (Bundesamt für Statistik. 2020a). Indeed, there are three main categories of care professionals in Switzerland, defined according to function and level of training. Registered nurses in Switzerland have at least 3 years of education and training; a "Fachperson Gesundheit" is comparable to a licensed practical nurse (LPN)/licensed vocational nurse (LVN) in the US and has a 3-year education in healthcare but is not referred to as a nurse in Switzerland. Nurse aides have a 2-3 months course or on-the-job training, and certified nurse aides have a 2-year education (Bundesamt für Statistik. 2020b). Most of the registered nurses work in hospitals (67% of the total), while LPNs or LVNs are more likely to be employed in LTCFs (58%), like nurse aides (60%). In 2018, the grade-skill mix in LTCFs was about 30% registered nurses, 40% LPNs/LVNs and 30% nurse aides (Bundesamt für Statistik. 2020b). Evidence shows that tasks performed by nontertiary care workers without higher supervision can lead to suboptimal quality of care, lacking consistent chronic care management and early detection of deteriorations of health conditions. High turnover rates in long-term care also add to the discontinuity of care and a heavy workload. Further, the current organisation of LTCF physicians in Switzerland, with 77% of off-site GPs treating residents in the LTCFs (Sottas et al. 2019), makes care coordination challenging and hinders rapid resident assessment in the event of an acute situation (Castle 2007; Lerner et al. 2014).

Unplanned and avoidable hospital transfers

All aforementioned challenges increase the likelihood of adverse events and hospital transfers (Colombo et al. 2011; World Health Organization 2015; Zúñiga et al. 2010). In Switzerland, in 2013, 42% of all hospitalisations from LTCFs were potentially avoidable, costing the healthcare system between 89 to 105 million Swiss francs (Muench et al. 2019). Internationally, the numbers indicate that 19% and 67% of hospitalisations from LTCFs are potentially avoidable (Graverholt et al. 2014). Avoidability refers to cases where the resident's hospitalised condition could have been prevented with earlier recognition of deterioration and/or better management in the LTCF (Muench et al. 2019). To tackle unplanned and avoidable hospital transfers, nurse-led models of care have been developed and implemented in LTCFs to reduce these and improve the quality of care. These models describe the delivery and coordination of care led by nurses in expanded roles who work closely with residents and relatives. The extent to which nurses carry out activities independently of physicians within nurse-led models varies depending on their educational level and scope of practice.

INTERCARE: a nurse-led care model

Internationally, most nurse-led care models are led by or include an Advanced Practice Nurse (APN[1]). In Switzerland, like other European countries, APNs are not readily available and do not routinely work in LTCFs. To tackle this issue and overcome the difficulties in adapting existing nurse-led care models to the Swiss context, the INTERCARE model was developed to respond to the situation and needs of the Swiss LTCFs (Zúñiga et al. 2019). The backbone

[1]The International Council of Nurses defines an APN as "*a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master's degree is recommended for entry level*" (ICN, 2008).

of INTERCARE was to base the model on a registered nurse working in an extended role – the so-called INTERCARE nurse (Zúñiga et al. 2019). The model builds on recruiting RNs working in one's own LTCF or with experience in the LTCF sector to empower those already available in LTCFs. This enables LTCFs to invest in training and expanding roles of nurses already embedded in LTCFs, which can save time and resources whilst overriding some common challenges (i.e., new staff require time to fully embed in a setting, time to hire the right person). The INTERCARE nurse's position was supported by a tailored curriculum which helped each INTERCARE nurse fully prepare for their role and tailor this role to the needs of their respective LTCFs. This was important to reinforce the clinical geriatric competencies of the INTERCARE nurse and to support them in coaching and empowering the care team, assuring knowledge transfer into the LTCFs (Zúñiga et al. 2019). Indeed, INTERCARE also focused on improving interprofessional collaboration between nurses and GPs or geriatricians to foster a better partnership in decision-making for residents.

In the first phase of INTERCARE, we developed a contextually adapted multi-component nurse-led care model with a broad contextual analysis involving case studies of 14 LTCFs in the German, French and Italian-speaking regions, stakeholder engagement and workshops with residents and relatives. The first national report, which can be downloaded *here*, describes the development of the INTERCARE model, including the steps leading to tailoring the six core components that form the INTERCARE model. The first report describes the six core components, including their minimal and peripheral requirements and how the contextual information was collected to develop INTERCARE's core components.

Chapter 2 – Applying Implementation Science in LTCFs

Implementation science aims to facilitate the uptake of evidence-based practice (EBP) or interventions (e.g., care models shown to be effective in a real-world setting like, for example, in LTCFs) (Peters et al. 2013). The strength of implementation science is a combination of multiple methodological considerations, including contextual analysis, stakeholder involvement, and theory-driven intervention development. When working within the implementation science realm, developing implementation strategies, i.e., methods or techniques helping the EBP or intervention to work under real conditions, is required (Powell et al. 2012). Implementation science theoretical frameworks are available to guide researchers in the various steps of the study. Theoretical frameworks are needed to think of the basic conceptual structure of any implementation process and underpin the added value and necessity to involve local stakeholders (Aarons et al. 2011; Peters et al. 2014; Pfadenhauer et al. 2017). To support the understanding of the different steps and describe the different phases of the implementation process, we used the EPIS framework (Exploration, Preparation, Implementation, Sustainment) throughout the INTERCARE study (Aarons et al. 2011). This report focuses on the implementation and sustainment phases. The exploration and preparation phases are described in the first national report (*here*).

Implementation strategies: supporting INTERCARE's implementation

To support the LTCFs in preparing for the implementation of the INTERCARE model, **leadership meetings with the LTCFs** were organized before the out roll of the INTERCARE model. LTCFs were invited to join **meetings during one full day and two follow-up days to discuss and concretely organize the steps needed** to be ready for implementation. During the meetings, LTCFs discussed structural characteristics, their implementation climate, how they planned to communicate about INTERCARE, and their readiness to implement the INTERCARE model. They received **some information from the research team and some guided questions to prepare for the follow-up meetings** with the research team so that the implementation of the INTERCARE model became more concrete and issues could be anticipated and discussed. The LTCFs also received a portfolio at the start of the first meeting with explanations and examples of tools so that **they had a handbook they could refer to or share within the LTCF**.

Once the LTCFs started with the INTERCARE model, they benefitted from a **one-month period to adjust to a different way of working**, especially for the INTERCARE nurses to adapt to their new role. This also allowed LTCFs to learn to collect and enter hospitalisation data into an online platform for study purposes. Furthermore, **the INTERCARE research coordinator provided ongoing telephone support** to the LTCFs throughout the study period to answer questions and discuss the study's progression in the LTCFs. **In-person meetings were organized with each participating LTCF every two months** after the study started and usually took place with members of the LTCF leadership teams and INTERCARE nurses. During these meetings, the implementation of the model was discussed, as well as barriers and facilitators for implementing each core component. With the INTERCARE nurses, the focus was on the development of their respective roles, as well as discussing specific resident situations. **The INTERCARE nurses also had coaching sessions in the LTCFs**, to strengthen their leadership skills and expertise in handling resident situations. A **full list of strategies** used to implement INTERCARE and their descriptions can be found in **Table 1**.

Strategies to sustain INTERCARE

After the end of the study, 10 of the 11 participating LTCFs planned to continue with the INTERCARE model, and in these LTCFs, the INTERCARE nurses would keep their positions. In one LTCF, INTERCARE was interrupted after both the director of nursing and the INTERCARE nurse left the LTCF.

The research group discussed the sustainment of the INTERCARE model with the LTCFs in the middle of the study. A face-to-face meeting with all LTCFs, over one day in June 2019, 8 months before the study ended, took place to help LTCFs think and discuss how they might sustain INTERCARE in their LTCFs. The goal of this meeting was to foster a common exchange about the INTERCARE study with all participating LTCFs. The first results from the study (i.e., hospitalisation rates) were presented and discussed, as well as experiences with the implementation strategies developed to support the implementation of INTERCARE. An exchange between the INTERCARE nurses and LTCF leaders was encouraged to gather information about the aftermath of the INTERCARE study and about future expectations and LTCFs wishes regarding the

development of the INTERCARE nurse-led model. An online meeting took place 9 months after INTERCARE ended, in November 2020, which had been originally planned for June 2020, as a closing meeting and to wrap up the study. This meeting was postponed and organized as an online meeting due to the SARS-COVID-19 pandemic. The overall goal of this meeting was to discuss which core components were still in place in the LTCFs and which adaptations had been made, as well as barriers and facilitators associated with the continuation of working with the different core components. The summary results of this meeting are described in chapter 7. The second part of this meeting focused on how to address the reduction of unplanned hospitalisations in specific situations such as after a resident has fallen. The participants discussed how to continue working together to build expertise and experience to improve decision-making based on the resident's signs and symptoms. Additional training for INTERCARE nurses and specifically developed pathways to guide decision-making were discussed as possible next steps.

Implementation strategy	Description for INTERCARE
International and national LTCF visits	During preliminary phase A of the INTERCARE study, 14 case studies were conducted in Swiss LTCFs to assess structures, processes, and outcomes of the nurse-led care model as well as barriers and facilitators to facilitate the implementation and planned strategies to reduce barriers and ensure the sustainability of the intervention. International models were also visited to help gain an insight into nurse expert roles and model differences.
Stakeholder meetings	A stakeholder group formed of LTCF leaders, physicians, Swiss policymakers and cantonal association representatives (cf. p. 2), are included in important decisions regarding the intervention, such as decision-making regarding the appropriateness of the clinical tasks and responsibilities of the new nurse expert role, defining the core elements of the intervention and to help identify barriers and facilitators for the implementation of the intervention, as well as discussing the expected outcomes of the model for the Swiss context. The stakeholder group attended bi-annual meetings to exchange and discuss major points relating to the intervention.
Determining core components and peripheral elements of the nurse-led model of care	The model consists of 6 core components and peripheral elements which allows the intervention to be tailored to meet the specific intervention site needs (see page 5). Core components are mandatory to be implemented and peripheral elements can be adapted individually. Core components were developed and described to reach the specific clinical outcomes of the study.
LTCF leadership training and support	Specifically, tailored training sessions for LTCF leadership and additional staff such as LTCF accountants, physicians, and nurses to ensure buy-in and tailoring of the nurse-led model to individual LTCFs through the identification of barriers and facilitators. One full day and 2 half-day follow-up training sessions were offered to all 11 LTCFs participating.
INTERCARE nurse blended learning curriculum	INTERCARE enabled INTERCARE nurses to acquire new competencies and skills expanding the usual profile of registered nurses. Thus, a position profile was developed, and new competencies were described to ensure the ability to deliver the intervention. Continuous training of INTERCARE nurses started before the model was implemented in the facility and continued to expand during implementation. Partnerships were built with nursing educational institutions that have geriatric expertise and/or experience in curriculum development. Blended learning curriculum included: e-learnings, readings, tests, reflections and case studies and face-to-face meeting accounts for variation in delivering the education. This method maximized the learning outcomes considering that adults have different learning styles and working environments.
Data collection for benchmarking and internal quality control	Quarterly exports for quality indicators and on-going collection of data for hospitalisations to help LTCFs identify where better quality of care can be provided and which actions they may take. This was discussed during the 2-monthly meetings in each LTCF.
Continuous support of LTCF	A research coordinator was available to help and ensure good communication between LTCFs and the research team. Face-to-face 2-monthly meetings occurred with the leadership teams within LTCFs. A networking platform was available for LTCFs to share experiences and documentation, as well as 2-monthly in-person meetings and 2-weekly phone calls to support the INTERCARE nurse during the implementation process.

Table 1. *Full set of implementation strategies used to implement INTERCARE.*

Chapter 3 – Participating LTCFs

Seventeen LTCFs in the German-speaking part of Switzerland were contacted by the INTERCARE research group during the recruitment phase for INTERCARE based on previous study collaborations and stakeholder recommendations. Recruitment was based on the following inclusion criteria: (1) LTCFs had 60 or more long-term care beds, (2) had 0.8 or more hospitalisations per 1'000 resident care days over the year before recruitment based on their administrative data, (3) were in the German-speaking part of Switzerland, 11 LTCFs were invited to participate in the INTERCARE study. In addition to the inclusion criteria, LTCFs had to express the willingness to introduce a nurse-led care model and to recruit the corresponding RNs to work in an expanded role. All residents providing written informed consent were included within each LTCF except for short-term residents. If residents could not consent, their legal representatives were asked on their behalf.

Description of LTCFs

See **Table 2** for the description of LTCFs that took part in the INTERCARE study.

Context for implementation

Commonly, information about the context of implementation is rarely reported in research, especially for clinical trials. The context in which an intervention is implemented refers not only to the physical environment, availability of specific tools, and availability of time resources but also the behaviours, engagement and attitudes and beliefs of the staff involved regarding implementing an intervention (Aarons et al. 2011). The context in which an intervention is implemented is a key determinant of whether the implementation works. Before the start of the INTERCARE intervention, we sent a survey to all the LTCF directors, unit managers and LTCF staff to collect information about the context, including their engagement in INTERCARE, attitudes and beliefs. We surveyed 11 LTCF directors and 51 unit leaders at baseline and 58 unit leaders 12 months after the study started. Overall, LTCF directors felt that they had the human resources necessary to implement INTERCARE and that the LTCF staff were very willing to implement INTERCARE. When asked about their readiness and the perceived readiness of the LTCF staff, unit leaders were enthusiastic about working on all the topics surveyed: ACP, interprofessional collaboration, and the management of pain experienced by residents and hospitalisations. Although perceived readiness was high overall, the topic of ACP was ranked highest in terms of readiness to implement this core component. The following sub-chapters show detailed and further results.

Readiness to implement INTERCARE

LTCF leaders[7] and LTCF unit leaders were asked before the start of the intervention to rate the readiness and capacity of their LTCFs and staff regarding different factors. Readiness to implement an intervention is deemed critical for increasing the adoption rate of evidence-based practices and improving implementation outcomes. It is referred to as "the willingness and capacity of all relevant stakeholders to change practice" (Damschroder et al. 2009). Eleven LTCF leaders were surveyed during the baseline period before implementing the INTERCARE model. Eighty per cent of LTCF leaders agreed that the LTCF staff were willing to implement INTERCARE and that the level of human resources was deemed sufficient. Just over 60% of unit leaders agreed that they had enough time enough time to allocate to INTERCARE's implementation.

To explore unit leaders' perceptions regarding their readiness to implement the INTERCARE core components and the perceived readiness of the staff, four key themes central to INTERCARE were measured. Although the unit leaders rated their own readiness to work with Advance Care Planning, improve interprofessional collaboration and pain management and decrease hospitalisations higher than the perceived readiness of their staff, the unit leaders did consider that the teams were ready to work and improve the themes mentioned above. Interestingly, unit leaders have a crucial role in improving the quality of care and maintaining the person-centred quality of care in LTCFs, and the results do support this. As unit leaders perceive their staff's readiness as high overall, it can be suggested that they are committed to their teams and working together, which is often the case in high-performing LTCFs or LTCFs with strong leadership (Asante et al. 2021).

[7]LTCF leaders (in German: Leitung Pflege) oversee the operations of the LTCF which typically involves managing the various department heads and unit leaders (in German: Abteilungsleitung).

	Zentrum Schlossmatt	VIVA Luzern Dreilinden	VIVA Luzern Eichhof	VIVA Luzern Rosenberg	VIVA Luzern Staffelnhof
LTCF demographics (baseline)					
Location	Rural	Urban	Urban	Urban	Urban
Status	Private	Private	Private	Private	Private
Number of units participating in INTERCARE	8	4	4	4	4
Number of beds (total)	148	120	289	114	173
Number of INTERCARE beds	107	80	87	89	80
Physician model					
	Physician(s) on-site	Mixed model	Mixed model	Mixed model	Mixed model
Director of Nursing					
Length of employment (Years)	8.5	5	2.75	17	0.5
Educational[2] background	Registered nurse (DN II) Professional training level 1 (Höfa I) Management, Continuing education in Health Care Management certificate	Registered nurse (AKP) CAS - Leadership	/ Postgraduate studies (NDS) in change process and coaching	Registered nurse (HF) Leadership training for nursing management	Registered nurse (FH) CAS[3] – Change Management
Staffing					
Full-Time Equivalent per 100 beds[6]	52.1	32.9	53.3	50	51.7
Type of services offered					
General long-term care	x	x	x	x	x
Dementia care	x	x	x		x
Gerontopsychiatric care	x				
Palliative care	x	x	x		
Assisted living			x		
Short-term stays	x	x	x	x	x
Rehabilitation	x			x	
Day hospital	x		x		
Night hospital					
Long-term rehabilitation	x				
Long-term ventilation					x

[2]Switzerland has a variety of nursing diplomas; Diploma Healthcare and Nursing level 2 (DN II); Diploma in General Nursing (AKP); Nursing specialist 3-years vocational training (HF/FH); master's degree in advanced practice (ANP)

[3]Certificate of Advanced Studies (CAS) / [4]Master of Business Administration (MBA) / [5]Master of Advanced Studies (MAS)

[6]Under number of staff the following groups were included: registered nurses, licensed practical nurses, nursing aids. Students and trainees were excluded from the calculation.

Table 2. *Description of LTCFs that took part in the INTERCARE study.*

VIVA Luzern Wesemlin	Reusspark-Zentrum für Pflege und Betreuung	Domicil Schwabgut	Marienhaus	Stiftung Obesunne	Pflegewohnheim St Christophorus
Urban	Rural	Urban	Urban	Urban	Urban
Private	Private	Public	Private	Private	Private
4	4	6	7	4	4
130	288	120	111	114	64
81	92	120	111	114	64
Mixed model	Mixed model	Mixed model	External physician(s)	External physician(s)	External physician(s)
7	24	3	4	3	5
Registered nurse (HF) MBA[4]	Registered nurse (ANP) MAS[5] – Managing Health Care Institutions	Registered nurse (AKP) Leadership training, CAS in systemic consulting	Registered nurse (HF) –	/ Postgraduate studies in health-care management	Registered nurse (HF) Management course
46.2	55.9	44	62	53.5	57.3
x	x	x	x	x	x
x	x	x	x	x	
	x	x	x	x	
x	x	x	x	x	x
x	x		x	x	x
	x	x	x	x	x
	x	x			
	x			x	
	x			x	

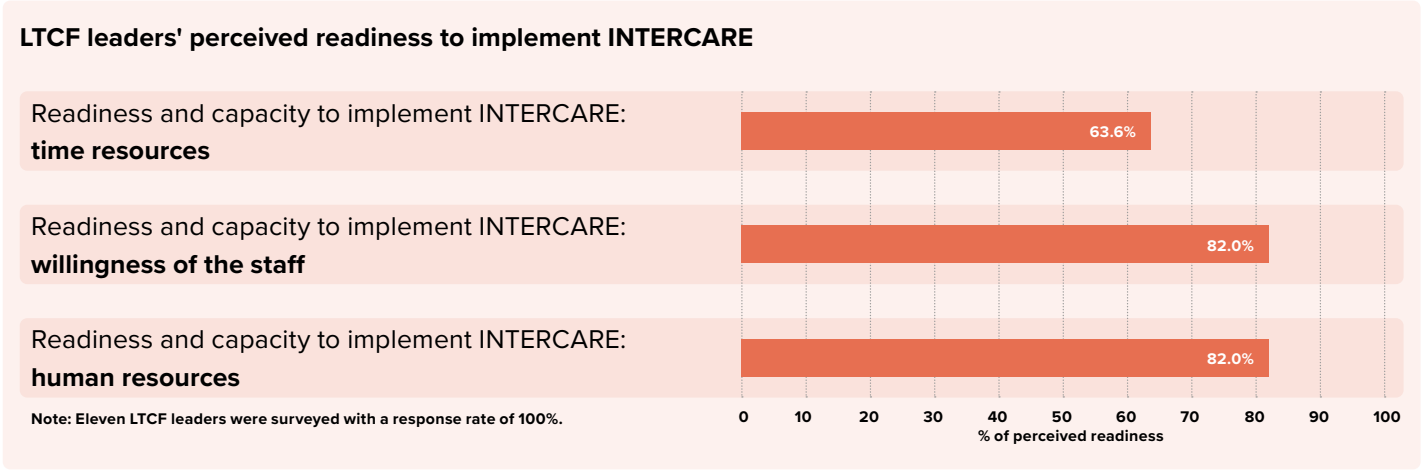


Figure 1. *Perception of leaders concerning the readiness of own LTCF to implement INTERCARE at baseline.*

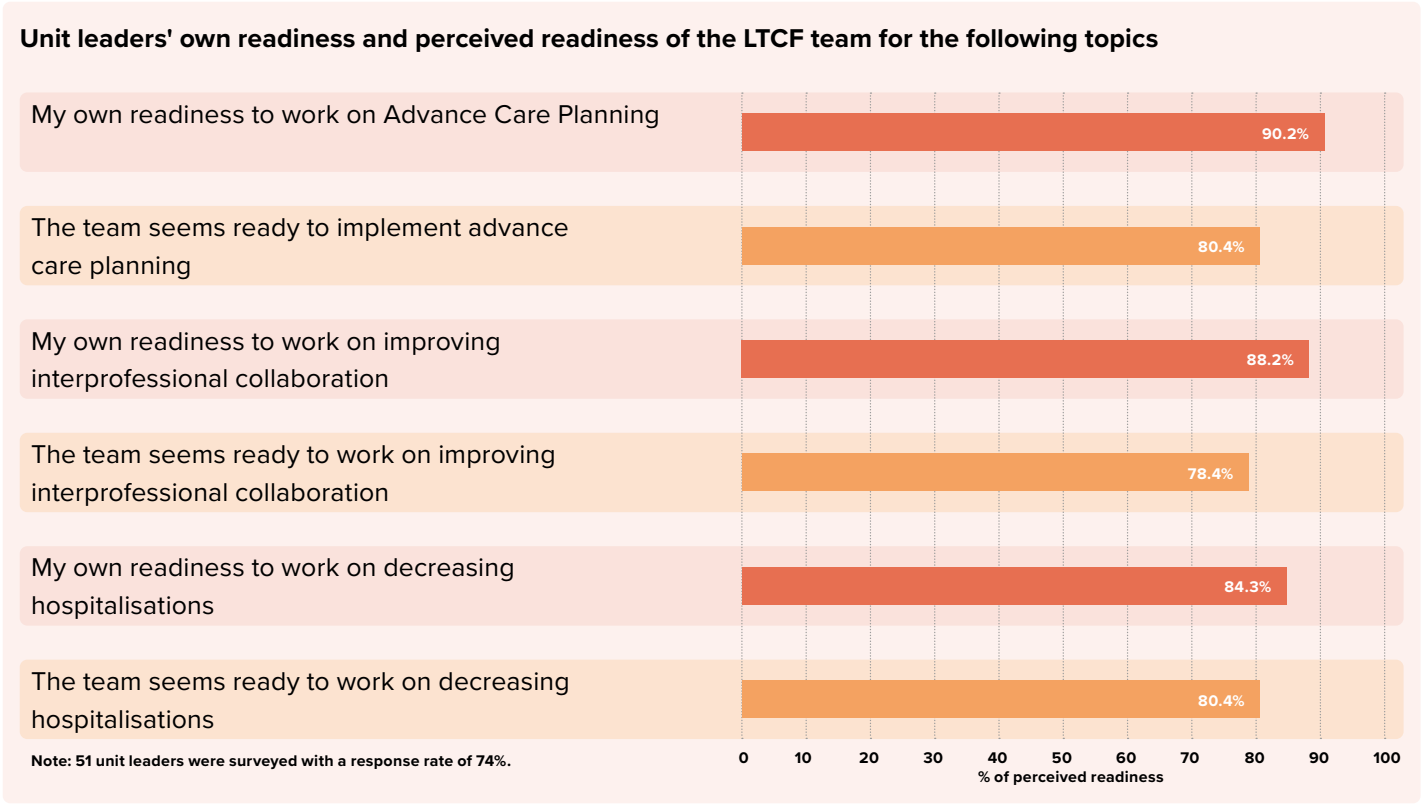


Figure 2. *Unit leaders' own readiness to work on important themes and the perceived readiness of their LTCF team to work on the same themes.*

Importance of working on key themes of INTERCARE

Key themes were selected based on the most pressing areas or topics to address derived from discussions with the eleven LTCFs included in the study. Unit leaders were asked to rate how important they felt to address the three themes: reducing avoidable hospitalisations, adopting or improving Advance Care Planning, and improving interprofessional collaboration. The main outcome of INTERCARE was reducing unplanned hospitalisations, and this was considered an important topic by the unit leaders, especially reducing avoidable hospitalisations, demonstrating that the LTCFs were already thinking proactively that this issue had to be tackled even though the LTCFs participating had a lower-than-average hospitalisation rate before the start of the INTERCARE study. Based on the conversations the research team had with the participating LTCFs, they felt that efforts were already invested in improving interprofessional collaboration, which could explain why this theme was rated slightly lower than the other themes.

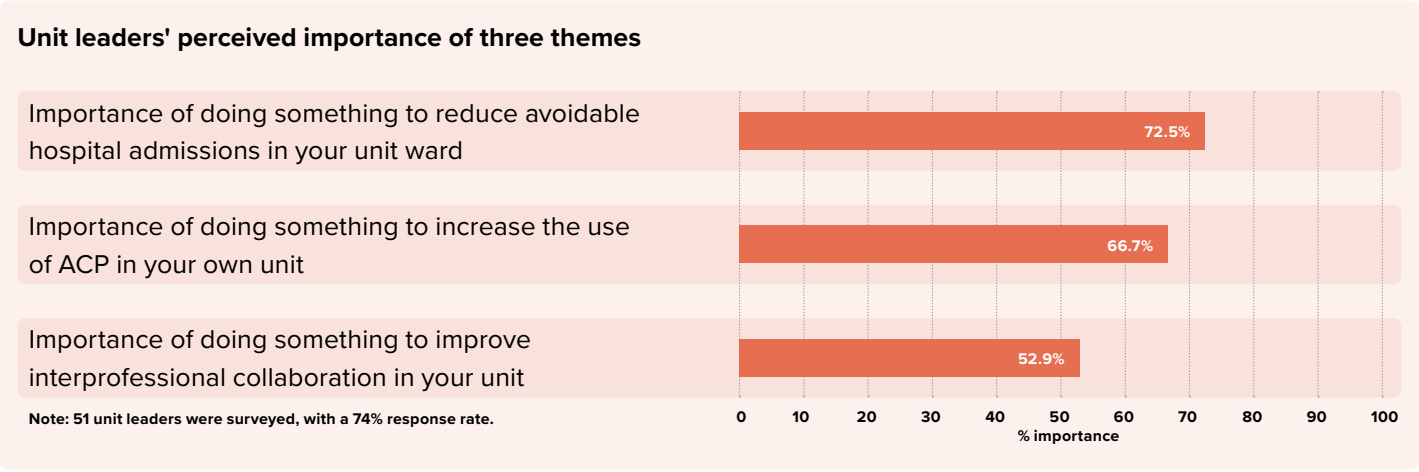


Figure 3. *The importance of reducing avoidable hospital admissions, increasing Advance Care Planning, and improving interprofessional collaboration as perceived by unit leaders.*

Factors related to hospitalisations

Unit leaders were asked at baseline and 12 months after the implementation of INTERCARE about certain factors which could contribute to lowering hospitalisations in their respective units. At baseline, 51 unit leaders responded (74% response rate), and at 12 months, 58 unit leaders responded (84% response rate). At both baseline and 12 months after implementation, unit leaders indicated that hospitalisations could be lowered if staff were more confident concerning medical-technical tasks (e.g., setting up and delivering IV therapy) and relatives were generally less anxious concerning decision-making.

These findings corroborate with findings from an INTERCARE sub-study which demonstrated that 25% of fall-related hospital transfers were potentially avoidable, and the availability of diagnostic resources was considered the most important and appropriate resource to tackle this particular sub-set of transfers (Guerbaai et al. 2022). Also, one of the main reasons for a potentially avoidable transfer is a resident transfer requested by relatives (Guerbaai et al. 2022). Moreover, during the contextual analysis, which informed the development of the INTERCARE model, residents and relatives were asked about their needs during difficult or challenging resident situations (Basinska et al. 2021). Relatives, particularly, expressed their difficulties with being the decision makers, especially when residents were acutely unwell (Basinska et al. 2021). Indeed, based on the unit leader surveys, this is a recognized issue and should be continuously addressed. The largest differences between baseline and 12 months after implementation were seen for GP access to residents' details and higher levels of education for care staff working nights and weekends. This indicates that INTERCARE could have improved GP access to residents' information and increased levels of geriatric expertise within teams working out of hours through the INTERCARE nurse.

Motivation to implement INTERCARE

LTCFs participating in INTERCARE had a vision and priorities they wanted to address. Overall, LTCFs were very keen and motivated to implement the INTERCARE model, especially strengthening geriatric expertise in their LTCFs and deploying INTERCARE nurses as support for LTCF staff. They were realistic about the difficulty of recruiting registered nurses. They saw the need to use nurses with advanced skills in geriatrics to support care teams in handling increasingly complex resident situations. Due to the difficulties faced by LTCFs in recruiting staff, the research team supported LTCFs in recruiting internal RNs who were motivated to undergo further training and take up the INTERCARE nurse's position. The INTERCARE study thus offered a guided organizational change to integrate INTERCARE nurses and the corresponding support, from finding a person fit for the job, to training and coaching them to sustainably develop their roles. LTCFs were strongly committed to reducing hospitalisations, integrating ACP into their daily practice, or further developing this topic. All LTCFs sought to strengthen interprofessional collaboration within their teams and include different disciplines to improve the quality of care. LTCFs also understood that a certain level of readiness was needed, and although some LTCFs may have had smaller projects ongoing at the time they implemented INTERCARE, LTCF directors and leadership personnel made the implementation of INTERCARE a priority and evaluated their capacity to implement such a model before accepting to take part.

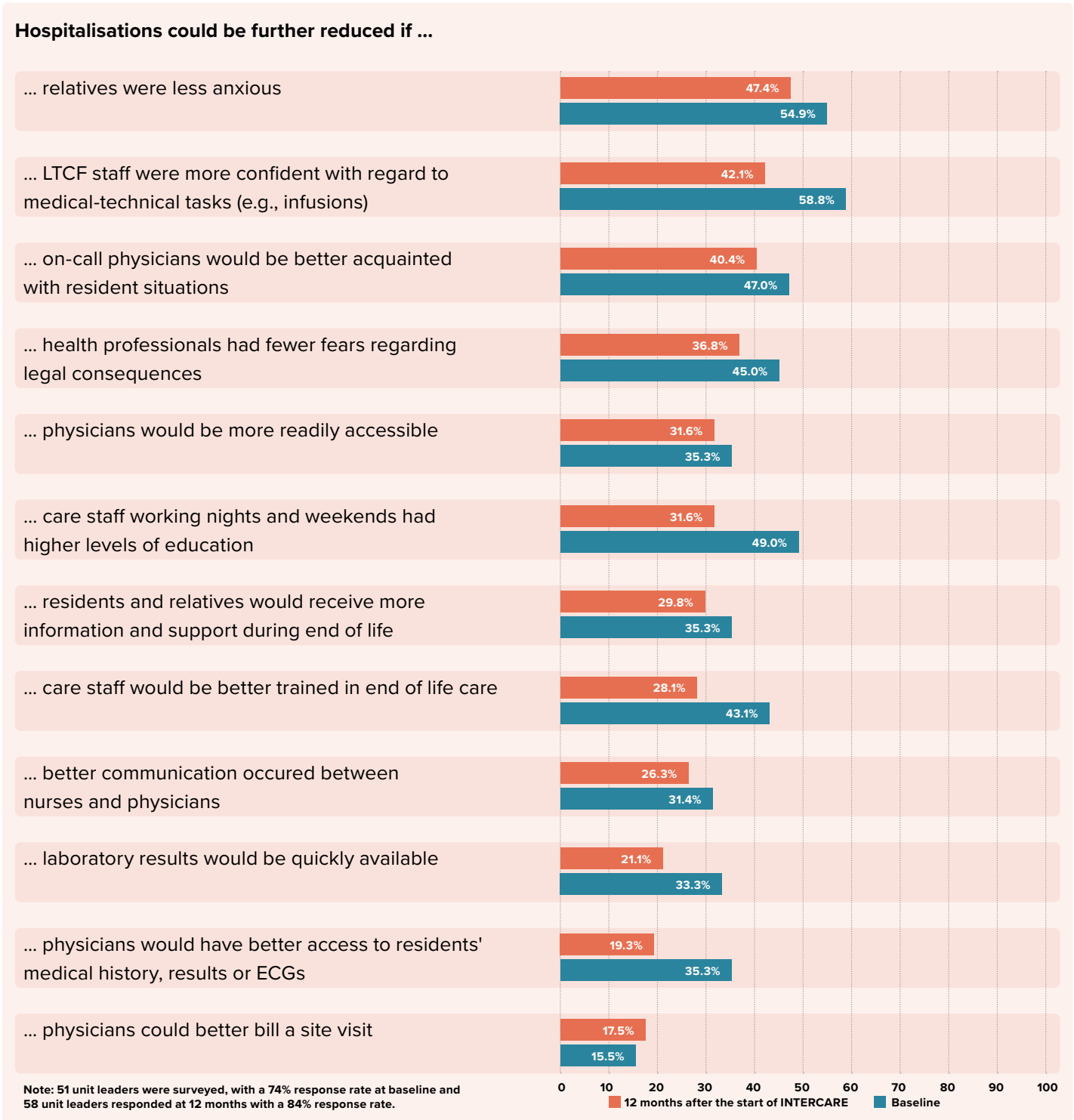


Figure 4. *Unit leaders' opinions about reducing hospitalisations at baseline and 12 months after the start of the study.*

INTERCARE nurses

INTERCARE nurses as the main component of the model

The INTERCARE nurses are one of the core components of the INTERCARE model and are regarded as central to the model's success. The INTERCARE nurses were recruited by the participating LTCFs rather than the research team. In most LTCFs, the INTERCARE nurse's position was advertised internally, and their recruitment was based on their knowledge and skills but also on the desire to develop as clinical leaders and their commitment to the INTERCARE study. Most INTERCARE nurses were recruited internally, however, not all LTCFs followed the same recruiting strategy. Some LTCFs already had nurses in expanded roles, such as nurse experts. These nurses expressed their wish to further develop professionally and were driven by implementing the INTERCARE model. One LTCF recruited an external nurse, and this was done by advertising the position and discussing the INTERCARE study with them. The INTERCARE nurses' role was carefully developed to fit the context of the German-speaking part of Switzerland through stakeholder involvement. It could be tailored throughout the INTERCARE study based on the needs of the different LTCFs. INTERCARE's first national report describes and discusses the development of the INTERCARE nurse's role.

Baseline characteristics of INTERCARE nurses (N=19)	
Age, years, median (IQR)	39 (30.5-51)
INTERCARE nurses per LTCF, median (IQR)	1 (1-4)
Number of beds INTERCARE nurse is responsible for, median (IQR)	95 (80-121.5)
Direct contact of INTERCARE nurses with residents per day, mean (range)	13 (0-32)

Table 3. *Characteristics of the 19 INTERCARE nurses participating in INTERCARE*

All INTERCARE nurses were surveyed before taking up their roles and tasks. The following overview shows some key insights, structured according to the seven core competency areas of nurses in advanced practice roles based on the Hamric framework for advanced practice nursing (Hamric et al. 2009; Spross. J. et al. 2005).

Clinical practice

INTERCARE nurses were involved in direct clinical practice activities to varying degrees involving those activities with and on behalf of residents, especially those activities completed in the resident's presence and with the resident's collaboration. Such activities involved nursing care procedures, prevention, and restorative care.

Coaching

Over 75% of INTERCARE nurses were already involved in regular coaching activities in the context of their former position. Coaching activities could occur at the resident's bedside or away from the resident, depending on the situation. INTERCARE nurses could be called directly to the bedside by staff or they could proactively anticipate staff needs and organize coaching sessions to address those needs.

Consultation

Almost 70% of INTERCARE nurses exchanged information with other nursing experts on specialist issues before INTERCARE started.

Evidence-based practice

While hardly any INTERCARE nurses were involved in benchmarking activities, about 75% of INTERCARE nurses regularly reviewed literature reviews and shared their findings with teams, prior to starting with the INTERCARE model.

Clinical and professional leadership

More than 50% of INTERCARE nurses were involved in developing, implementing and assessing various projects in the LTCFs before INTERCARE started. Over 75% of INTERCARE nurses monitored medications and adverse medication events, especially for opioids, diuretics, oral anticoagulants, and insulin. In daily resident complex situations, over 75% of INTERCARE nurses were involved in residents' care planning.

Interprofessional collaboration

Over half of INTERCARE nurses collaborated with LTCF staff daily, with physicians weekly or one- to three-monthly, and with relatives and residents during complex situations. Most INTERCARE nurses collaborated with physicians at least once to three months regarding the treatment of residents. About 75% of INTERCARE nurses were satisfied with the collaboration with medical teams in the following areas: communication, responsiveness, and isolation (i.e., whether each professional group works by itself or whether there is collaboration). Regarding decision-making

regarding hospital admissions, INTERCARE nurses were not involved much at baseline before the start of the INTERCARE study.

Ethical decision-making

Most INTERCARE nurses (75%) were involved in end-of-life discussions with residents and relatives, prior to the INTERCARE model start.

A day in the shoes of an INTERCARE nurse

INTERCARE nurses most often structured their working days based on the needs of the different units taking part in the INTERCARE study. They usually started their day with a morning exchange with unit leaders to assess the current situations of residents, define specific tasks to take on or discuss follow-up issues. Whilst these tasks can structure the weekly workload, there is flexibility to attend to acute resident situations when called on a unit. The INTERCARE nurse is then responsible for specifying any nursing measures to implement and, if needed, liaising with different specialties to organize follow-up or the hospital transfer. INTERCARE nurses usually attended difficult or complex situations to support the care teams and provide their expertise. Common complex situations described were, e.g., for fall-related reasons whereby a resident needed an assessment after a fall. INTERCARE nurses typically describe such situations when talking about hospital transfers that had been avoided.

INTERCARE nurses differed in their scope of practice and clinical skills. Some INTERCARE nurses performed in-depth clinical assessments, whilst others were less involved in direct clinical care and more focused on coaching and support. All INTERCARE nurses worked on-site, were the main contact persons in complex resident situations or during medical emergencies and provided support and empowerment to the LTCF staff. Some INTERCARE nurses revised and checked documentation (i.e., resident care plans) and provided orientation to new staff as part of their routine tasks.

«The resident fell and bumped her head and was heavily bleeding. The responsible nurse called to inform me that she contacted the mobile physician. I went to see the resident and got an idea of the situation. We were instructed to treat the head wound (1.5 cm long laceration on the forehead) and (a possible Commotio cerebri) closely measure vital signs and assess the resident regularly. An ISBAR form was sent to the GP to inform them about the situation.»
Ms. Katharina Weber,
Geriatric nurse expert, Marienhaus

«A typical situation occurs when a unit calls me because they are facing a complex resident situation that is difficult to handle. We try and work out the situation together in a case discussion. If possible, other professionals are invited to join. The resident's reference nurse updates the care plan if needed. As soon as the situation is under control again, I hand back the responsibility to the responsible nurse.»
Ms Aaricia Lauwers,
Geriatric nurse expert, VIVA Wesemlin/Tribschen

«I go to the ward and visit the resident with the person responsible for the day. I examine the resident (e.g., assess skin conditions, listen to lungs, assess extremities after a fall...). We discuss the health problem, possible causes, and the next steps. I may suggest a measure or contact the doctor depending on the situation.»
Mrs. Sandra Kunz,
Nursing Expert APN-CH, Domicil Schwabgut

«Decision-making regarding possible further nursing measures about the possible involvement of further situation-relevant persons/services (e.g., physician; mobile physicians; hospital staff).»
Geriatric nurse expert

Box 4. *INTERCARE nurses daily activities.*

The SARS-COVID-19 impact on the INTERCARE nurses' role

The INTERCARE study ended in February 2020, just before the first outbreak of the SARS-COVID-19 pandemic. Thus, data collection and support from the research team had stopped, therefore, experiences about changes and adaptations to the role were recently collected with the INTERCARE nurses currently in position (October-December 2022). Overall, the INTERCARE nurses' role changed, and they became responsible for testing residents and staff, organizing isolation and de-isolation, implementing protective measures and planning and motoring stocks for protective measures (i.e., FFP2 masks). The pandemic projected some INTERCARE nurses to become "outbreak investigators, " introduce hygiene concepts, and develop infectious disease guidelines within their own LTCFs. Naturally, INTERCARE nurses also described having to halt activities and planned projects which were ongoing in the LTCF, which the INTERCARE study had fathomed, to give place to the additional responsibilities and tasks that the SARS-COVID-19 outbreaks brought.

Future outlook

During the meetings the research group held with INTERCARE nurses, they emphasized that due to the shortage of nursing staff and fluctuation, skill and grade mix in the teams, their role would remain important to provide LTCF teams with professional support and offers an interesting opportunity for further training in the geriatric field for registered nurses with or without further training. INTERCARE nurses were also surveyed in October 2022 (over two years after the INTERCARE study ended) and reported that they are willing to benefit from further training in geriatric care tailored to their roles and previous experience. They are ready and enthusiastic to assume more decision-making authority in LTCFs. Furthermore, INTERCARE nurses favour an innovative working structure, possibly combining the clinical aspects of their positions with a project management or quality management function in the future. Ideally, INTERCARE nurses are not counted in the number of direct care employees and are rather employed in a separate position. This would give INTERCARE nurses more freedom to develop internal projects whilst being the main contact person during a complex situation. In summary, INTERCARE nurses believe their roles can be further developed beyond focusing on complex resident situations.

«I was responsible for testing, vaccinations, isolation/de-isolation and implementing hygiene measures. During pandemic periods in outbreaks, most INTERCARE nursing activities were suspended, and full attention was given to the Coronavirus. When the situation stabilized, normal operations could resume.»
Mrs Aaricia Lauwers,
Geriatric nurse expert, VIVA Wesemlin/Tribschen

«The staff were coached and supported during COVID- 19. For instance, in hygiene measures, isolation, Care Coach entries (electronic care documentation), observing and assessing residents, organizing desolation, and final cleaning. Planned projects could not be pursued during this time.»
Mrs Nathalie Walting,
Geriatric nurse expert, VIVA Luzern Staffelnhof

«My main tasks were managing the protection concept and planning of next steps. Coordination of measures and clarifying disease progression.»
Mr. Sébastien De Brabander,
Geriatric nurse expert, St Christophorus

«At the beginning of the pandemic, the testing of residents and staff was done by us (we are several people with the task). This is done over a longer period, we visit the residents who have tested positive, issue isolations and dissolve isolations again. We are responsible for the Covid vaccinations, at the beginning with the staff and the residents, now only with the residents. We are the contact persons regarding whether a resident should be tested.»
Mrs Heidi Eichenberger,
Geriatric nurse expert, Reusspark

Box 5. *INTERCARE nurses experiences during the COVID-19 pandemic.*

Chapter 4 – Implementation outcomes

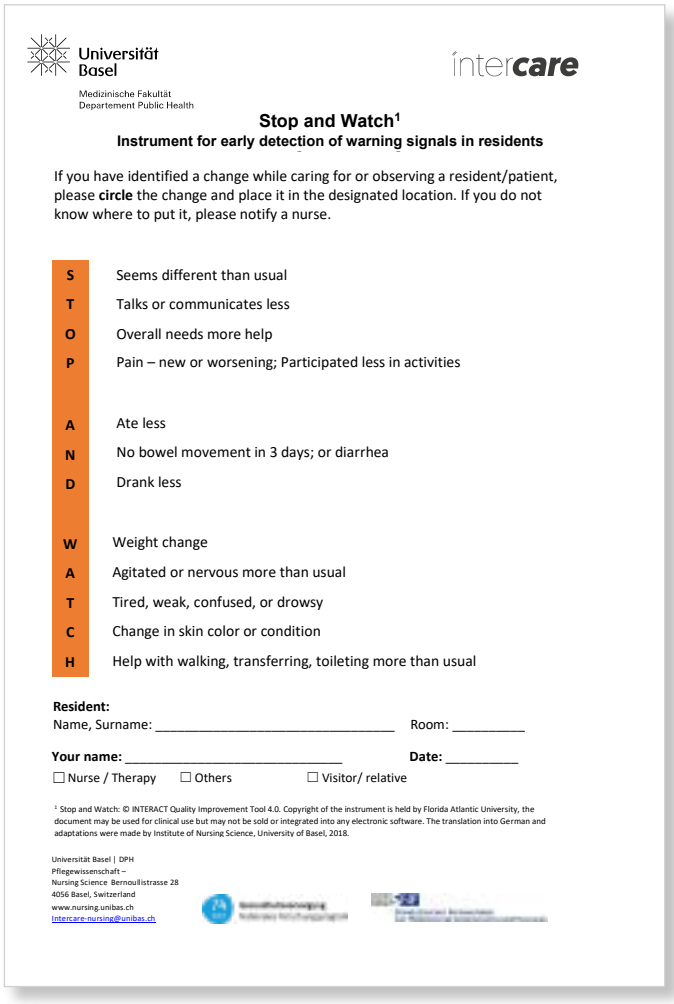
Implementation science studies methods to support the systematic uptake of evidenced-based interventions into the policy and practice (Bauer et al. 2015). Implementation Science seeks to close the gap between what we know and what we do (often called "the know-do gap") by identifying and addressing the barriers that slow or halt the uptake of proven health interventions and evidence-based practices. This enables a better understanding of why the intervention succeeded or, on the contrary, (partially) failed (Bauer et al. 2015; Curran et al. 2012). Researchers can evaluate how effective interventions are implemented by measuring implementation outcomes and barriers and facilitators to an intervention's implementation. Implementation outcomes are indicators of implementation success, including adoption, degree of fidelity, acceptability, and feasibility. Implementation outcomes provide information about implementation processes and the preconditions necessary to achieve clinical effectiveness and/or service outcomes (Proctor et al. 2011). Moreover, collecting data about the implementation process can provide early insight into why intervention recipients do not adopt or struggle to implement an intervention or fail to sustain it (Proctor et al. 2009).

Implementation outcomes measured in the INTERCARE study

Four implementation outcomes were measured and reported as part of the INTERCARE study. These were: the degree of adoption of the intervention as well as of the INTERCARE core components, the degree of acceptance and feasibility of specific core components, and the degree of fidelity to the implementation of INTERCARE as a whole and to its core elements. It should be noted that the level of adoption was originally listed as a measurable outcome for INTERCARE as a whole; however, since all eleven nursing institutions implemented INTERCARE, the level of adoption was considered 100% and no further measurement at the facility level was required. (Proctor et al. 2011). To measure the degree of acceptability and feasibility of INTERCARE, the "Acceptability of Intervention Measure" (AIM) (Weiner et al. 2017) and the "Feasibility of Intervention Measure" (FIM) were used (Weiner et al. 2017). Four questions evaluate the degree of acceptability and feasibility for each of the above-mentioned measures. For INTERCARE, we specifically measured the acceptability and feasibility of the evidence-based tools (Stop&Watch and ISBAR) from the LTCF staff perspective (Basinska et al. 2022). Implementation fidelity assesses the degree to which an intervention is delivered as it should be. Fidelity can serve as a means to ascertain if the observed results on intervention effectiveness can be solely attributed to the intervention, or if variations in fidelity to the intervention may have influenced its effectiveness (Allen et al. 2012).

Acceptability and feasibility of INTERCARE components

Acceptability and feasibility of the Stop&Watch and ISBAR instruments and to specially trained INTERCARE nurses providing on-site geriatric support were measured (Basinska et al. 2022). These components were chosen particularly because they targeted LTCF workers and were implemented to reduce unplanned hospitalisations. In total, 573 LTCF workers completed questionnaires rating acceptability, feasibility and the uptake of the intervention's elements at two-time points during the INTERCARE study (6 and 12 months after the start of the intervention) (Basinska et al. 2022). Twenty-two focus group interviews (108 care workers) were conducted with LTCF workers to investigate why the components were acceptable and feasible and gather information about the uptake process (Basinska et al. 2022). Data on implementation processes were also collected during implementation meetings with LTCF leadership. The ISBAR instrument and the INTERCARE nurse role were considered acceptable, feasible, and taken up by >70% of LTCF workers. The Stop&Watch instrument showed the lowest acceptance (mean: 68%), ranging from 24% to 100% across the eleven LTCFs (Basinska et al. 2022). A combination of factors, including the amount of information received about the INTERCARE interventions, the amount of support provided in daily practice for their implementation, the users' perceived ease of using the interventions and their adaptations, and the interventions' usefulness, appeared to influence the implementation's success (Basinska et al. 2022). Two exemplary LTCFs illustrated context-specific implementation processes that serve as barriers or facilitators to the implementation (Basinska et al. 2022). Our findings suggest that, alongside the provision of information shortly before intervention start, constant daily support is crucial for implementation success. Ideally, this support is provided by designated and trained individuals who oversee implementation at the organizational and unit levels. Leaders seeking to implement components in LTCFs should consider their complexity and consequences for the workflow to optimize implementation processes accordingly (Basinska et al. 2022).



Universität Basel
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Departement Public Health

intercare

Stop and Watch[1]
Instrument for early detection of warning signals in residents

If you have identified a change while caring for or observing a resident/patient, please **circle** the change and place it in the designated location. If you do not know where to put it, please notify a nurse.

S	Seems different than usual
T	Talks or communicates less
O	Overall needs more help
P	Pain – new or worsening; Participated less in activities
A	Ate less
N	No bowel movement in 3 days; or diarrhea
D	Drank less
W	Weight change
A	Agitated or nervous more than usual
T	Tired, weak, confused, or drowsy
C	Change in skin color or condition
H	Help with walking, transferring, toileting more than usual

Resident:
Name, Surname: _____ Room: _____

Your name: _____ **Date:** _____
☐ Nurse / Therapy ☐ Others ☐ Visitor/ relative

[1] Stop and Watch: © INTERACT Quality Improvement Tool 4.0. Copyright of the instrument is held by Florida Atlantic University, the document may be used for clinical use but may not be sold or integrated into any electronic software. The translation into German and adaptations were made by Institute of Nursing Science, University of Basel, 2018.

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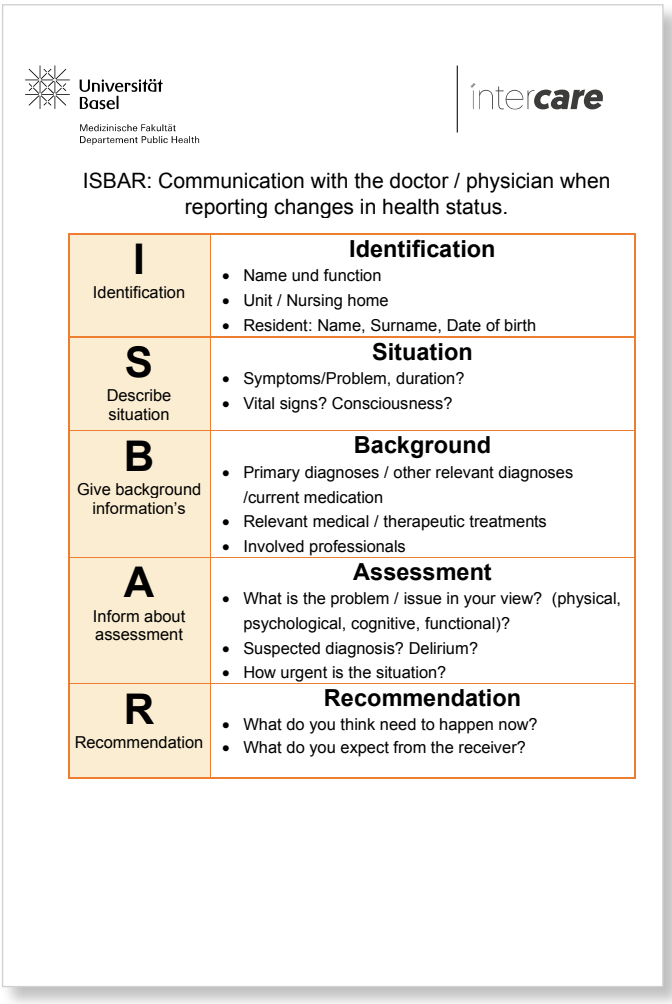

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intercare

ISBAR: Communication with the doctor / physician when reporting changes in health status.

I Identification	**Identification** • Name und function • Unit / Nursing home • Resident: Name, Surname, Date of birth
S Describe situation	**Situation** • Symptoms/Problem, duration? • Vital signs? Consciousness?
B Give background information's	**Background** • Primary diagnoses / other relevant diagnoses /current medication • Relevant medical / therapeutic treatments • Involved professionals
A Inform about assessment	**Assessment** • What is the problem / issue in your view? (physical, psychological, cognitive, functional)? • Suspected diagnosis? Delirium? • How urgent is the situation?
R Recommendation	**Recommendation** • What do you think need to happen now? • What do you expect from the receiver?

Figure 5. *Stop&Watch and ISBAR tools.*

The degree of fidelity to INTERCARE

Assessing fidelity to an intervention such as INTERCARE can provide useful information about whether the LTCFs implemented the different components as we (researchers) intended and whether the amount of fidelity was important to reduce unplanned hospitalisations. We filled out a fidelity questionnaire with INTERCARE nurses during phone calls at four different times during the study to assess fidelity throughout the study, and we met with LTCF leadership and INTERCARE nurses every two months to discuss the implementation of the core components. Interestingly, we found that the higher the fidelity scores were, the lower the chances of unplanned hospitalisations occurring (Guerbaai et al. 2023a). We also checked whether the fidelity score had an impact on individual components. We found that a higher fidelity score to Advance Care Planning was linked with lower rates of unplanned hospitalisations and a lower fidelity score to the ISBAR and Stop&Watch instruments was linked to higher rates in unplanned transfers (Guerbaai et al. 2023a). The LTCFs told us it was easier to achieve and sustain high fidelity when working with in-house physicians with a collaborative approach and when LTCF staff perceived the need for nurses working in extended roles, such as with the INTERCARE nurse. For the next study, we recommend that observational elements should be incorporated into the research to better understand the extent to which nursing institutions are implementing INTERCARE and clearly identify what adjustments are being made along the way (Guerbaai et al. 2023a).

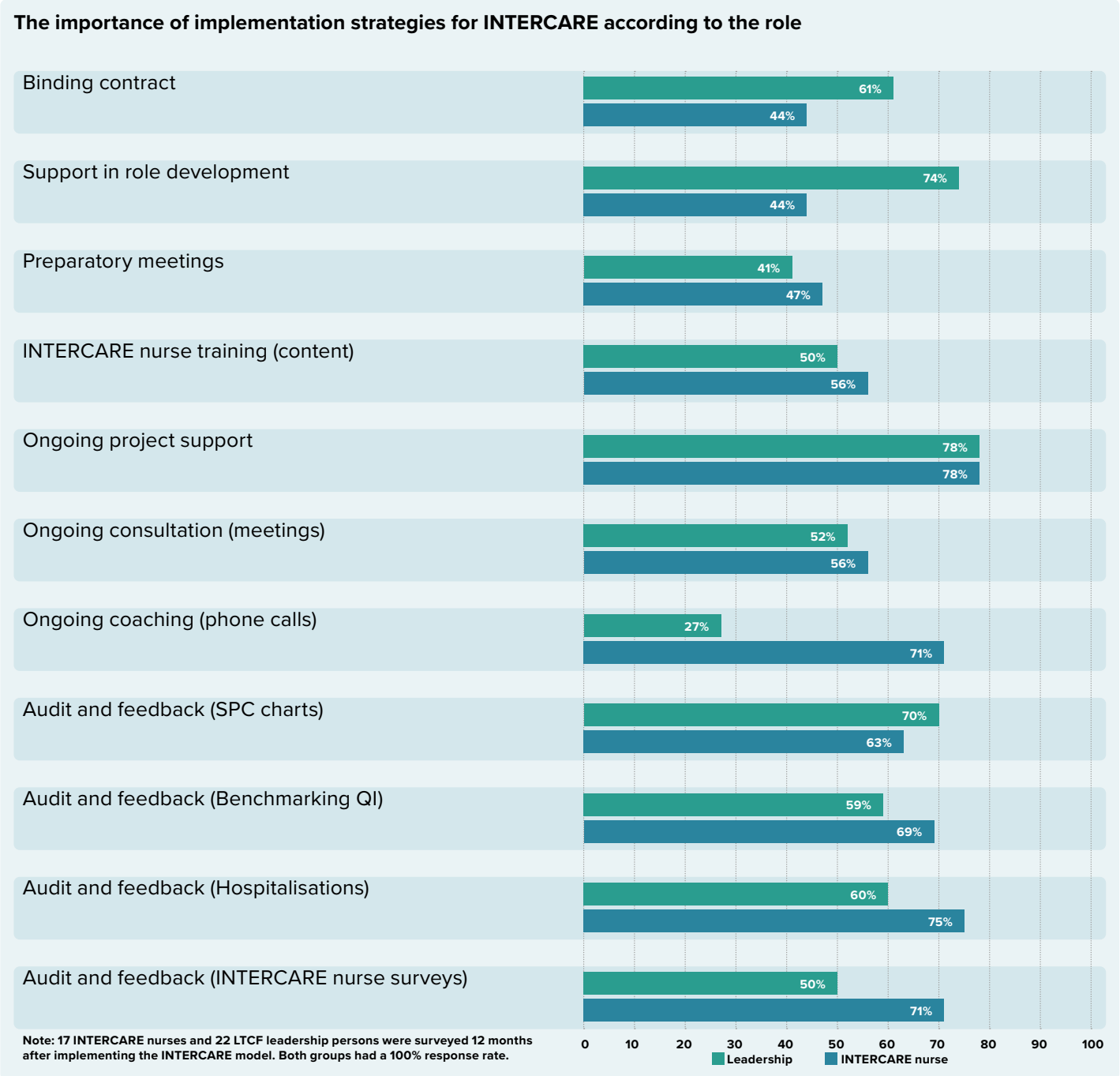

Figure 6. *The importance of implementation strategies for INTERCARE according to the role.*

Importance of implementation strategies

A short survey was conducted with twenty-two LTCF leadership persons and seventeen INTERCARE nurses to identify which implementation strategies were deemed most important for implementing the INTERCARE model. For each strategy, the participants could rate the importance from "not at all important" to "very important". The most important strategy for both groups was ongoing project support. The strategy rated as less important for the INTERCARE nurses was having a binding contract with the research team and support in role development. Both these strategies addressed primarily LTCF leadership. On the other hand, for LTCF leadership, the INTERCARE nurses' coaching was less important for them. This strategy addressed the INTERCARE nurses, and coaching was confidential so that LTCF leadership did not know what was going on during the coaching sessions, except if the INTERCARE nurses discussed the sessions with the leadership. This lack of insight might be a reason for the low rating.

Questions	Median	IQR	Number of respondents (100% response rate)
How satisfied are you with the curriculum content? (Scale 1-5: Very unsatisfied – Very satistfied)	3.5	3-4	19
I have internalized the material taught in this training (Scale 1-5: Disagree – Agree)	4	3.25-5	19
I can put into practice what I have learned in this course (Scale 1-5: Disagree – Agree)	4	4-5	19
I have achieved the learning objectives (Scale 1-5: Disagree – Agree)	4.5	3.25-5	19
I would recommend the INTERCARE training to others (Scale 1-5: Disagree – Agree)	4	4-5	19

Table 4. *INTERCARE nurses' satisfaction with the blended learning curriculum.*

The INTERCARE nurses were surveyed and asked about their perceptions of the blended learning curriculum developed by the INTERCARE study team and described in detail in the first national report (*here*). Overall, the INTERCARE nurses were very satisfied with the curriculum and would recommend it to other interested nurses interested in extending their geriatric expertise.

The curriculum had 8 modules, including clinical leadership (e.g., methods of successful leadership, emotional intelligence and leadership, leadership styles according to Goleman, self-reflection, case studies), communication (e.g., model of interpersonal and intrapersonal communication based on Schulz von Thun, communication techniques and styles, a behaviour assessment tool based on the DISC theory of psychologist William Moulton Marston), Comprehensive Geriatric Assessment/Advance Care Planning, geriatric syndromes (delirium, falls, vision and hearing losses, sarcopenia and frailty, malnutrition, pain, immobility, BPSD), chronic conditions (COPD and asthma, diabetes, congestive heart failure), acute symptoms (e.g., acute dyspnoea, abdominal pain, hypoglycaemia), medication management (e.g., polypharmacy, drug interactions) and data-driven quality improvement (e.g., statistical process control charts, benchmarking, PDSA cycle). We explored the INTERCARE nurses' experience with the curriculum more in-depth in interviews toward the end of the study period. Some key insights included a high appreciation for the interactive parts, where they could discuss and try out different approaches to problems, especially in leadership and communication. In geriatric syndromes and diseases, they considered several parts as repetitions. At the same time, other themes could have gone more in-depth, such as polypharmacy, medication review, and quality improvement support, which can explain the satisfaction with the curriculum's overall median score of 3,5 (1-not satisfied, 5-very satisfied). They appreciated the variety of methods with online learning and onsite exchange and discussion. A key element of the curriculum was individual coaching, which especially strengthened their ability for self-reflection and supported them in reflecting on their role and moving forward with role implementation.

Chapter 5 – The INTERCARE model's successful impact

To evaluate INTERCARE's impact, several outcomes were measured throughout the study period and reported back to the participating LTCFs and through scientific publications. The main outcomes measured included the effect of the INTERCARE model on unplanned transfers, which refer to transfers from the participating LTCFs to hospitals or emergency departments for unplanned reasons. Additionally, other effects of INTERCARE were evaluated, which helped to understand how the INTERCARE model impacted currently important topics for LTCFs. These topics include Advance Care Planning (ACP), interprofessional collaboration, staff outcomes such as satisfaction at work and the degree to which staff consider themselves able to perform certain tasks. The cost of the INTERCARE model was also measured and reported. Overall, the INTERCARE model improved the outcomes measured and obtained positive results.

INTERCARE: a solution to reduce unplanned hospital transfers

During the INTERCARE study, 303 unplanned and 64 planned hospitalisations occurred amongst a sample of 942 residents (Zúñiga et al. 2022). Implementing the INTERCARE model significantly decreased the number of unplanned hospital transfers in the 11 LTCFs participating in the study. In chapter 3, the readiness of LTCFs to tackle the issue of avoidable hospitalisations and the effort invested by LTCF leadership to address this issue was discussed, and it is worthwhile to note that the LTCFs were very committed and invested in reducing hospital transfers which contributed to INTERCARE's success.

Whilst we did not measure the number of avoided hospitalisations during the study, INTERCARE nurses could exemplify situations whereby the resident was assessed within the LTCF, and a transfer was avoided. Many of the avoided transfers described by INTERCARE nurses were linked with implementing an advance care plan for the resident, which clarified the residents' wishes but also provided a clear plan which relatives and care teams were familiar with in case of sudden deterioration. INTERCARE nurses also described their roles as care coordinators, such as being the key person to liaise with different professionals to organize care in the LTCF and set up appointments with different specialists. They remain the main contact person for residents, relatives, and care teams in complex situations, which is needed in LTCFs (Basinska et al. 2021). Additionally, INTERCARE nurses were asked to drive reflection meetings with the care team for each unplanned transfer during the study. A sub-study looking at avoidability ratings of unplanned hospitalisations by physicians and INTERCARE nurses showed that having on-site clinical examinations by a physician or a specialist practitioner could be a solution to reduce avoidable hospital transfers (Guerbaai et al. 2023b).

The implementation of Advance Care Planning

Although Advance Care Planning (ACP) is of high relevance in LTCFs, international literature underlines the lack of ACP in this setting (Hickman et al. 2019; Ouslander et al. 2012), which is described as a contributing factor for avoidable transfers from LTCFs. Currently, ACP uptake is considered rather low in LTCFs as few residents and their relatives are asked about wishes regarding their care, including preferences concerning end-of-life care (e.g., if a hospital transfer is wanted in case of sudden deterioration) (Mignani et al. 2017) in European countries and a study reported that around 30% of residents had an advanced directives (Andreasen et al. 2019). LTCF staff lack training in ACP and can be afraid of leading sensitive conversations and addressing complex questions and issues around end-of-life care (e.g., family disagreements) (Ouslander et al. 2016). Combining better GP access or access to geriatric expertise and support for LTCF staff with further work on ACP and diagnostic and treatment resources, can enhance the quality of care in LTCFs and contribute to limiting avoidable transfers. ACP is one of the core components of INTERCARE, and LTCFs were asked to document the residents' (or next of kin's) preferences regarding cardio-pulmonary resuscitation, being transferred to a hospital during an acute event and whether antibiotics should be delivered during palliative care.

As part of the INTERCARE study, we monitored the percentage of residents asked at four-time points during the study. Although unit leaders and LTCF leaders recognized the importance of and supported the implementation of ACP, finding time to initiate conversations with residents

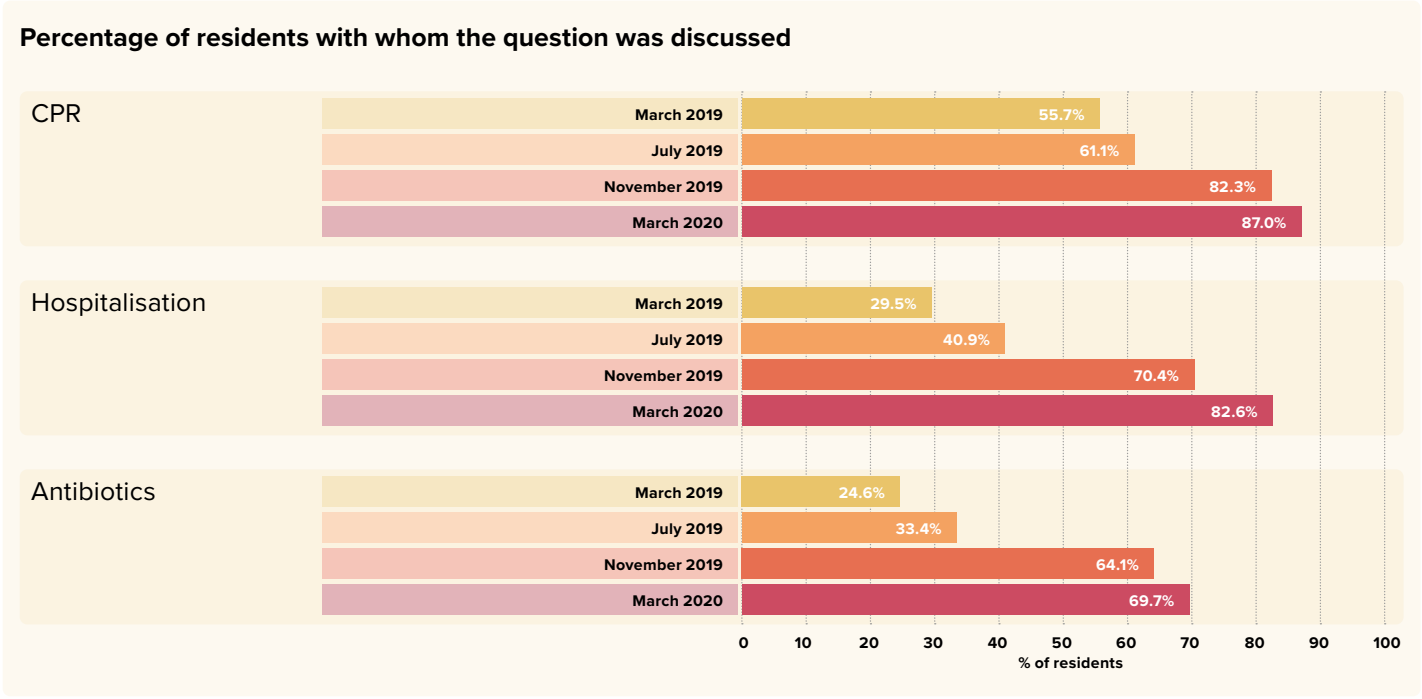

Figure 7. *The percentage of residents with clarified answers to ACP conversations between March 2019 and March 2020.*

and their next of kin was challenging in the first year of INTERCARE. Furthermore, not every LTCF worked with in-house physicians, making it difficult to involve the residents' physicians. INTERCARE nurses can drive the implementation of ACP and are well-equipped to conduct discussions, however implementing ACP in LTCFs requires clear processes, and it takes time until these are fully embedded into daily practice (Guerbaai et al. 2023a). Over the study period, we saw a clear increase in the percentage of residents that received such conversations. Moreover, we heard from the LTCFs that given the focus on ACP during the study period, they felt prepared for the challenges in view of ACP during the COVID-19 pandemic, which started immediately after the study ended.

Interprofessional collaboration

Physician's perspective

Physicians were interviewed during the study and experienced the INTERCARE model differently: whilst some physicians did not notice any changes, others expressed a strong relief. Some physicians perceived an improvement in the communication and professional skills of the nurses through the introduction of the INTERCARE nurse, which was characterized, for example, by an early and problem-oriented clarification of resident situations. In some LTCFs, the INTERCARE nurse became a constant contact person, ensuring better care continuity.

Physicians were less solicited, and the factual communication of the nurses enabled better-targeted medical decisions. Although some doctors did not "feel" the introduction of the INTERCARE nurse, others knew the INTERCARE nurse personally and conveyed that INTERCARE nurses, through their experience in long-term care, can bring a different perspective on the residents' situation. The INTERCARE nurses were described by physicians as competent, equipped with good communication skills and open and interested in developing their knowledge and skills. The collaboration between physicians and INTERCARE nurses took place on a partnership and goal-oriented basis. It was clear that the INTERCARE nurse is an important catalyst for successful interprofessional cooperation with LTCFs. To establish good collaboration between physicians and INTERCARE nurses, mutual respect and trust must be established first. Some physicians have emphasized that they are willing to support the INTERCARE nurse and coach them in developing their medical skills and knowledge.

INTERCARE's impact on interprofessional collaboration

To assess the influence of INTERCARE on interprofessional collaboration within LTCFs, a survey was conducted among registered nurses and licensed practical nurses. The survey aimed to investigate the impact of INTERCARE on interprofessional collaboration and identify factors, from the perspective of registered nurses, contributing to any changes in collaboration between registered nurses, li-

censed practical nurses, and physicians (Plácido 2021). Overall, there was no significant change in the perception of interprofessional collaboration from the perspectives of registered nurses and licensed practical nurses over time. Still, associations between gender, environmental factors such as reciprocal learning, leadership, organizational readiness for change, and the perception of interprofessional collaboration were found (Plácido 2021). This means that registered nurses and licensed practical nurses perceive better interprofessional collaboration if they are motivated to learn new things as a team, to implement innovations and improve resident care, and if LTCF management cares about their staff, listens to their concerns, and shows them appreciation and recognition (Plácido 2021).

LTCF staff outcomes

Job satisfaction and recommendation

Between the baseline period and 12 months after the implementation of INTERCARE, LTCF staff job satisfaction and recommendation were similarly high, suggesting that LTCF teams were already content with their working conditions prior to the implementation of INTERCARE.

Intention to leave

Intention to leave their current position was surveyed in the form of five questions at baseline and 12 months after the implementation of INTERCARE. Some small but noticeable differences were seen for all items. It appears the implementation of INTERCARE gave LTCF staff the feeling that it would be easier than before INTERCARE to find a new job.

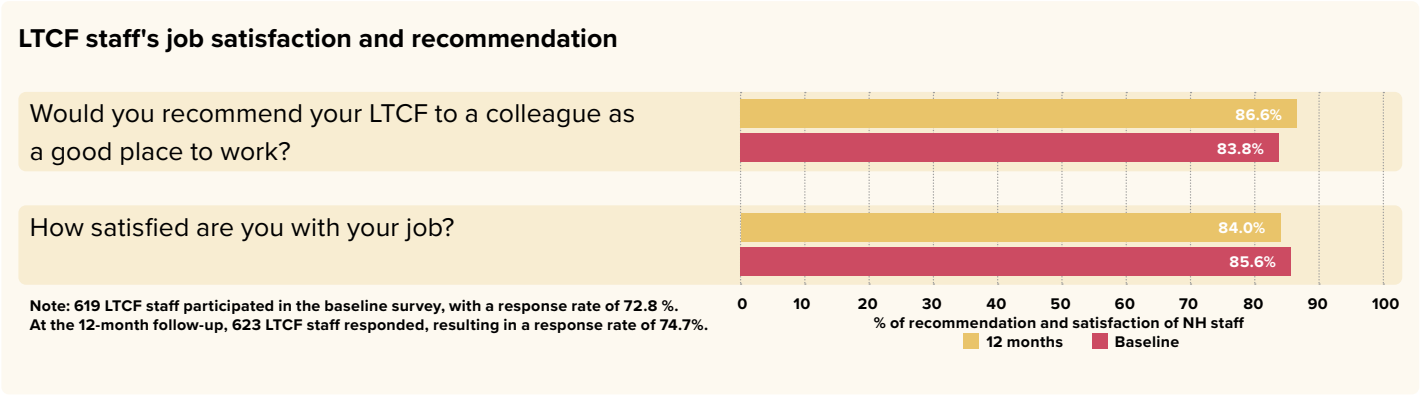

Figure 8. *LTCF staff job satisfaction and recommendation at baseline and 12 months after the start of the study.*

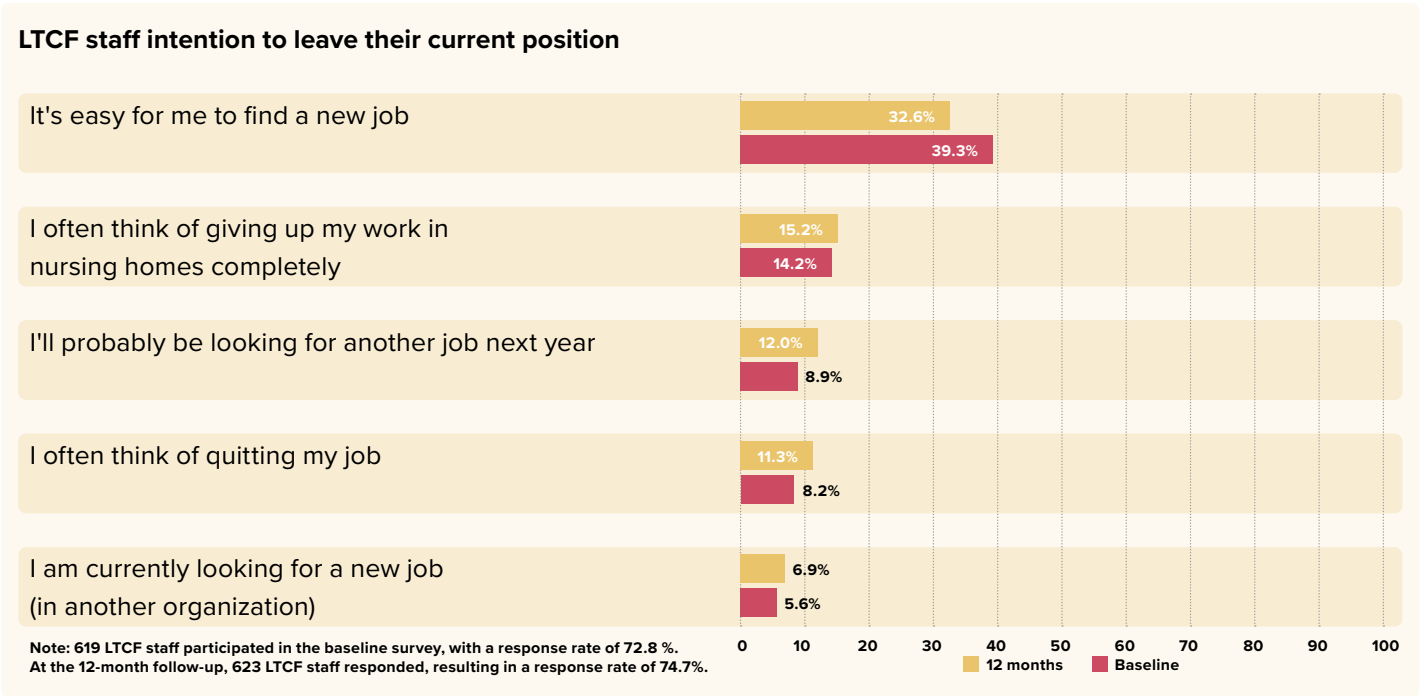

Figure 9. *LTCF staff's intention to leave at baseline and 12 months.*

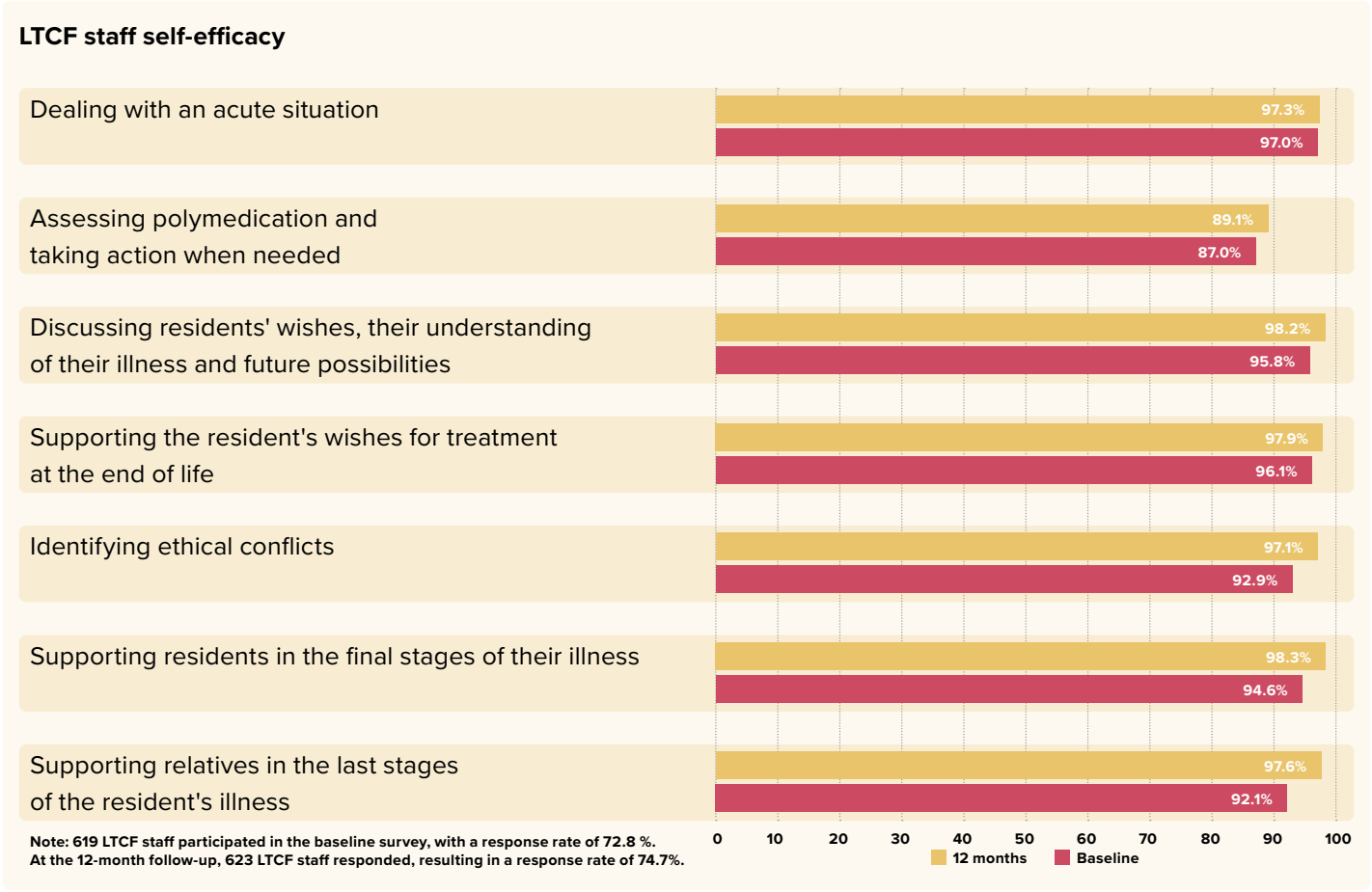

Figure 10. *LTCF staff self-efficacy in certain situations at baseline and 12 months after study start.*

Self-efficacy

Self-efficacy refers to the belief in one's personal capabilities to perform a specific task, in other words, how confident a person feels. Both handling acute situations (e.g., dealing with a fall) and initiating or having regular conversations with residents and families about end-of-life care can be challenging and influenced by the degree of self-efficacy. LTCF staff's self-efficacy was measured at baseline and 12 months after the LTCFs implemented the INTERCARE model. Overall staff self-efficacy regarding handling acute situations and supporting residents and relatives at the end of life was high (>90%). Assessing and measuring polypharmacy could be an area to focus on in future; although self-efficacy was still considered high, this item was the lowest rated (87%). INTERCARE supported self-efficacy through coaching and modelling provided by INTERCARE nurses.

Cost-effectiveness of INTERCARE

Economic analyses are essential for scaling up and integrating evidence-based interventions (EBIs) into daily practice but are rarely conducted in LTCF research. The INTERCARE research group aimed to conduct a first health economic evaluation of the implementation and intervention of the INTERCARE model for the eleven participating LTCFs. To do this, we calculated the costs and time required to implement the model. When calculating the costs, our focus was primarily on the salary of the INTERCARE nurse and activities directly associated with the implementation of INTERCARE within the nursing institution, such as training and internal project group meetings. We also calculated the losses and savings incurred by LTCFs in connection with hospitalisations. Finally, we performed a cost-effectiveness analysis (CEA) of the model compared to usual care. The analysis showed large differences in implementation and intervention costs and time to implement the model across LTCFs. Implementation costs and time per bed averaged CHF 685 and 9.35 hours, iancluding the preparatory work and the intervention period. Internal training and information sessions generated the highest costs and time. The average annual intervention costs in INTERCARE nurse salary were CHF 939 per bed, with an average number of 1.4 INTERCARE nurses per 100 beds and an average employment rate of 76% of full-time equivalent per INTERCARE nurse. Resident hospitalisations were associated with an average loss of 52% of the LTCFs' normal revenue. The cost of the INTERCARE model was CHF 22,595 per avoided hospitalisation. Although our results suggest that the INTERCARE model was more costly, it was more effective than usual care. Reducing hospitalisations benefits funders and LTCFs by avoiding lost revenue.

Anecdotal evidence

In addition to the outcomes measured, participating LTCFs talked about their experiences during the INTERCARE study. They talked about how the INTERCARE study led to clearer processes and structures and increased the attractiveness to work in LTCFs. LTCFs felt that prospective staff were interested in advertised positions because LTCFs were working with the INTERCARE model and staff fluctuation decreased, which for some LTCFs led to no longer relying on temporary staff. From a resident perspective, LTCFs reported that residents and their caregivers felt noticed, and issues or situations were more spontaneously resolved by the care team. The LTCFs noted fewer complaints and conflicts with residents and relatives and were very satisfied with INTERCARE nurses. No specific challenges were reported from the residents or relatives during the INTERCARE study; however, to lessen the burden of data collection, residents and relatives were not directly interviewed and asked how the model was perceived.

Chapter 6 – **Sustaining INTERCARE**

Twelve months after the study started, unit leaders were asked their opinion regarding the following core components: INTERCARE nurse, ACP, Stop&Watch and ISBAR. The component that seemed ambiguous regarding continuity of usage and recommendation was the Stop&Watch tool, as discussed in chapter 4 regarding implementation fidelity. LTCFs did underline that the tool was not always used and there was a lack of process regarding what to do once a tool was completed by a member of the care team. To encourage its utilization, more discussion is needed to decide whether Stop&Watch should remain a core component or if a different strategy is needed to enhance its sustainability.

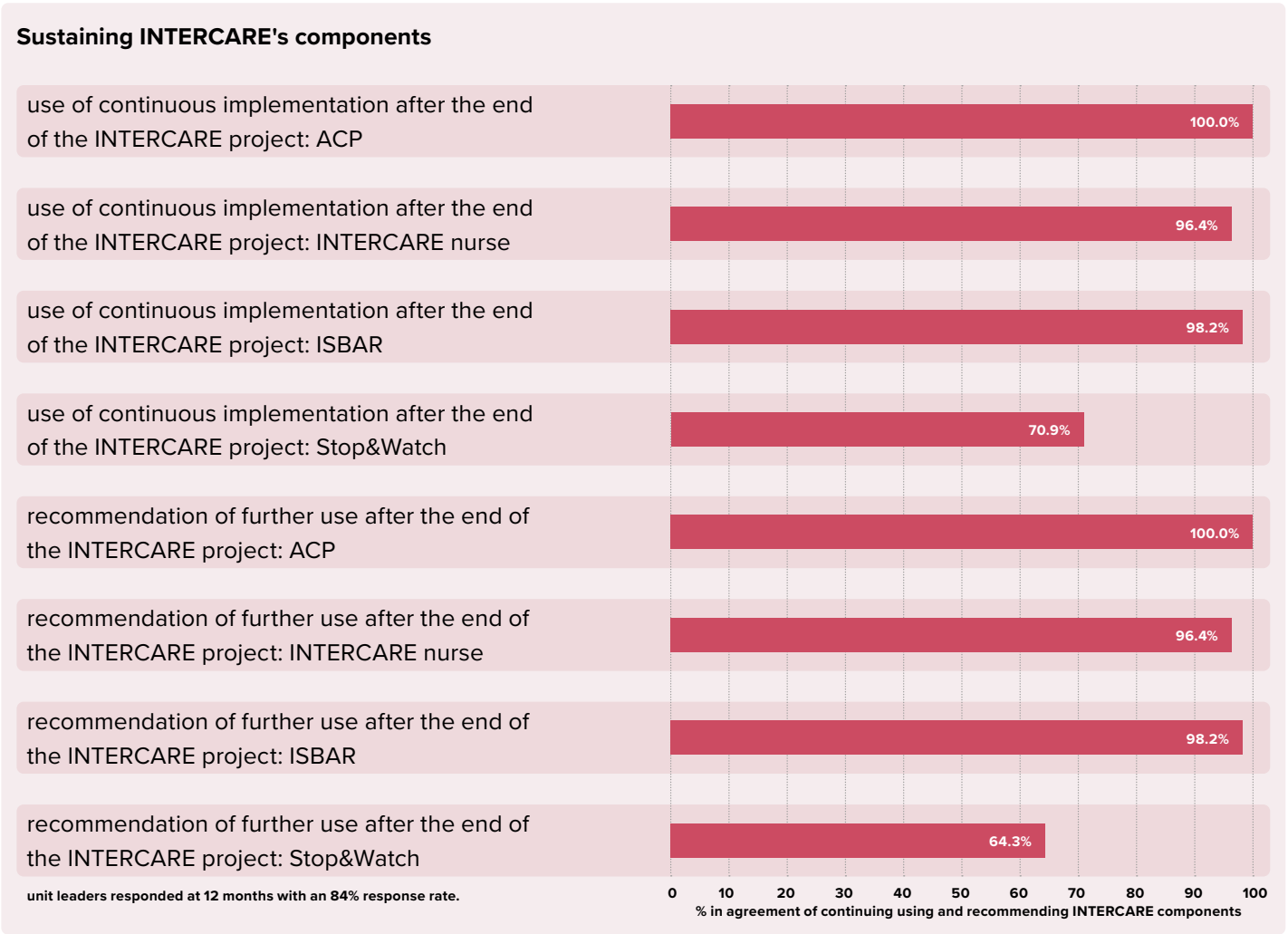

Figure 11. *Unit leaders' opinions regarding the sustainment of core components and their recommendations for further use.*

Chapter 7 – Discussion

Overall successes and challenges of INTERCARE

INTERCARE was developed as a hybrid type 2 implementation science study and sought to reduce unplanned transfers and collect information about and evaluate implementation outcomes (Zúñiga et al. 2019). During the preparation and implementation phases, the LTCFs were prepared, supported and trained by the study research group (Zúñiga et al. 2019). Overall, the INTERCARE study was successful in reaching its predefined clinical and implementation outcomes (Basinska et al. 2022; Guerbaai et al. 2023a; Zúñiga et al. 2022), but more importantly, the participating LTCFs reported that in general, the benefits of INTERCARE were considered to have met greater expectations than anticipated. The LTCFs found that the INTERCARE nurses were the centre of the model, that the acceptance of the INTERCARE nurses was very high, and that the role grew exponentially throughout the study. The INTERCARE nurses were seen as drivers for the implementation within the LTCFs and valued as support persons. INTERCARE was unexpectedly put to the proof shortly after the study ended in February 2020 when the COVID-19 pandemic emerged, and the LTCFs continued with the model. The LTCFs reported in a follow-up meeting (November 2020) that the INTERCARE nurses could train LTCF staff in hygiene measures and provide support and security. Although some model components (i.e., tools) were relegated and put to the side, LTCFs were prepared to reinvest efforts to pursue their reimplementation.

Regarding some of the faced challenges overall, LTCFs often underlined that any changes in leadership, staff turnover and the number of projects running simultaneously could be hindrances to implementing INTERCARE. Additionally, a recurrent challenge was the INTERCARE nurses' workload, the number of residents they were responsible for, and the importance of defining the latter. The regular exchange with LTCF leaders was considered vital for the role to be sustainable and for INTERCARE to be sustained. Physician implication was variable across the 11 LTCFs which participated in INTERCARE. From the different sub-studies conducted, notably the fidelity study, it was clear that implementing some core components, like ACP, could be challenging if physicians were not on-board. INTERCARE nurses also felt more comfortable with physician support and guidance.

Core components and implementation strategies: What to keep?

Regarding the core components of INTERCARE, most of them are still implemented in the LTCFs to date. As discussed previously, the INTERCARE nurse is the central element of the model, and the role is evolving.

To better assure the sustainability and scalability of the role beyond the INTERCARE study, we developed a Certificate of Advanced Studies program based on the INTERCARE nurse curriculum and it has been launched it as a postgraduate Certificate of Advanced Studies (CAS) program at the University of Basel. The CAS "INTERCARE – Klinische Fachverantwortung in der Geriatrie" focuses specifically on clinical knowledge for nurse working in expanded roles in LTCFs, not only developing clinical skills, but also coaching them to take over a clinical leadership role. Additionally, one of the CAS modules is designed for the LTCF leaders of the enrolled RNs. This is to support them in introducing the new role within their LTCF[8]. The component of ACP is important for LTCFs. It alleviates pressure on care staff, as handling situations is clearer, and residents' and relatives' wishes are known and can be fulfilled.

The ISBAR, Stop&Watch and hospital reflection tools were overall perceived as very helpful in supporting interprofessional collaboration and communication. Not all LTCFs perceived an added value of Stop&Watch. On the one hand, this instrument particularly asked for more implementation effort and commitment from unit leaders, regular training sessions for newly employed care staff, and refresher sessions for current staff. On the other hand, Stop&Watch might interfere with already well-established communication channels, especially in small teams.

Regarding the implementation strategies, all LTCFs agree on the need for regular training and support for implementing INTERCARE overall. Leadership encouragement and involvement are crucial for successful implementation

[8]More information about the program: https://nursing.unibas.ch/de/weiterbildung/cas-intercare/

and crucial for sustainment. Leadership meetings and the timely evaluation of data about quality indicators by means of reports (benchmarking reports, statistical process charts, and care staff surveys) were perceived as important to be able to identify and solve problems. This points to the importance of a guided implementation of a complex intervention like INTERCARE. At the same time, we need to consider providing LTCFs with tools that allow them more independence to monitor key data related to the quality of care or staff views.

Core components and implementation strategies: What to discard?

Based on discussions with LTCFs, it is important to consider whether the Stop&Watch tool should remain a core element of the INTERCARE model or a peripheral requirement. The processes to handle the completed tools are difficult to define and are LTCF-dependent. LTCFs could be allowed to implement it in a way that benefits them. Some LTCFs may want to use the Stop&Watch tool to help hand over information or help new staff look out for resident changes in condition before they feel confident to notice these and report them.

LTCFs and INTERCARE nurses found Comprehensive Geriatric Assessment difficult to implement and couldn't grasp this component. This component will be adapted, and the INTERCARE nurse will no longer be responsible for guiding the implementation alone, but rather with a focus given to interprofessionality to develop Comprehensive Geriatric Assessment in a way that responds to the LTCF resident's needs.

Regarding implementation strategies, a networking platform was not utilised to help INTERCARE nurses exchange. After some discussion with INTERCARE nurses, the chosen platform did not fit their needs. INTERCARE nurses appreciate the opportunity to exchange and learn from each other, but this exchange must occur in a different manner (i.e., intuitive forums or in-person meetings).

Core components and implementation strategies: What to improve?

Comprehensive Geriatric Assessment and data-driven quality improvement were challenging for LTCFs and INTERCARE nurses to grasp and understand (Guerbaai et al. 2023a). These two core components are currently under discussion with LTCFs to adapt them for better uptake. On one hand, comprehensive geriatric assessment is needed to have a clear picture of residents' needs and goals. Challenges exist, for example, in using existing assessment data, integrating focus assessments, or collaborating in the interprofessional team, which is key for a geriatric assessment, given the tight time and financial resources available in LTCFs.

A more in-depth look into the LTCFs' needs regarding Comprehensive Geriatric Assessment will be conducted in preparation for the scaling-up of the INTERCARE model in the next phase.

Regarding data-driven quality improvement, the LTCFs were able to identify and discuss potential issues (i.e., polypharmacy) but need support to analyse and understand data that they can obtain through routine resident assessments (RAI, BESA, PLAISIR). This topic is being discussed to determine how LTCFs can independently work with the data they collect.

As for the core component of interprofessional collaboration, LTCFs working with a mixed physician or external physician model struggled with furthering interprofessional collaboration. Further work is needed to better support LTCFs in successfully collaborating with external physicians.

Regarding the implementation and strategies used, LTCFs indicated in various meetings that the preparatory leadership meetings should occur earlier to enable more time to prepare for the implementation. LTCF directors would value specific coaching sessions like those for the INTERCARE nurses. More thought is needed for the embeddedness of LTCF unit leaders and how to best support them while implementing such a model.

The role of INTERCARE nurses must be regulated and distinguishable from other roles in the LTCFs to avoid conflict and to enable healthy interprofessional collaboration. The INTERCARE nurses' curriculum was an intensive strategy to support implementing and uplifting the INTERCARE nurse's role. Yet, INTERCARE nurses had different levels of training and experience, and in future, the curriculum could be adapted for each INTERCARE nurse depending on which areas of knowledge they lack.

The 11 LTCFs participating in INTERCARE showed high readiness levels to implement the model and were invested in preparing for the implementation many months before the study started. The LTCFs could decide when they felt ready to start with the INTERCARE model within six months, fixed by the research team. This enabled them to

plan, although the LTCFs felt that preparatory leadership meetings came too late and could have been conducted earlier to give more time for preparation.

Further steps in research

The INTERCARE model was developed based on a thorough contextual analysis and contributed to existing knowledge about models of care to reduce unplanned transfers. It is among the first studies in this field to follow the principles of implementation science with a strong theoretical background (Zúñiga et al. 2019). Although we obtained successful implementation and clinical effectiveness, further in-depth analysis of the implementation process of INTERCARE is needed to better understand the reasons behind INTERCARE's success and possible improvements to consider for the scaling up of INTERCARE and future models of care. Further research is necessary to understand which implementation strategies are crucial to support INTERCARE's implementation best and which strategies may need refinement or tailoring. As such, developing a Hybrid type 3 study design and randomizing a larger sample of LTCFs to various packages of implementation strategies, as well as measuring resident outcomes, will provide important insights into which bundles of implementation strategies are the most effective to support the implementation and sustainment of INTERCARE. Looking at different implementation strategies and how to adapt them to other LTCFs will facilitate the translation of research into practice (Ioannidis et al. 2014). Including LTCFs with – for instance – differences in management and leadership styles, staff turnover, hospitalisation rates, and GP implication could further help determine if additional implementation strategies are needed that might help LTCFs implement and sustain INTERCARE.

Robust methods to evaluate implementation fidelity in complex interventions require further research. So far, more guidance is needed to help researchers develop measurement tools to accurately measure fidelity throughout the implementation period of an intervention (Carroll et al. 2007; Guerbaai et al. 2023a). For LTCF research to improve the use of implementation science methods and, as an example, better measure key implementation outcomes such as the degree of implementation fidelity, funding agencies must allocate more importance to the cost this entails and better support researchers in this area. INTERCARE was a cost-intensive study, and to move forward and address knowledge gaps such as the study of implementation fidelity and process evaluations, accurate funding is a prerequisite for further research and further training of researchers in the field of implementation science. Most often, funding agencies focus on funding clinical studies or the clinical period of a trial (Swiss Academy of Medical Sciences (SAMS) 2021).

An important consideration for future research would be investigating how to best integrate residents and relatives in studies such as INTERCARE (Staniszewska et al. 2017). Nonetheless, it is still challenging to achieve, especially in LTCF settings, as most residents are frail, assistance may be needed, which can overburden LTCF staff, as well as lack of time and financial resources, which can be difficult for researchers to overcome. Based on the experience gained with INTERCARE, it is highly relevant and possible to organize workshops with residents and their relatives (Basinska et al. 2021). However, drop-out and last-minute impracticalities were frequent, which may hinder residents' and relatives' involvement.

Further understanding of how LTCFs problematize the detection of deterioration and hospital transfers is needed to better understand the care processes for residents and further improve these. The next step forward is targeting a reduction of targeted hospital transfers by implementing individual interventions tailored for specific transfers (i.e., fall-related transfers). Aiming for a decrease in transfers overall could be beneficial. For this, using algorithms developed to help assess hospital admissions from LTCFs could help strengthen the quality of collected data (Housley et al. 2018). Including LTCFs in studies with differences in low and high admission rates could also help identify different care processes and how models can be tailored for other LTCFs. Further work might also consider the value of nationally standardized record formats to improve early detection of symptoms and assessment of residents in LTCFs, reducing the variation of what is recorded in daily practice in LTCFs, which could facilitate access to complete homogeneous data for researchers across settings.

Further steps in the Swiss landscape

LTCFs in Switzerland, like other neighbouring countries, are increasingly struggling to recruit and retain enough skilled staff, which can jeopardize the quality of care. Although programs such as INTERCARE can increase attractiveness for LTCFs, whether this can suffice long-term and how to improve staffing ratios is still being determined.

In addition, uncertainties regarding access to a timely medical assessment and how this can be enhanced are still needed. There are many questions around role boundaries and the expectations of nurse experts such as INTERCARE nurses, how these nurses working in expanded roles are embedded in LTCFs, and how such roles should evolve. Switzerland poses specific challenges to implementing such roles, including Advanced Practice Nurses, as healthcare decisions are made on the cantonal level, and legislation changes and enactment may require years.

INTERCARE is a solution for LTCFs, policymakers and stakeholders who wish to strengthen geriatric expertise and reduce unplanned transfers but need more access to nurses working in expanded roles or Advanced Practice Registered Nurses (APRNs). Furthermore, INTERCARE can be implemented alongside the introduction of APRNs, as the model is complementary to models of care, including APRNs. This is important to consider as APRNs may become more readily available in Swiss LTCFs in the future, and a model like INTERCARE can serve as a steppingstone and facilitate the implementation of APRNs alongside nurses working in expanded roles.

Recommendations

In addition to implementing models of care like INTERCARE, policymakers and stakeholders need to think about better ways to help attract and retain nurses with additional training to work in LTCFs (Devi et al. 2021). Research shows that insufficient geriatric training appears in nursing curriculums, and the LTCF setting isn't a desirable setting to evolve in. Undergraduate nurses would benefit from more opportunities to discover the LTCF setting, and LTCFs with innovative models could be attractive and provide a stable learning environment for student nurses. Additionally, investing in making LTCFs more attractive includes better salaries, working conditions and, as we have experienced with INTERCARE, an innovative way of working that showcases LTCFs positively, such as offering a learning environment and support for RNs through nurses working in extended roles. LTCFs reported that the introduction of INTERCARE resulted in an increased desire among nurses to work in the participating LTCFs. RNs and nurses working in expanded roles must be publicly recognized for their additional skills, supported, and encouraged to develop their competencies further. Opportunities for training and coaching in LTCFs must be provided to help them develop the expertise required for roles to evolve within LTCFs, depending on the demands and LTCF population.

The overall INTERCARE study underpinned the need to strengthen partnerships between LTCFs and hospitals, ED departments, outpatient departments, and GP practices to gain a better understanding of what could be further addressed in both settings to tackle (re)admissions, improve communication and information exchange, and develop hospital discharge care plans which are in adequacy with the LTCF environment. Working more closely with GPs and further involving them in developing models of care such as INTERCARE and the practical daily work such models require is crucial to enable nurses working in extended roles to work within a scope of practice and boundaries that medical professionals agree with and understand.

The INTERCARE nurse played a central role within the INTERCARE model, highlighting the importance of leadership support and involvement throughout the study for its success. The support from leadership greatly impacts the implementation and sustainability of new nursing roles, such as the INTERCARE nurse (McKenna et al., 2009; McKenna et al., 2015). LTCF unit managers are vital in such studies, as they oversee various aspects, including interprofessional communication and decision-making. They have direct connections with LTCF staff and nurses in extended roles, making them influential stakeholders. Their support is crucial in garnering buy-in for the model on the units, providing assistance, and resolving conflicts with upper management (McKenna et al., 2009). Additionally, local stakeholders play a significant role in effectively communicating the model and the new role, thus facilitating its integration and acceptance. Active involvement of stakeholders also ensures clear communication of expectations and enables addressing any upcoming issues at a broader level.

Acronyms

ACP	*Advance Care Planning*
AIM	*Acceptability of Intervention Measure*
APN	*Advanced Practice Nurses*
CAS	*Certificate of Advanced Studies*
CGA	*Comprehensive Geriatric Assessment*
EBP	*Evidence-based practice*
EPIS	*Exploration, Preparation, Implementation, Sustainment*
FIM	*Feasibility of Intervention Measure*
GP	*General practitioner*
INTERCARE	*improving INTERprofessional CARE for better resident outcomes*
INTERSCALE	*Sustainable improvement of INTERprofessional care for better resident outcomes: SCAling up an Evidence-based care model for LTCFs*
IN	*INTERCARE Nurse*
ISBAR	*Identification, Situation, Background, Assessment, Recommendation*
LPN	*Licensed Practical Nurse*
LTCF	*Long-Term Care Facility*
LVN	*Licenced Vocational Nurse*
MAS	*Master of Advanced Studies*
RN	*Registered Nurse*

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