



Universität  
Basel

Fakultät für  
Psychologie



# Interprofessional collaboration in Swiss palliative care: a mixed-method approach

**Inauguraldissertation** zur Erlangung der Würde einer Doktorin der Philosophie vorgelegt  
der Fakultät für Psychologie der Universität Basel von

**Reka Schweighoffer**

aus Basel-Stadt

Basel, der 15.10.2020

Originaldokument gespeichert auf dem Dokumentenserver der Universität Basel  
[edoc.unibas.ch](http://edoc.unibas.ch)



Universität  
Basel

Fakultät für  
Psychologie



Genehmigt von der Fakultät für Psychologie auf Antrag von

Prof. Dr. Brigitte Liebig  
Prof. Dr. Rolf-Dieter Stieglitz

Datum des Doktoratsexamens: 18.01.2021

---

Dekan der Fakultät für Psychologie



## Erklärung zur wissenschaftlichen Lauterkeit

Ich, Reka Schweighoffer, geboren am 10.01.1992, erkläre hiermit, dass die vorliegende Arbeit ohne die Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel selbstständig verfasst habe. Zu Hilfe genommene Quellen sind als solche gekennzeichnet. Die veröffentlichten oder zur Veröffentlichung in Zeitschriften eingereichten Manuskripte wurden in Zusammenarbeit mit den Koautoren erstellt und von keinem der Beteiligten an anderer Stelle publiziert, zur Publikation eingereicht, oder einer anderen Prüfungsbehörde als Qualifikationsarbeit vorgelegt. Es handelt sich dabei um folgende Manuskripte:

- Schweighoffer, R., Reeves, E., & Liebig, B. (2020). Collaborative Networks in Primary and Specialized Palliative Care in Switzerland-Perspectives of Doctors and Nurses. *The Open Public Health Journal*, 13(1).
- Schweighoffer, R., & Liebig, B (submitted for publication). Modes of Collaboration and Comprehensive Network Building in Palliative Care- an explorative study.
- Schweighoffer, R., Blaese, R., & Liebig, B (2021, forthcoming). Organizational Determinants of Information Transfer in Palliative Care Teams: A Structural Equation Modeling Approach. *PLoS One*.

Basel-Stadt, der 15.10.2020

Reka Schweighoffer

**Basel, 15. 10. 2020**

## **Acknowledgement**

This dissertation is part of the research project "Coordination and collaboration in primary palliative care. Palliative care networks in Switzerland", which was carried out with the kind support of the Swiss National Science Foundation SNSF as part of the research program NRP 74 "Smarter Health Care" ([www.nfp74.ch](http://www.nfp74.ch)) from 2017 to 2020.

I would like to thank everyone who was involved and supported this work. First and foremost, I would like to thank our primary investigator and the project lead of this study, Prof. Dr. Brigitte Liebig. She always greatly supported this dissertation with words and deeds, and I am thankful for her guidance, advice on the papers, and everything she has taught me during the past years. Furthermore, I would like to extend my gratitude to the secondary supervisor, Prof. Dr. Rolf-Dieter Stieglitz, for taking the time to advise on and kindly review this work. I would also like to thank all of the experts in palliative care, who served as advisors and as a sounding board for this research project.

I would also like to thank our former associated team members Emily Reeves, Eveline Degen, Birgit Schmidt, and Noemi Nagy for their contributions to the project, and Richard Blaese for sharing his statistical knowledge. It was a great pleasure to work with you and to learn from you. Finally, I would like to thank my partner, my siblings, my family and friends, who supported me greatly during my doctoral studies. I could not have done this without you.

## **The papers of this dissertation**

**Paper A** Schweighoffer, R., Reeves, E., & Liebig, B. (2020). Collaborative Networks in Primary and Specialized Palliative Care in Switzerland-Perspectives of Doctors and Nurses. *The Open Public Health Journal*, 13(1).

**Paper B** Schweighoffer, R., & Liebig, B (submitted for publication). Modes of Collaboration and Comprehensive Network Building in Palliative Care- an explorative study.

**Paper C** Schweighoffer, R., Blaese, R., & Liebig, B (2021, forthcoming). Organizational Determinants of Information Transfer in Palliative Care Teams: A Structural Equation Modeling Approach. *PLoS One*.

Other publications within the project, not included in this dissertation:

Schweighoffer, R., Nagy, N., Reeves, E., & Liebig, B. (2019). Collaboration in Palliative Care Networks in Urban and Rural Regions of Switzerland. *International Journal of Nursing and Health Science*, 13(1), 18-21.

Reeves\*, E., Schweighoffer\*, R., & Liebig, B. (2019). Community readiness for palliative care services in Switzerland: Basis for public health strategy for health psychologists. *Psychreg Journal of Psychology*, 3(2), 94-95.

Reeves, E., Schweighoffer, R., & Liebig, B. (2020). An investigation of the challenges to coordination at the interface of primary and specialized palliative care services in Switzerland: A qualitative interview study. *Journal of Interprofessional Care*, 1-7.

Reeves, E., Liebig, B., Schweighoffer, R. (2020). Care Coordination in Palliative Home Care: Who Plays the Key Role? *International Journal of Integrated Care*, 2020; 20(3): 15, 1–9.

## Summary of contents

<b>1</b>	<b>Acknowledgment .....</b>	<b>3</b>
<b>2</b>	<b>The papers of this dissertation.....</b>	<b>4</b>
<b>3</b>	<b>Summary of contents .....</b>	<b>5</b>
<b>4</b>	<b>List of abbreviations .....</b>	<b>7</b>
<b>5</b>	<b>Abstract.....</b>	<b>8</b>
<b>6</b>	<b>Introduction .....</b>	<b>9</b>
6.1	<i>National definition and principles of palliative care.....</i>	<i>9</i>
6.2	<i>Levels of palliative care .....</i>	<i>9</i>
6.3	<i>Provision of palliative care in Switzerland.....</i>	<i>11</i>
6.4	<i>State of research in the field.....</i>	<i>13</i>
6.4.1	<i>Interprofessional collaboration: need and challenges .....</i>	<i>13</i>
6.4.2	<i>Palliative care networks and integrated palliative care.....</i>	<i>14</i>
<b>7</b>	<b>Theoretical basis of the study .....</b>	<b>15</b>
<b>8</b>	<b>Need for further analysis .....</b>	<b>16</b>
8.1	<i>Focus of this thesis and research questions.....</i>	<i>17</i>
<b>9</b>	<b>Methods.....</b>	<b>18</b>
9.1	<i>The survey .....</i>	<i>18</i>
9.1.1	<i>Study sample .....</i>	<i>18</i>
9.1.2	<i>Study instruments .....</i>	<i>19</i>
9.1.3	<i>Data collection.....</i>	<i>19</i>
9.1.4	<i>Measures .....</i>	<i>19</i>
<b>10</b>	<b>Primary descriptive results of the survey .....</b>	<b>20</b>
10.1	<i>Teamwork and interprofessional exchange of palliative care providers.....</i>	<i>20</i>
<b>11</b>	<b>Summary of papers .....</b>	<b>21</b>
11.1	<i>Paper A.....</i>	<i>21</i>
11.2	<i>Paper B.....</i>	<i>26</i>
11.3	<i>Paper C.....</i>	<i>32</i>
<b>12</b>	<b>Conclusion.....</b>	<b>44</b>
12.1	<i>What the studies add to current research.....</i>	<i>44</i>
12.2	<i>Implications for future research .....</i>	<i>46</i>
<b>13</b>	<b>Bibliography .....</b>	<b>48</b>
<b>14</b>	<b>Curriculum Vitae.....</b>	<b>54</b>
<b>15</b>	<b>Attachments.....</b>	<b>56</b>

## List of Abbreviations

PC	Palliative care
PCN	Palliative care network
IPC	Interprofessional collaboration
PPC	Primary palliative care
SPC	Specialized palliative care
MPCT	Mobile palliative care teams
GP	General practitioner
SNSF	Swiss National Science Foundation
FOPH	Federal Office of Public Health
FMH	Swiss Medical Association
MFE	Association of Swiss general practitioners and pediatricians
IDS	interdisciplinary training in palliative care

## **Abstract**

In order to achieve high quality care and cost efficiency in palliative care, inter-professional collaboration is imperative. Inter-professional collaboration has been broadly investigated in health care research, yet still, there is limited knowledge about to which extent, and in what ways, palliative care providers collaborate with each other. However, this research is much needed, since it is known from previous research that when the formation of strong ties between professionals, especially between primary and specialized care, is being inhibited, this can lead to negative patient outcomes due to a lack of continuity of care. Shortcomings in interprofessional collaboration could cause a loss of information, which might result in that patients do not receive the best possible care or are unnecessarily transferred from one care setting to another. On the other hand, strong collaborative networking of various medical and supporting professions can ensure cost- efficient and high-performance care provision. For this reason, I tried to highlight possible gaps in collaboration and networking building, which can serve as a basis for decision makers to start future incentives to foster collaboration. My thesis further investigates, if different organizational factors contribute to, or hinder, information exchange in palliative care teams as perceived by professionals. There is a major gap in research, concerning which organizational factors, such as internal guidelines for collaboration, the use of electronic patient files, the evaluation of collaborative processes, or sufficient opportunities for face-to-face meetings contribute to information sharing in palliative care, which is a major part of successful collaboration. Results of this study can guide decision makers to ensure a more adequate distribution of organizational resources in the future. In summary, this thesis investigates patterns of collaboration, and organizational determinants for information sharing of palliative care professionals in Switzerland, using statistical data of palliative care providers obtained from a cross-cantonal survey (N=1,111), and a set of qualitative interviews with specialized doctors.

**Keywords: palliative care, interprofessional collaboration, integrated care networks**

## **6. Introduction**

### **6.1 National definition and principles of palliative care**

In Switzerland's first "National Guidelines for Palliative Care", palliative care is understood as the holistic care and treatment of patients with an incurable, life-threatening and progressive disease (Binder & von Wartburg, 2009). Palliative care is intended to prevent human suffering; it aspires to treat the patient holistically, taking into account the physical, emotional, social and spiritual dimensions of the patients (Sepulveda et al., 2002). The focus of treatment is not curative, but rather on achieving the best possible quality of life for patients' remaining lifetime. Importantly, palliative care entails the psychosocial support of close relatives of the patient, even after the patient's death (Binder & von Wartburg, 2009).

Palliative care is typically delivered by an interprofessional team of health care professionals with a background in nursing and medicine, working closely with other professionals with a background in psychology, physiotherapy, social work, pastoral care and other occupations. Volunteers can also be part of the interprofessional team, given that their qualifications and responsibilities are matched to their tasks (Egli, von Wartburg & Näf, 2016).

### **6.2 Levels of palliative care**

Elements of curative and palliative care may be combined in a complementary way during the progression of an illness. Unlike hospice care, palliative care is not solely limited to terminal care, but can be introduced in early stages of a patient's disease progression (World Health Organization, 2002) As the patient's condition deteriorates, the proportion of palliative care typically increases, until during the final phase (last months) of life, palliative elements take clear priority in medical and nursing care.

The setting in which palliative care patients are treated depends on the individual's needs and preferences (World Health Organization, 2002). The Swiss national framework distinguishes between three levels of palliative care: public palliative care awareness, primary palliative care and specialized palliative care (Figure 1). These levels relate to the degree of specialisation of palliative care competencies, facilities and services required to meet the patient's (and his or her relatives') needs in the best way possible (von Wartburg & Näf, 2012).

The most basic level is "palliative care awareness", which relates to society's need for information and advice. At this level, cantonal regions should ensure that the general population, regardless of whether they are directly affected, are properly informed of and have access to sufficient information about palliative care services (Binder & von Wartburg, 2009).

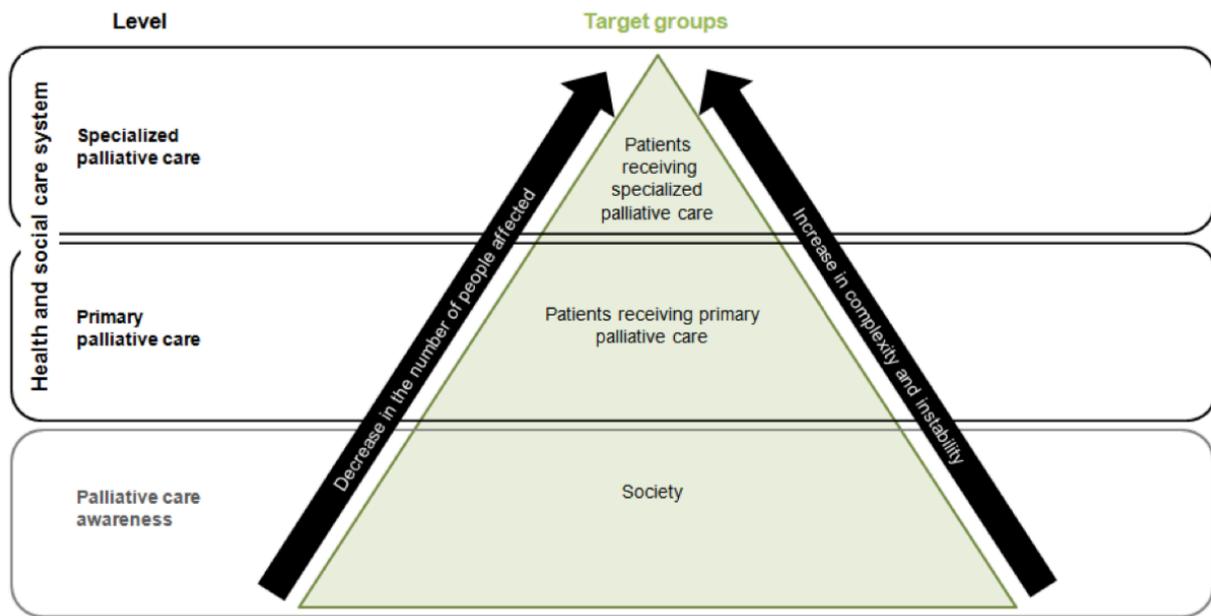
The second level is “primary palliative care” (PPC). According to the National Guidelines for Palliative Care, this level is always based on patients’ general palliative care needs (von Wartburg & Näf, 2012). Patients receiving PPC are those who are approaching their final phase of life due to the progression of an incurable, life-threatening and/or chronically progressive disease, but do not suffer from severe complications, and/or are in need of rather basic medical and psychosocial services, which are most often delivered by nurses, general practitioners (GPs) and professionals from the community (Egli, von Wartburg & Näf, 2016).

The third level is “specialised palliative care” (SPC), which is based on patients’ specialist palliative care needs. This patient group is significantly smaller than the PPC group, and comprises patients who rely on the support of a specialized palliative care team. This may be because their medical condition is unstable, or they are in need of complex medical and psychological treatment to stabilize distressing symptoms, such as severe anxiety or dyspnea (von Wartburg & Näf, 2012). Specialized palliative care is usually offered in hospitals or hospices with hospital status, as well as by inpatient or ambulatory/mobile palliative care teams (MPCTs). Mobile palliative care teams are comprised of medical doctors specializing in PC, and/or highly specialized nurses, and can provide complex care in ambulant settings (Federal Office of Public Health, 2014). The degree of instability of a patient in SPC is reflected by the time and effort required to evaluate the patient’s condition. Naturally, a high degree of health status complexity requires higher levels of effort for adequate coordination, monitoring and support, and therefore places great demands on the care team (FOPH, 2014).

Whenever possible, patients should receive palliative care at the place that they prefer (WHO, 2002). If the condition of a patient who receives PPC becomes more complex and less stable, and the patient still wants to be cared for at home, the care team should assess whether MPCTs can be brought into the home care setting. If this is not possible, for example because this service is not available nearby or there is insufficient local MPCT capacity, it is recommended that the patient is being transferred to a stationary setting, such as an acute-care hospital, to receive SPC (FOPH, 2014).

A patient’s transition from PPC to SPC depends on the complexity and instability of his or her needs. Smooth and frequent transitions from one patient group to the other are quite common (von Wartburg & Näf, 2012). Importantly, different patient trajectories require different services from palliative care teams, and different combinations of professional competencies (Murray et al., 2005).

Figure 1. Three levels of palliative care- target groups and care structures (FOPH, 2014)



### 6.3 Provision of palliative care in Switzerland

Currently, the traditional “age-pyramid” of the 19th century has taken the form of a “fir tree”, in which the baby boom generation, born between 1940 and 1971, dominates (Bundesamt für Statistik BFS, 2019). It is estimated that the percentage of individuals aged 65 years and over will increase from 18% in 2020 to 28% in 2050, thanks to numerous prevention measures, healthier lifestyles and high-quality healthcare (BFS, 2019). This trend of a steadily ageing population is projected to continue, and this steadily ageing society will lead to a continuously growing number of residents living—and dying—with one or several chronic diseases (BFS, 2019). This shift in society leads to a greater need for integrated and well-organized palliative care provision than ever before.

Internationally, the Swiss health system ranks at the top in its efficiency, quality of healthcare provision, range of treatment offers and disease prevention and health promotion (Davis et al., 2014). Though healthcare services are rather costly, insured patients are offered a large choice of treatment options, and the population seems to be satisfied with the services provided (Petrini & Sturny, 2013).

Though Switzerland may have one of the best healthcare systems globally, recent studies have suggested shortcomings in the subfield of palliative care. In an international comparison from 2015, *The Economist* ranked Switzerland 15th in quality of end-of-life care and 18th in the affordability of palliative care services (The Economist, 2015). The financing of palliative care

services weighs heavily in that ranking, and compared to other countries, palliative care services, and especially at-home care, require considerable out-of-pocket expenditures for Swiss patients and their families. However, according to the WHO definition, palliative care services should not be seen as “luxury services” for those who can afford them, but instead should be included in countries’ universal health coverage and accessible to all (WHO, 2002). A recent study by Clark and colleagues also revealed room for improvement in palliative care provision. Their objective was to describe current levels of international palliative care development by conducting an online survey of experts of 198 countries on 10 indicators of palliative care provision in 2017 (Clark et al., 2020). Of the authors’ six categories—1) no known palliative care activity, 2) capacity-building, 3a) isolated care provision, 3b) generalized provision, 4a) preliminary integration into mainstream provision, and 4b) advanced integration—Switzerland fell into the second-best category, 4a, “preliminary integration”. While countries such as the Netherlands, Canada, New Zealand and Great Britain have integrated the concept of integrated, regional palliative care provision as a key element of their governmental health policy, the regional cantons in Switzerland are free to decide if and to what extent they foster local palliative care initiatives.

With the establishment of two National Strategies, from 2010–2012 and 2013–2015, the Swiss government recognized the need for improvement, and promoted new standards and best practices for palliative care. The aim of these initiatives was to foster research, improve training possibilities and fund the expansion of infrastructure for palliative care provision (Binder & von Wartburg, 2009; von Wartburg & Näf, 2012). As a result, a number of local and regional initiatives intended to strengthen interprofessional involvement in palliative care were initiated (Fillietaz, Berchtold, Kohler & Peytremann-Bridevaux, 2018).

Extensive investments have been made, offering further training in the field of palliative care, supporting community-based care structures (e.g. through the establishment of outpatient clinics or mobile palliative care teams), and in the promotion of integrated palliative care across long-term care, acute inpatient and outpatient care. In 2019, the FOPH stated, that “inter-professional collaboration now occupies a central position across various institutions and treatment situations” (Zeltner, De Simone-Nalotto & Balthasar, 2020). In addition, numerous efforts have been made in the last three years to strengthen the exchange of information between palliative care specialists at interfaces (De Pietro, & Francetic, 2018).

## **6.4 State of research in the field**

### **6.4.1 Interprofessional collaboration: needs and challenges**

Due to the complexity of their cases and the need for a holistic approach, the treatment of palliative care patients requires more efficient interprofessional care and coordination than the treatment of patients with curative-focused illness trajectories (WHO, 2014).

A number of definitions have been put forward for interprofessional collaboration (Freeth, 2001; D'Amour et al., 2005). In general, interprofessional collaboration is defined as a process that includes communication, cooperation and decision-making, enabling a synergistic influence of combined skills and knowledge aimed at the same goal (D'Amour et al., 2005). In palliative care, care providers' joint goal is satisfactory patient outcomes in terms of providing good medical and nursing care (pain relief and prevention of suffering) and providing social and mental care for patients and their relatives (treatment of existential fear, anxiety and depression, financial counselling). Interprofessional collaboration in palliative care can be understood as a blending of professional backgrounds and cultures achieved through sharing interdisciplinary knowledge and skills to improve the quality of life of palliative care patients and their relatives (Oishi & Murtagh, 2014). Interprofessional collaboration in palliative care can occur in explicit and implicit forms, but is always to some extent influenced by structural, organizational, managerial and personal factors (e.g. Witt Sherman et al., 2017; Bainbridge et al., 2010).

A number of studies have demonstrated the multiple challenges to interprofessional collaboration in Swiss palliative care. The inconsistent organization of services in the different cantons remains one of the biggest challenges for provision of comprehensive palliative care across Switzerland (Sager & Moser, 2014; Reeves, Schweighoffer & Liebig, 2019). As a result, patients with complex or life-limiting illnesses often must cross multiple organizational boundaries to access the services they need (Krones & Monteverde, 2017). Structural, organizational and managerial barriers between professionals working in primary and specialized palliative care—arising from different sociodemographic preconditions, differences in the historical evolution of cantonal healthcare systems and the availability of resources—can cause significant gaps in collaboration (Liebig & Piccini, 2017; Reeves, Schweighoffer & Liebig, 2019). Information loss between care providers due to inconsistent structural, organizational and managerial features, has been emphasized as a major barrier to high-quality palliative care internationally (Johnson et al., 2011; Bainbridge et al., 2010; Lynch & Clark, 2013). Previous research has shown that a lack of information sharing between professionals hinders shared decision-making (Oishi & Murtagh, 2014). A lack of communication may result

in patients suffering from insufficient pain treatment, a lack of psychosocial treatment, medication mix-ups or unnecessary transfers (Goldsmith, Wittenberg-Lyles, Rodriguez & Sanchez-Reilly, 2010). Collaboration with the patients' support systems (informal caregivers, relatives) may also suffer from information loss and could cause trust issues and lead to complicated bereavement (Oishi & Murtagh, 2014).

#### **6.4.2 Palliative care networks and integrated palliative care**

A palliative care network is usually defined as a regional or local association of organizations, institutions and palliative caregivers who work towards improving quality of care for patients by formalizing their collaboration (Zalot, 1989). In the definition of Eychmüller, the smallest unit of regional palliative care provision is not a single institution or an individual, but a palliative care network (Eychmüller & Benedetti, 2012). A palliative care network usually comprises at least one medical doctor and one nurse or trained informal caregiver who are collaborating to provide patient care. The goal behind the formation of any palliative care network is the fostering and growth of interprofessional collaboration (Morin et al., 2017). In line with this, recent research from the Netherlands and Australia states that the formation of palliative care networks in their countries was perceived to result in improved collaboration and enhanced quality of palliative care provision, as seen by both care providers and palliative care patients' relatives (Van-de Sande, 2005; Morin et al., 2017). Based on these researchers' findings, it can be reasoned that collaborative networks are a breeding ground for the provision of sustainable palliative care, since resources are allocated and used more efficiently in formalized palliative care networks than in standard care.

The involvement of inter-professional teams in formalized care networks is a key ingredient of integrated care (Schmitz, Atzeni & Berchtold, 2020). There is no current unanimous definition of integrated care (Amelung & Stein, 2017). According to Kodner and Spreeuwenberg (2002), the term integrated care is used interchangeably with the terms integrated health, coordinated care, comprehensive care, seamless care or transmural care, and is seen as a worldwide trend in health care reforms and new organizational arrangements, one aimed at creating better-coordinated and more inclusive care provision systems. The WHO provides the following, more concrete, definition: "Integrated care is a concept bringing together inputs, delivery, management and organization of services related to diagnosis, treatment, care, rehabilitation and health promotion. Integration is a means to improve services in relation to access, quality, user satisfaction and efficiency" (Gröne & Garcia-Barbero, 2002).

The more specific notion of integrated care provision in palliative care has emerged only in the past decade, with a prominent working definition put forward by Siouta and colleagues in 2016. They stated that, “integrated palliative care involves bringing together administrative, organizational, clinical and service aspects in order to realize continuity of care between all actors involved in the care network of patients receiving palliative care. It aims to achieve quality of life and a well-supported dying process for the patient and the family in collaboration with all the care givers (paid and unpaid)” (Siouta et al., 2016). This definition suggests that integrated palliative care emphasizes the importance of continuity of care between different care providers and contexts within a palliative care network.

According to a recent study, the development and the implementation of integrated care models is considered to be limited in Switzerland (Filliettaz, Berchtold, Kohler & Peytremann-Bridevaux, 2018). Innovative, integrated care models seem to be restricted to health maintenance organizations, and GP networks, as well as to a few chronic disease programs (Ebert, Peytremann-Bridevaux & Senn, 2015; Filliettaz, Berchtold, Kohler & Peytremann-Bridevaux, 2018).

Several characteristics of the Swiss health system can explain this phenomenon. As mentioned above, unlike many countries leading in palliative care provision, Switzerland has no federal regulatory framework for integrated palliative care. Switzerland has a federalist organization with effectively 26 differently evolved cantonal healthcare systems, and responsibilities are divided between the federal, cantonal and local levels (Sager & Moser, 2014; Ebert, Peytremann-Bridevaux & Senn, 2015). Furthermore, even though initiatives for electronic tools to share patient records have begun to be implemented in the past five years, there is a lack of interoperable electronic systems, which poses a potential barrier to the provision of integrated palliative care (De Pietro & Francetic, 2018).

## **7. Theoretical basis of the study**

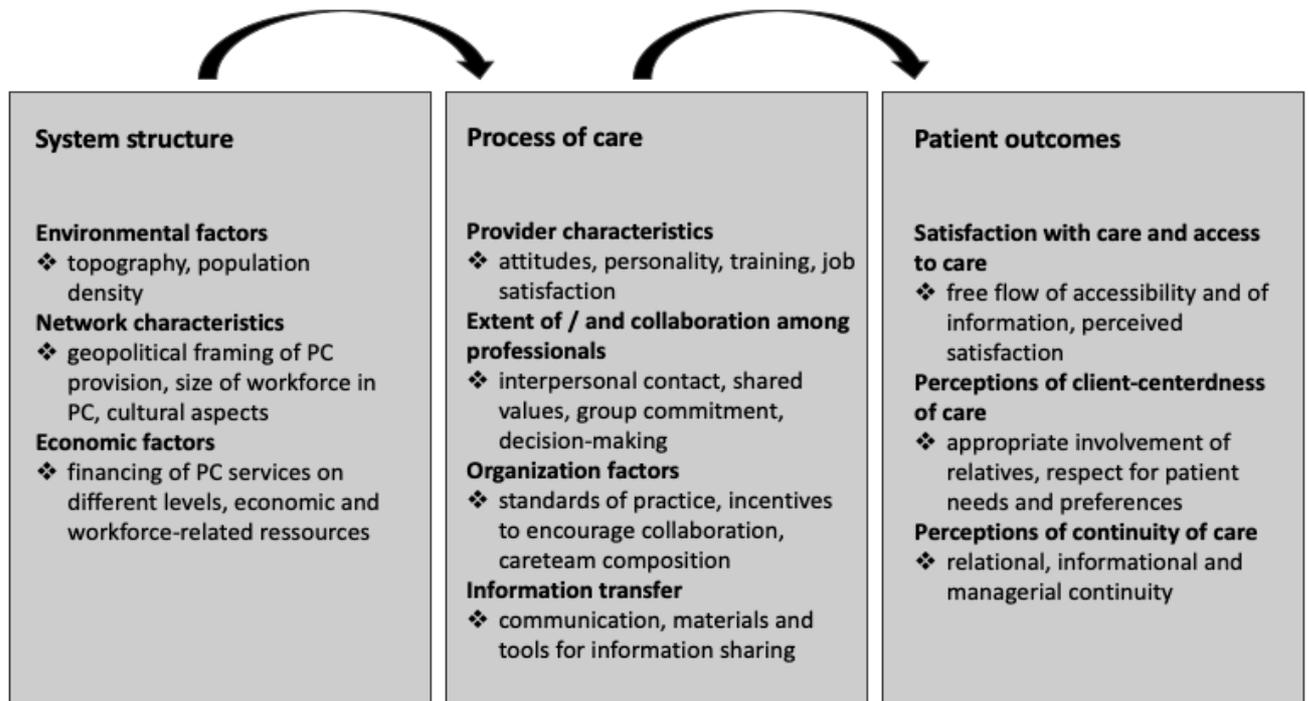
This thesis builds upon the core concepts of inter-professional collaboration, integrated care and palliative care networks, which have been described in detail in the previous chapter. In this thesis, interprofessional collaboration is understood as a process of care coordination and mutual goal-sharing of several professional groups working in palliative care (D’Amour et al., 2005). We assume that collaborative care processes sometimes occur implicitly, without being steered by official guidelines or protocols, and that they are sometimes embedded into formal structures with clear referral pathways, steered by formal rules and contracts, and thus occur explicitly and in the form of an “official” care network. An “official” care network differs from

an “unofficial” network in that it presupposes the formalization of care principles, which could be an agreement between several organizations, a protocol, public mandate or a report, that steers collaborative activities between several actors involved in care provision (see Schweighoffer & Liebig, forthcoming).

Furthermore, the papers comprising this thesis followed an underlying conceptual framework: Bainbridge's model of quality assessment for palliative care provision (Bainbridge et al., 2010). The use of this theoretical framework supported a more systematic, valid and empirically-sound method of study design and instrument development.

Bainbridge's model is based on the widely known input–process–outcome (IPO) model of Donabedian (Donabedian, 1988), and on previous empirical findings regarding high-quality care provision in PC (Bainbridge et al., 2010). Bainbridge's S-P-O model is represented by a chain of three boxes, containing structure, process and outcome, and connected in that order by unidirectional arrows (Figure 2). According to the model, information about quality of care can be drawn from the three main pillars of “structure”, “process”, and “outcomes”. *Structure* describes the context in which care is delivered, including population demographics, hospital buildings and availability of staff, financing and equipment. *Process* denotes transactions between care providers throughout the delivery of healthcare, including information transfer, shared values, group commitment and managerial and organizational factors that influence collaboration. Finally, *outcomes* refer to the perceived effects of patients and relatives on patient care. The parameter values of “patient outcomes” are strongly dependent on the pillars of “system structure” and “process of care” (Bainbridge et al., 2010). Bainbridge states that consideration of the features of his IPO model might be useful for future examinations of interprofessional collaboration (IPC) and organized palliative care networks.

Figure 2. SPO-Model of palliative care service evaluation, shortened version (after Bainbridge et al., 2010)



## 8. Need for further analysis

Although IPC has been broadly investigated in health care research, little research has investigated the every-day ways in which IPC occurs in palliative care. Collaboration and information sharing between GPs, ambulant nurses, hospital-based specialist palliative care teams and MPCTs have only rarely been systematically assessed and never quantified in the Swiss healthcare context (see also Otte et al., 2016; Giezendanner et al., 2018). In particular, the organization and management of palliative care services remains a largely unexamined field. There is a major gap in research regarding what organizational factors—such as internal guidelines for collaboration, the use of electronic patient files or opportunities for face-to-face meetings—professionals perceive as contributing to successful collaboration in palliative care. Furthermore, the organizational factors that facilitate or hinder information transfer and collaboration in palliative care might differ between the two provisional spheres of primary and specialized palliative care (see Camenzind, 2013). Thus, the extent of collaboration, as well as factors that facilitate or hinder collaboration within and between primary and specialized care providers, must be addressed and quantified.

## **Focus of this thesis and research questions**

The main focus of this thesis largely rests on Bainbridge's second pillar, namely "process of care" (Bainbridge, 2010). Building on the research gaps described in Section 2, the extent of collaboration between providers, and details of organizational aspects of collaboration and information transfer, are investigated.

This thesis aims to highlight some relevant dimensions of interprofessional collaboration and networking in palliative care, especially organizational and managerial determinants. It would be desirable to know, how and to what extent different professional groups of palliative care providers collaborate, as this would allow us to make statements about existing gaps in networking, as well as to undertake comparisons with other countries. Furthermore, a knowledge of what organizational factors facilitate or hinder information transfer among the palliative care workforce would be of value, since such findings could guide future decision-makers in ensuring adequate distribution of resources. Knowledge of the different organizational determinants that facilitate or hinder information transfer in either primary or specialized care would be especially crucial, as preconditions for the two care settings might differ substantially.

The following research questions are central for this thesis:

- How often do palliative care providers from medical fields (nurses, specialist doctors and GPs) in Switzerland collaborate with each other?
  - What do their professional social networks look like?
- Which different modes of interprofessional collaboration exist in palliative care?
  - How can these modes be characterized in terms of occurrence, management and organization?
- Which organizational aspects contribute to, or hinder, successful information transfer in palliative care teams?
  - Are there differences in some organizational aspects that contribute to successful information transfer in palliative care teams in the care settings of primary and specialized palliative care?

To answer the research questions, this thesis applies a mixed-method-approach. A cross-cantonal survey on collaboration and coordination was conducted to investigate the extent of collaboration of professionals and explore organizational facilitators and barriers to information

transfer. Furthermore, a qualitative study part was undertaken to shed light on different modes of interprofessional collaboration in palliative care.

## **9. Methods**

### **9.1 The survey**

A cross-cantonal survey was conducted between September and November 2018 with the main aim of assessing the extent of collaboration and the impact of certain organizational determinants on information sharing among palliative care providers in Switzerland. Medical doctors working in palliative care in hospitals, hospices and retirement homes, GPs, nurses and other allied professionals working in the field of palliative care were asked about their perceptions of collaboration in palliative care. Formal research approval for this study was obtained from the Ethics Committee of Northwestern Switzerland on 29 August 2018 (EKNZ, Req-2018-00490).

#### **9.1.1 Study sample**

The survey addressed professionals who, as of November 2017, were active in the provision of palliative care in Switzerland. Primary physicians were identified through the mfe-registry (association of Swiss general practitioners and paediatricians). Nurses were recruited via cantonal and local nursing associations, such as the Spitex, private nursing organizations, and long-term care facilities. The survey further addressed service units of specialized palliative care and support services (stationary hospital units, ambulatory consulting services, nursing homes and mobile palliative care teams). Furthermore, specialized doctors in private practice, such as oncologists, were identified via an internet search. The anonymity of responders was ensured by coding and data were handled in accordance with the Swiss law governing use of public data.

#### **9.1.2 Study instruments**

A questionnaire of 50 items of mostly Likert-scale type questions was constructed. The questionnaire was based on the conceptual framework of Bainbridge et al. (2010), the Index of Interdisciplinary Collaboration IIC– 42 (Bronstein 2002), as well as on the Job Satisfaction Survey (JSS; Spector, 1985). Some gaps were identified in the IIC questionnaires concerning important framework elements of Bainbridge's model, especially concerning organizational factors, such as care team composition or case management. Accordingly, additional questions were included in the questionnaire to cover Bainbridge's I-P-O domains to the greatest extent

possible. Items concerning basic demographic data were also added. All survey items were reviewed for comprehensibility and apparent validity by an expert panel. Based on current guidelines for generating cross-language survey instruments, the items of the questionnaire were translated in a multistage process from German into French and Italian (Harkness, Pennell & Schoua-Glusberg, 2004). Please find the full questionnaire in the attachment section of this thesis.

### **9.1.3 Data collection**

An initial pre-test was conducted using data from healthcare professionals working in rehabilitation (N=42). Data collection was carried out via snowball-sampling between 19 September and 30 November 2019, with a total of three rounds of reminders sent out. Palliative care providers in all regions of Switzerland were contacted by local associations and organizations (among others, palliative.ch, Swiss Cancer League, Curaviva, mfe, Spitex Schweiz) and asked to participate in our online survey. The questionnaires were passed on by the organizations via email in German, French or Italian. On average, it took participants 25 minutes to complete the questionnaire. Written informed consent was provided beforehand by each participant.

### **9.1.4 Measures**

Response data gathered from the survey was primarily analysed using R (R Development Core Team, 2008). Social network analysis was performed with the open source analysis tool “Gephi” (<https://gephi.org/>; Bastian, Heymann & Jacomi, 2009).

## **10. Primary descriptive results of the survey**

A total of N=1,111 health care and allied professionals from 24 Swiss cantons working in palliative care complemented the survey. There are no exact numbers available on how many healthcare providers and allied professions work in palliative care provision in Switzerland, therefore, it is impossible to provide an accurate statement about representativeness. However, to provide a perspective, palliative.ch, our main recruiting partner, counts approximately 3,100 active members of which the majority are active palliative care professionals (palliative.ch, 2020).

The average age of respondents was 50.9 years of age (standard deviation=10.35 years), and the majority of respondents (64.7%) were female. We assume that 21% of the respondents avoided stating their gender to maintain anonymity, as many work-related questions were

asked, which could have been perceived as sensitive. However, the anonymity of respondents was ensured by coding, which respondents were informed of at the beginning of the survey. Almost half (49.1%) of the surveyed professionals were working in hospitals and nursing homes (n=545), with 18.4% working at ambulant nursing organizations of Spitex (n=204), while general practitioners accounted for 8.7% of the answers (n=97). Professionals from hospices, MPCTs and specialists in outpatient practices were more marginally represented (n=187, 16.8%). Professionals from other fields of activity, such as psychology, pastoral care and social workers were assigned to the group of "complementary professions" and made up 7.1% of the sample (n=78). On average, professionals of long-term and stationary institutions cared for 52 patients in the last year (range: 1–1600), while professionals of conciliary and ambulant care cared for an average of 73 palliative care patients in 2017 (range: 1–1500). Some 45% of the healthcare providers had more than ten years of experience in palliative care (n=500) and 60% reported advanced training in palliative care.

### **10.1 Teamwork and interprofessional exchange of palliative care providers**

The importance of teamwork in palliative care provision is reflected in the statements of the professionals we surveyed, as the majority state that they work as part of a team when providing palliative care, or equally in a team and alone (88.8%). General practitioners, ambulant nurses and support personnel such as psychologists most often describe themselves as mostly working alone, while providing palliative care in a team setting seems to be the most common state of care provision in hospitals and long-term care.

Most of the surveyed professionals working in specialized care or in own practices indicated, that they were satisfied with their opportunities for interprofessional exchange (range: 64.8%–83.3%), while members of ambulant nursing groups (Spitex) indicated insufficient exchange possibilities with other professions when caring for mutual palliative care patients. In fact, 48.4% of Spitex nurses (N=98) in our sample were “not” or “not at all” satisfied with their opportunities for interprofessional exchange. Among our sample of palliative care providers, the degree of official network building in palliative care in Switzerland was generally perceived as rather low. Practicing physicians reported being part of an official palliative care network most frequently (69.6%), while only half of nursing professionals (51.2%) and less than half of support service providers, such as psychologists or pastoral caregivers (46.3%), felt like they were part of an official palliative care network. More than two-thirds (71%) of general practitioners did not feel they were embedded within an official palliative care network at all.

## **11 Summary of Papers**

### **11.1 Paper A**

Title: Collaborative Networks in Primary and Specialized Palliative Care in Switzerland – Perspectives of Doctors and Nurses.

Citation: *Schweighoffer, R., Reeves, E., & Liebig, B. (2020). Collaborative Networks in Primary and Specialized Palliative Care in Switzerland – Perspectives of Doctors and Nurses. The Open Public Health Journal, 13(1).*

#### **Introduction**

There is no information available about the collaborative networking of doctors and nurses when caring together for palliative care patients in Switzerland, though such information could be of great use in revealing gaps in collaboration. The construct of collaborative networks in healthcare, to which this paper refers, addresses the structure and dynamics of groups of care providers, which interact and collaborate with each other in order to accomplish common goals (Dudgeon, 2007). It is well-known that strong collaborative networking of various medical and supporting professions can ensure cost-efficient and high-performance provision of care (Sottas, 2018). On the other hand, when the formation of strong ties between professionals, especially between primary and specialized care, is inhibited, and the coordination of complex care provision is scarce, it can lead to negative patient outcomes due to a lack of continuity of care as well as additional healthcare costs (Bainbridge et al., 2010; Murphy-Ende, 2001).

Numerous studies have shown that the collaboration patterns of healthcare providers do not necessarily follow a specified organizational structure and are not steered by formal agreements (D'Amour, 2005). Therefore, previous research has advised that any attempt to gain an understanding of how multiple specialties collaborate should be undertaken in a bottom-up manner (Tasselli, 2014). This paper aims to examine the collaboration frequencies of groups of “key medical palliative care providers”, namely medical doctors and nurses within, and across, different settings of palliative care. Importantly, collaboration frequencies refer only to those specific situations in which professionals exclusively care for patients in palliative care, meaning that interprofessional collaboration when caring for patients with other diagnoses is not considered in this research. To our knowledge, this research paper is the first one to reconstruct collaborative networks of the following key professions working in palliative care from the bottom-up: (i) GPs in primary care, (ii) nurses in primary care, (iii) medical doctors

with additional training in palliative care (specialists in palliative care, oncology and internal medicine) working in hospitals and hospices and (iv) nurses in palliative care wards in hospitals and hospices.

## **Methods**

Social network analysis (SNA) is the process of investigating social structures through the use of graph theory by characterizing network structures in terms of nodes, which might be individual actors, or certain groups of actors, and their ties (or edges, links) that connect them and indicate a relationship or interaction (Otte & Rousseau, 2002).

The gold-standard to operationalize social networks is to quantify the extent of information exchange between the “nodes” of the network. Thus, for our collaborative network analysis, participants were asked to provide information about the amount of collaboration with other professions when caring for mutual palliative care patients by estimating the frequencies of social interaction with professionals in the last year (2017) on a daily, weekly, monthly and yearly basis (scale: interaction at least once per day, several times per week, at least once per month, several times a year, less, never). Studies have indicated that certain doubts about the validity and reliability of network relationships obtained through self-disclosure are justified, since memories are easily distorted (Schenk, Mohler & Pfennig, 1992). However, there is evidence that the ability to remember social interactions is particularly problematic when asking for short-term interaction sequences. Interestingly, long-term social structures seem to be much more adequately remembered (Metz, 2017). Therefore, we specifically chose a longer time period of 12 months for this study. In addition to collaborative networks between doctors and nurses in primary and specialized palliative care, the frequencies of social interactions of doctors and nurses with several professional groups were assessed: members of mobile palliative care teams, psychologists, pastoral carers, social workers, nutritionists, movement-therapists and physiotherapists, pharmacists, volunteers and informal caregivers of patients (usually family or friends). The frequency of collaboration with case managers and music, animal and art therapists were investigated as well; however, these marginal professions are not included in the final study. Visual representations of the social interactions in the fields of primary and specialized palliative care, as well as of mobile care and support services were created. We used listwise deletion for data cleaning, which can sometimes affect the strength of statistical calculations; however, in our case, we had a sufficiently large sample size in all four groups, with under 5% overall missing responses.

To carry out the SNA, separate tables in CSV format were created for each of the professions investigated for both the nodes and the edges. This was done by depicting the average of their weighted degree of interaction frequency with other professional groups. The tables were read into Gephi and visualized with Adobe Illustrator for a better understanding. Moreover, a comprehensive literature review was conducted to identify major external factors that influence the collaboration of palliative care providers in Switzerland.

## Results

Table 1. Demographic description of study sample.

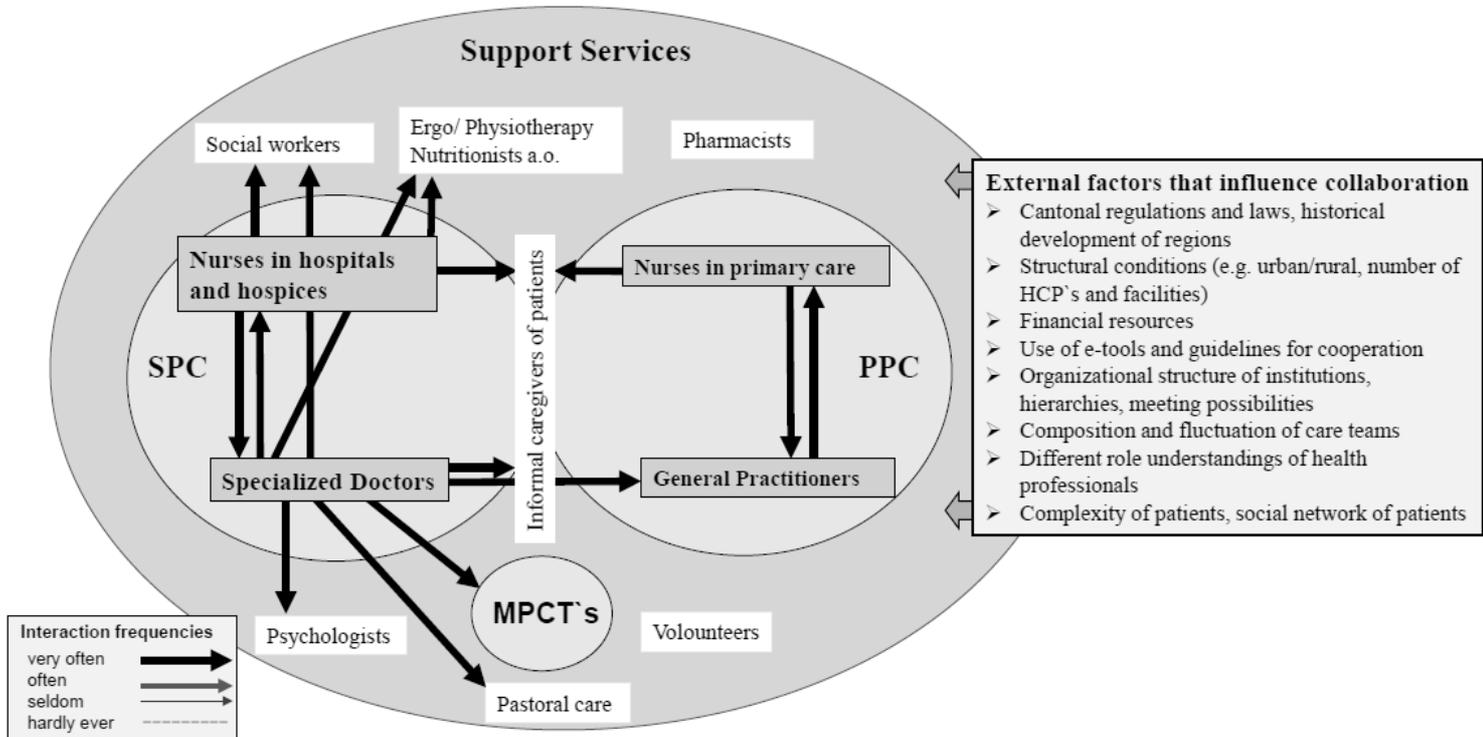
	<b>n</b>	<b>Mean age (years)</b>	<b>Mean work experience in palliative care (years)</b>	<b>Mean no. of patients per year, ambulant/long-term</b>
<b>Nurses in primary care</b>	323	49 ± 9.4	6–10, range: 0–35	13.8/23.1
<b>Nurses in specialized care</b>	208	48 ± 9.1	6–10, range: 0–35	116.7/128.6
<b>Doctors in specialized care</b>	73	53 ± 9.0	16–25, range: 0–35+	116.2/112.4
<b>General practitioners</b>	94	58 ± 8.6	26–35, range: 0–35+	21.7/19.43

Our analyses showed stronger interaction ties for doctors and nurses working in specialized care than for primary care. Visual representations for doctors and nurses in primary palliative care, as well as for doctors and nurses from specialized palliative care, are depicted in the full-text article attached to this thesis.

The reconstructed networks showed that healthcare providers in SPC shared considerably higher interaction frequencies with a large number of HCPs than was the case for doctors and nurses in PPC. Within both fields, doctors and nurses appeared to be very well connected to each other; however, there is still room for improvement in interprofessional networking at the interfaces of SPC and PPC. As measured, by far the least well-connected group is GPs, who indicate a significantly lower degree of networking than the other three professional groups investigated. GPs show especially low interaction rates with support services, such as psychologists and pastoral care.

Figure 3 shows the strongest ties in the collaborative network and provides a summary of external factors that influence collaboration. It displays the main finding of this study—namely that considerably higher amounts of collaboration, and “stronger ties” of interaction, originate from HCPs working in SPC than from those working in PPC.

Figure 3. Collaboration taking place “very often” when caring for mutual palliative care patients, meaning daily contact to contact several times per week.



## Discussion

This article emphasizes the need for strengthening the collaborative interactions between the two fields of primary and specialized palliative care. Importantly, GPs' collaborative interactions with specialized care providers caring for mutual palliative care patients in hospitals should be improved. This is especially vital, since up to 80% of all PC patients in Switzerland are currently being treated in primary care (von Wartburg & Näf, 2012). A Swiss population survey from 2017 reports that GPs are the first point of reference for 72% of respondents with palliative care needs (Stettler, Bischof, Bannwart & Schempp, 2017). Being the first point of reference for most of the population, it is essential for GPs to also be aware of the wide range of palliative care services available, including psychological and pastoral care, and to refer patients to these services.

We suggest that inter-professional collaboration of GPs should be fostered by establishing standardized communication structures appropriate for the PPC setting, which specifically caters for the needs of GPs and nurses working in ambulant settings. Shared online tools for

reporting and assessment might also promote common ground between various professional groups in the same area, especially via reducing the barriers for GPs of reaching out to unknown colleagues. Moreover, the use of electronic health records might facilitate interprofessional collaboration, since data can be shared more easily across different health care settings and might also prevent loss of information due to lost paperwork, increase transparency and accessibility and reduce the risk of data replication (Calman et al., 2012). In line with this, a study from Australia demonstrated that GPs who frequently used information technologies and e-tools had more sustainable network structures and stronger connections to other professional groups, which resulted in significantly improved clinical performance (Chung & Hossain, 2010). We further suggest that the services of specialized MPCTs should be further promoted and strengthened to fill in gaps in provision, and to facilitate high-quality provision of palliative care in the community and especially in remote areas. Not only do GPs and informal caregivers need MPCTs to consult when challenging decisions must be made, but MPCTs could serve as an effective coordinating interface between SPC and PPC in the future, since they are mostly commissioned by or affiliated with, hospitals and hospices (FOPH, 2014). MPCTs are not yet available throughout the whole country; however, the Swiss Conference of Cantonal Ministers has announced that it will expand this service in the near future (Wächter & Bommer, 2019).

### **Limitations**

Importantly, this research aimed to descriptively examine collaborative networking building, and did not aim to evaluate the quality of collaborative networking between the two areas of PPC and SPC. Each individual network of palliative care providers may substantially differ from the collaborative networks portrayed in our study. Compared to other medical areas, much more variance can be expected regarding the professional network building of HCPs in palliative care (Schmitz, Atzeni & Berchtold, 2017). This is mainly due to the complex care situation of these patients, who require an individually tailored treatment plan according to their present physical and psychosocial needs. Depending on the severity of the patient's condition, frequent transfers between, and within SPC and PPC settings may occur, which are a major contributing factor to the changes in professional network formation (Sottas, 2018).

## **11.2 Paper B**

Title: Modes of Collaboration and Comprehensive Network Building in Palliative Care – an explorative study.

Citation: *Schweighoffer, R., & Liebig, B. (submitted for publication). Modes of Collaboration and Comprehensive Network Building in Palliative Care – an explorative study.*

### **Introduction**

In general, interprofessional palliative care teams are described as flexible and highly adaptive, operating structures that constantly shape the team, as well as its environment (Egli, von Wartburg & Näf, 2016). To date, the forms these operating structures could take in everyday collaborative situations, and how they can be characterized in terms of organization, management and leadership, remains largely unclear. To investigate different forms of interprofessional collaboration in the Swiss provision of palliative care, the findings of Atzeni, Schmitz and Berchtold (2017), who identified different “modes” of interprofessional collaboration for certain medical fields, are used as sensitizing concepts for this explorative study (Bowen, 2019).

### **Methods**

A qualitative study design was used to explore different modes of interprofessional collaboration in Swiss palliative care from the perspectives of specialized physicians working in acute-care hospitals and at a hospice with hospital status. The selection of these settings was intended to provide an overview of collaborative situations between professionals, as these settings are common in palliative care. The reconstructed modes of collaboration can be understood as explorative results, which describe situations of interprofessional collaboration in palliative care.

Importantly, all reconstructed modes involve more than one medical profession. Interprofessional interactions might occur between nursing experts, nurses, GPs, specialist physicians in hospitals, hospices or private practice, social workers, psychosocial caregivers and members of many other professions. Building on the primary aim of the study, which is to investigate different modes of interprofessional collaboration in palliative care, this study investigates specialized physicians’ perspectives on the necessary prerequisites for successful collaboration in comprehensive, interprofessional palliative care networks.

## **Sample**

Semi-structured interviews were conducted with 18 specialized physicians working in palliative care in seven acute-care hospitals and two hospices with hospital status and offering medical care. Physicians specializing in palliative care were surveyed since their professional group interacts the most frequently with care providers from other levels of healthcare and is therefore the most well-informed about palliative services (Schweighoffer, Reeves & Liebig, 2020). The physicians interviewed are established experts in palliative care in their respective regions, located in the German-speaking cantons of Basel-City, Basel-Country, Lucerne, Zürich and St. Gallen. These cantons were selected due to their different socio-geographic features, as well as their diverse histories and policies on the provision of palliative care. The interviewees (8 men, 10 women) reported of an average of 8.8 years of experience in palliative care and were an average of 46.5 years old (range: 30–59). Sixteen of the respondents held or aspired to a specialist title in internal medicine; two had specializations in oncology and radiology. In addition, the majority of respondents had additional training in palliative care (“idS”, interdisciplinary training in palliative care), and some reported additional training in geriatrics, oncology, psychosocial and psychosomatic medicine or interdisciplinary pain medicine.

## **Interview guideline**

The semi-structured interview guideline was based on the theoretical concept of Atzeni, Schmitz and Berchtold (2017), as well as on Bainbridge’s (2010) theoretical perspective on collaboration in integrated palliative care networks. Key topics regarding collaboration within specialized palliative care and between practitioners of specialized and primary palliative care in Switzerland were covered. After informed consent was obtained, interviews were audio-recorded and transcribed verbatim with the help of a research assistant, with all personal identifiers removed to preserve interviewees’ anonymity.

## **Data collection**

Interviewees were identified via personal contacts of the authors, as well as an internet search, and were invited to participate via e-mail. Data collection was carried out between January and May 2020. Demographic data were collected from all participants via an online form. The same researcher interviewed all physicians in a semi-structured form. The interviews lasted for a maximum of 50 minutes and were conducted by telephone due to the COVID-19 pandemic.

Table 2. Excerpt of semi-structured interview questions (English translation)

---

(1) Can you describe how palliative care is provided in your team, and your role in care provision?
(2) Would you describe day-to-day situations, in which you collaborate with others in palliative care? (interviewee should provide at least 1 situation)
(3) Who is the first to make contact in the specific situation?
(4) How are tasks and responsibilities divided in this situation?
(5) Who takes the lead in this situation(s)?
(6) Can you describe which actors might be involved in this situation?
(7) Can you describe specific situations in which you collaborate with professionals from primary care/with GPs in palliative care?
(8) Can you describe the typical communication pathways in your collaboration with healthcare professionals from primary palliative care? (probes: intensity, quality, means of communication)
(9) In your opinion, what are important prerequisites for successful collaboration with other palliative care providers of your immediate team?

---

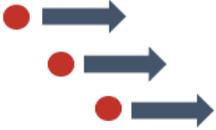
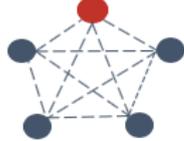
### **Data analysis**

Kuckartz's (2018) approach to structural content analysis was used to identify, classify and report patterns within the qualitative data. In a first step, we familiarized ourselves with the audiotapes and transcribed the data. This was followed by discussing the initial findings and main clusters. Based on the main clusters, the data in the transcripts were then systematically coded using ATLAS.ti v8.4.24.

For clarity, the coding followed the following pattern: in the first part of the study, interpretation was carried out deductively (Kuckartz & Rädiker, 2019) based on information about different modes of collaboration in certain medical fields, as described by Atzeni, Schmitz and Berchtold (2017). These modes provided the basis for the construction of our main categories. In a second step, the analysis was carried out inductively by saturating and supplementing these constructs (Kuckartz & Rädiker, 2019). This allowed us to identify new modes of collaboration specific to the setting of palliative care in Switzerland. In a final step, the final categories were enriched with information derived from the 18 qualitative interviews with palliative care experts.

## Results

Table 3. Modes of collaboration in palliative care. Red nodes indicate a leadership role.

Modes of collaboration in palliative care	Program-like collaboration	Selective collaboration	Interim network	Comprehensive network
<b>Characteristics</b>	 <p><b>Predefined procedures</b></p>	 <p><b>Consultation of a node</b></p>	 <p><b>Dialogues to solve problems in scheduled appointments</b></p>	 <p><b>Dialogues to solve problems in a comprehensive network</b></p>
<b>Example of occurrence</b>	Surgery, palliative radio- and chemotherapy in acute care	Consultations in primary and specialized palliative care	Interdisciplinary case discussions, roundtables or tumour boards in both primary and specialized care	Palliative care provision across settings in a local or regional care network
<b>Organization of collaboration</b>	Treatment processes are predetermined and rigid, individual competences (e.g. of physicians and nurses) can be arranged in a program-like way.	Request for consultation passed by individual seeking help. Interaction is selective and irregular.	Several, mostly medical professions come together at their workplace to discuss cases. Scheduled meetings take place regularly.	Project-like, formalized collaboration of various professions and facilities over a long period. Interaction occurs through ingrained communication pathways, inclusion of the public.
<b>Leadership</b>	Temporary lead stays with physician who carries out the procedure; limits of the physician's expertise are not exceeded.	Case exceeds expertise of an individual. Lead role for the case is typically kept by the individual who receives advice (unless otherwise agreed upon).	Professionals involved in care provide information within their area of responsibility, physician in charge of the case leads.	Professionals and relatives involved in care negotiate and take the lead situationally, depending on patients' current situation.

The interpretation resulted in the explorative reconstruction of four different modes of inter-professional collaboration, starting from the theoretical considerations of Atzeni, Schmitz and Berchtold (2017). Their empirical findings on collaborative modes in medicine serve as a basis for our depiction of collaborative modes in the setting of palliative care. As described by the interviewees, the four modes of collaboration in this paper differ in their organization with respect to regularity, location of occurrence, coordination and leadership style. Importantly, these ideal/typical portrayals of interprofessional collaboration in palliative care might overlap and do not claim to exhaustively reproduce reality. An overview of the ideal/typical modes of collaboration is depicted in Table 2.

Our first finding describes the mode of “program-like collaboration”. In palliative care, where healing is not the primary goal of the treatment, “program-like collaboration” in the form of, for example, radiation or chemotherapy, is usually embedded into a holistic treatment process and primarily aims to alleviate symptom-related distress. While the treating physician has the temporary lead in this mode, and his or her expertise is not exceeded during treatment, interprofessional collaboration still might occur within an interim network in the hospital and/or within a comprehensive palliative care network in correspondence with other care providers across different settings. The mode of “selective collaboration”, which describes the consultation of a single actor or a group of care providers, occurs in almost every medical field, but is of special importance for palliative care, since these patients’ illness trajectories and individual needs are extremely diverse. This makes “selective collaboration”, where each specialty and profession bring in their own expertise and can provide crucial help for others, indispensable in palliative care. Furthermore, based on our interviews, we described two different types of networks for palliative care provision: “interim” and “comprehensive” networks. Interim networks, as described by the interviewees, can exist within an institution without being part of a local or regional comprehensive palliative care network. Interprofessional collaboration in interim networks can take place in the form of interdisciplinary case discussions, roundtables or tumour boards in both primary and specialized care. In contrast to interim networks, comprehensive palliative care networks typically entail collaborative pathways between several institutions/associations from specialized and primary care, including mobile nursing and palliative care services and entails community engagement. Importantly, in a comprehensive palliative care network, project-like collaboration, selective collaboration and interim networks may occur simultaneously or subsequently and on several meta-levels. For more detailed descriptions of the four ideal-

typical modes of collaboration described in this study, please read the attached full-text article.

## **Discussion**

This work shed more light on the occurrence and status quo of interprofessional collaboration in Switzerland. The descriptive results of the identified collaborative situations can serve as a basis for future research, as prerequisites for successful collaboration should be investigated not only for primary or specialized care settings, but also based on the different situations that occur within and between PPC and SPC, as described in this study.

Although comprehensive palliative care networks are described—nationally and internationally—as ideal settings for fostering interprofessional collaboration, it remains unclear to which extent integrated, comprehensive palliative care networks exist in Switzerland (Filliettaz, Berchtold, Kohler & Peytremann-Bridevaux, 2019). A great challenge to the provision of integrated palliative care within a network arises from the fact that these services are provided by multiple organizations, typically a combination of hospitals, community-based agencies and primary care practices, among others. Thus, further investigation of how comprehensive palliative care networks can be fostered in the future through organizational change-management on both a local and cantonal level will be required. A systemic approach to integrated care on the macro-, meso- and microlevels could be helpful.

## **Limitations**

Qualitative interviews are reflections of personal experiences and the beliefs of a few and therefore may not be representative for all palliative care providers working in Switzerland. Furthermore, the inclusion of perspectives of other care providers and family members could be of interest for future studies.

### 11.3 Paper C

Title: Organizational Determinants of Information Transfer in Palliative Care Teams: A Structural Equation Modeling Approach

Citation: Schweighoffer, R., Blaese, R., & Liebig, B (2021). Organizational Determinants of Information Transfer in Palliative Care Teams: A Structural Equation Modeling Approach. PLoS ONE (forthcoming)

#### **Introduction**

Previous research has highlighted the importance of seamless information transfer between and within healthcare professionals as a major contributor to fruitful collaboration, which is the main focus of this research paper (Mahmood-Yousuf, Munday, King & Dale, 2008). According to Klarare and colleagues, successful information transfer is a key essential for team effectiveness, care effectiveness, and for conflict resolution (Klarare, Hagelin, Fürst & Fossum, 2013).

In a review of the determinants of successful collaboration, San Martin and colleagues argued that systemic determinants (e.g. the structural embeddedness of care teams), and personal determinants (e.g. personalities of professionals) have received more attention in collaboration research than organizational aspects (San-Martin, Beaulieu, D'Amour & Ferrada-Videla, 2005). In palliative care specifically, a large knowledge gap exists regarding what organizational and care-process related factors promote an efficient collaboration in terms of improved information transfer. Insufficient information sharing between professionals can negatively influence patient safety. Studies have shown that some organizational factors improve collaboration between professionals and thus contribute to improved patient outcomes (Bainbridge, 2010). Moreover, with the rise of new concepts for interprofessional communication in healthcare, an evaluation of key mechanisms that foster collaboration on an intraorganizational level in palliative care is more necessary now than ever before (D'Amour et al., 2005).

We know from previous research that several organizational factors facilitate or hinder information transfer within palliative care teams. The use of best-practice guidelines and standards for collaboration (e.g. standardized communication protocols) can result in a more balanced share of role responsibilities between providers and facilitate information exchange (Clements, Dault & Priest, 2007). Furthermore, opportunities for formal and informal face-to-

face meetings, group discussions and roundtables have been highlighted as facilitators for information exchange (Cabello, 2002). Regular face-to-face contact between team members fosters team cohesion and trust and helps healthcare teams build lasting care networks (Cabello, 2002; D'Amour et al., 2005). E-tools in the form of electronic health records allow members to easily share and update patient information and are widely used by specialized palliative care facilities in Switzerland, such as hospitals and hospices (DePietro & Francessic, 2018). However, it remains uncertain whether electronic tools to share patient information are perceived as helpful by providers in Swiss palliative care provision, as they are not yet intercompatible and in wide use.

In addition to providing formalized channels for information exchange and opportunities for face-to face meetings, the literature has pointed to the importance of the management and coordination of processes by specific administrative personnel, such as case managers (van der Plas et al., 2012). Case management is a widely used term for mostly administrative aspects of care, consisting largely of planning, implementing, coordinating, and monitoring of service needs of healthcare providers, patients and patients' families (van der Plas et al., 2012). Some previous studies in international contexts have identified positive effects of the presence of case management on improved information exchange—it has been found to improve quality of patient care in palliative care (Bernabei et al., 1998). However, it remains unclear if case managers indeed facilitate information transfer in Swiss palliative care teams, as case management is a term used quite broadly in Switzerland to entail a variety of different tasks, mainly coordinative and managerial duties (van der Plas et al., 2012). We hypothesize that the presence of case managers in the immediate work environment might improve information transfer due the coordinative nature of the role, and therefore increase palliative care providers' satisfaction with communication.

With respect to the healthcare setting, frequent transitions of healthcare providers hinder information flow within care teams (Naylor & Keating, 2008). This led us to hypothesize that frequent changes in palliative care staff would impair information transfer. Finally, opportunities to provide feedback and evaluate ongoing work processes have been cited as an essential factor to foster information transfer. Research implies that only by generating opportunities to improve collaborative processes via feedback rounds is it possible to maintain successful interpersonal networks at the workplace over time (Mickan & Rodger, 2000).

Based on profound differences in the two care contexts of PPC and SPC, the third part of this study aims to identify context-dependent organizational prerequisites for successful information transfer. Especially in PPC, GPs and nurses face pressures of limited time and limited financial reimbursement for collaborative activities, which can result in gaps in information sharing, and consequently, care shortages (Alvarado & Liebig, 2015). Moreover, GPs often work in private practices, while nurses are typically organized in local or private nursing groups. This can lead to spatial fragmentation of the PPC care team and represent another barrier to efficient information transfer (Alvarado & Liebig, 2015; Oishi & Murtagh, 2014). Therefore, it may particularly important that palliative care providers in PPC share the same patient-centred values and ideals so that, despite spatial barriers; perhaps then they will feel motivated to share valuable information since they feel personally committed to their co-workers (Eisenberg, 2017). A greater degree of institutionalization can be expected in SPC, where different healthcare providers work together in proximity and where collaboration is often governed by established guidelines and standards (Egli, Wartburg & Näf, 2016; Bainbridge et al., 2010). Looking at the sphere of SPC, e-tools are likely used to share patient files and therefore contribute more to information exchange. Furthermore, routine face-to-face meetings and supervision may be more important in the context of SPC, where, due to the more complex needs of patients, more rapid information exchanged is required (Klarare, Hagelin, Furst & Fossum, 2013).

The main purpose of this study is thus to investigate whether, and if so how, organizational factors contribute to successful information exchange in palliative care teams in Switzerland, while also accounting for the different care contexts of primary and specialized palliative care. A nationwide survey of medical professionals working in palliative care is conducted to that end.

## **Hypotheses**

All hypotheses are depicted in the empirical model in Figure 3.

To investigate how organizational factors, following the theoretical framework of Bainbridge et al. (2010), influence information exchange in our sample of Swiss palliative care providers, I tested the following hypotheses in the first part of the study:

*H1a: The availability of internal guidelines and standards increases information exchange within the team.*

*H1b: The use of available internal guidelines and standards increases information exchange within the team.*

*H1c: The opportunity for face-to-face meetings (e.g. in the context of meetings, roundtables, and supervisions) increases information exchange.*

*H1d: The use of electronic tools to manage patient files increases information exchange within the team.*

*H1e: The regular evaluation of work processes with quality circles or feedback rounds increases information exchange within the team.*

*H1f: The presence of a case manager in the immediate work environment increases information exchange within the team.*

*H1g: Frequent changes of caregivers in a team reduces general information exchange in the team.*

In order to investigate HCPs' satisfaction with communication, the following hypotheses were tested in the second stage of the study:

*H2a: The extent of information exchange in the team predicts providers' satisfaction with communication.*

*H2b: A clear division of roles within the team increases providers' satisfaction with communication.*

*H2c: If providers share the same values, this increases their satisfaction with communication.*

*H2d: Providers' satisfaction with communication increases their satisfaction with work-related tasks.*

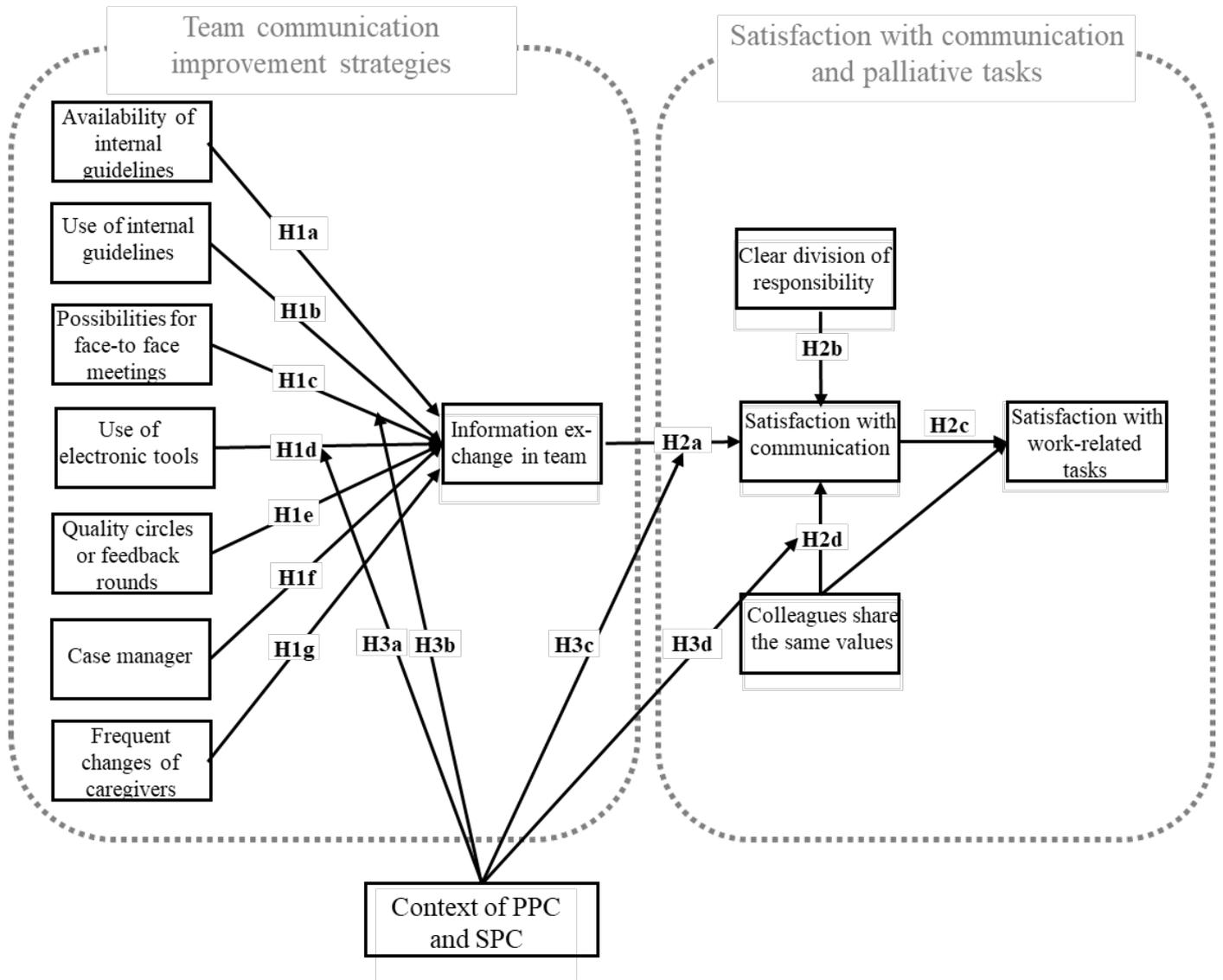
Based on profound differences in the two care contexts of PPC and SPC, the third part of the study tested the following hypotheses:

*H3a: Colleagues who share the same values report higher satisfaction with communication, especially in the setting of primary palliative care.*

*H3b: The use of e-tools to share patient files is expected to play a stronger role for information transfer in specialized palliative care.*

*H3c: Opportunities for face-to-face exchanges in the form of meetings and supervisions are expected to contribute to better information sharing in both settings, but especially in specialized palliative care.*

Figure 4. Empirical model. Standardized effects are given. All effects are controlled for position (lead/no lead), type of caregiver (context), place of work (city vs. countryside), function (job description), additional training, and gender; n = 379. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\* indicates  $p < .005$ .



## Methods

### Study sample

In total, 379 nurses and medical doctors working in palliative care (mean age=49.8 years, SD=10.3) were included in this study. For more information concerning the study sample, please refer to the full version of this article in the attachment.

Table 4. Baseline demographics of the sample of n = 379 palliative caregivers

	PPC (n=229)	SPC (n=150)	Overall sample (n=379)
<b>Age</b>			
Mean (SD)	50.7 (9.86)	48.4 (10.9)	49.8 (10.3)
Median [Min, Max]	53.0 [25.0, 75.0]	50.0 [24.0, 76.0]	52.0 [24.0, 76.0]
<b>Gender</b>			
Male	31 (13.5%)	36 (24.0%)	67 (17.7%)
Female	198 (86.5%)	114 (76.0%)	312 (82.3%)
<b>Function</b>			
Nurses	196 (85.6%)	111 (74.0%)	307 (81.0%)
Medical doctors	33 (14.4%)	39 (26.0%)	72 (19.0%)

## Measures

I selected two items as main outcome variables: (1) palliative care providers' satisfaction with information transfer in their palliative care team, and (2) palliative care providers' satisfaction with communication. The following seven predictor variables for information transfer were measured: (1) availability and use of internal guidelines and standards for collaboration in the providers' immediate work environment, (2) if a clear share of responsibility was present in the immediate work environment, (3) if regular opportunities for face-to-face meetings were present, (4) whether or not the team used electronic tools to manage patient files, (5) whether or not work processes were regularly evaluated with quality circles or feedback rounds, (6) whether or not PC providers had a case manager in their immediate work environment, (7) and whether or not there were frequent changes of caregivers in the immediate work environment. The questionnaire items can be found in the survey in the attachment part of this thesis.

Covariates were included in the analysis to control for gender (0=male; 1=female), age, position (leading vs. no leading position), socio-geographic workplace (1=large city to 5=small village in rural area), job description (nurse, medical doctor), and additional training in palliative care.

## Statistical Analyses

I tested all hypotheses using a structural equation model via the SEM function of the 'Lavaan' package (latent variable analysis, version 0.6-4, in R: Development Core Team 2012) (Rosseel, 2012). This method allows researchers to test path models, including latent variables that are not affected by measurement error. The following fit indices were evaluated according to standards in social science after Kline et al. (2015): chi-square ( $\chi^2$ ), comparative fit index (CFI, for testing the overall fit), root mean square of approximation (RMSEA, for model complexity), and Tucker-Lewis Index (TLI) (Kline, 2015). Best practices are that a good model fit is

indicated by a p value for the model greater than .05, RMSEA less than .06 and CFI and TLI greater than .90. Missing values were handled with listwise deletion. For a more detailed description of the analyses, find the full paper attached in the appendix of this thesis.

## **12. Results**

### **12.1 Correlation coefficients**

Aligned with a priori expectations, most of the organizational variables were significantly correlated to information exchange, as well as to providers' satisfaction with communication. Especially regarding the opportunities for face-to-face meetings in the context of meetings, round-tables, and supervisions ( $\rho=0.57$ ,  $p < .001$ ), colleagues who share the same values ( $\rho=0.44$ ,  $p < .001$ ), and the use of feedback tools ( $\rho=0.31$ ,  $p < .001$ ) were positively correlated to information exchange within the team. For the complete correlation table, see the attached full-text paper.

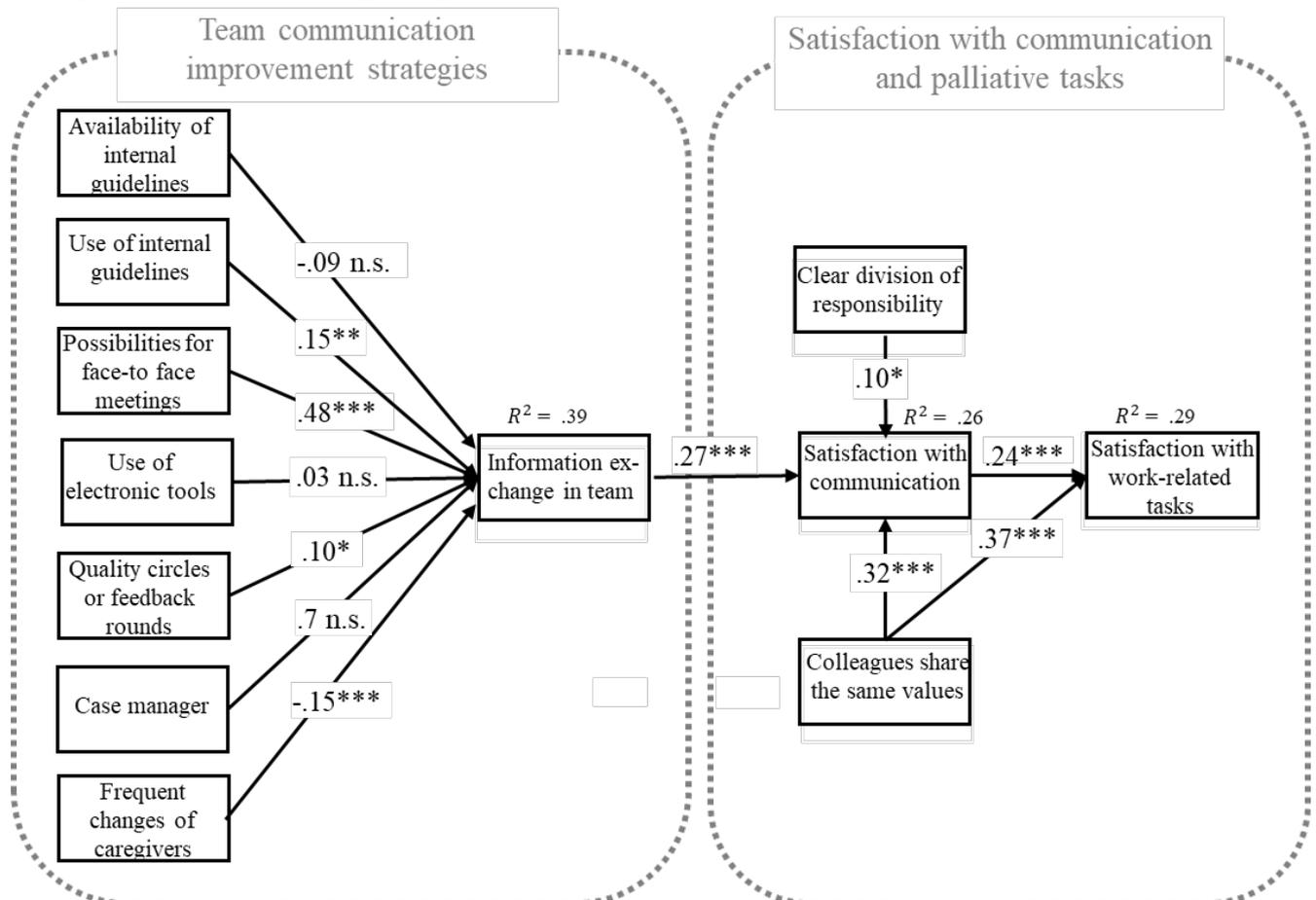
### **Structural equation model**

Following best practice in statistics, I report the measurement model on the full sample of  $n=379$  (Rosseel, 2012). I first tested the hypothesized model (Figure 4) including control variables. This model achieved a good fit ( $\chi^2 [30]=57.1, p=0.002$ ; CFI=0.94; RMSEA=0.49; TLI=0.91) and accounted for 39% of the variance in information exchange in the team, 26% of variance in satisfaction with communication and 29% of variance in satisfaction with work-related tasks. A structural equation model indicated there was no support for hypotheses H1a, H1d, and H1f. Exploratively, I investigated the extent to which providers' satisfaction with their communication affects their satisfaction with job-related tasks (H2d). Indeed, the results provide considerable evidence that providers' satisfaction with communication positively predicts their satisfaction with work-related tasks ( $\beta=0.24$ ,  $p<0.001$ ). Statistical support was found for hypotheses H2a–H2d (see Table 5).

A moderation analysis including chi-square difference tests was performed to test whether the group differences of the paths are statistically significant. First, we tested for measurement invariance across the groups by comparing the unconstrained multi-group model with a constrained multi-group model; the respective factor loadings and measurement intercepts were set equal for both groups. A difference test showed no difference between the two models ( $\Delta\chi^2 [3]=1.85$ ,  $p=0.61$ ), indicating measure invariance across both groups. Second, we tested the unconstrained model against models where one of the paths was set equal across both groups (Table 4). A moderation effect of the care context was found for the relationship between H3a, sharing the same values with colleagues and satisfaction with communication ( $\Delta\chi^2 [1]=9.6$ ,

$p < 0.001$ ), and H3c, opportunities for interprofessional exchange, such as face-to-face meetings and supervisions, and satisfaction with communication ( $\Delta\chi^2[1]=7.05$ ,  $p < 0.01$ ). Little evidence was found for a moderating effect of the care context in the relationship between H3b (e-tools to share patient files) and the exchange of patient information ( $\Delta\chi^2[1]=0.41$ ,  $p=0.50$ ). Statistical support was found for hypotheses H3a and H3c, whereas H3b had little support (see Table 4). In both groups of PPC ( $n=229$ ) versus SPC ( $n=150$ ), the model explained a considerable amount of variance of information exchange in the team (34%, 46%), as well as providers' satisfaction with work related tasks (31%, 28%).

Figure 4. Empirical model; standardized effects are displayed. We controlled all effects for position (lead/no lead), type of caregiver (context), place of work (city vs. countryside), function (job description), additional training, and gender;  $n = 379$ .



Note: \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\* indicates  $p < .001$

Table 5. Fit Indices and  $\chi^2$  Difference Test for Moderation Effect of Context.

Models	$\chi^2$	df	CFI	RMSEA	$\Delta\chi^2$	$\Delta df$
Unconstrained model	76.98	56	0.95	0.044		
<i>H3a) Colleagues share same values, satisfaction with communication; set equal across groups</i>	86.60	57	0.93	0.052	9.61**	1
<i>H3b) Use of e-tools -&gt; info exchange in team; set equal across groups</i>	77.44	57	0.95	0.044	0.46	1
<i>H3c) Opportunities for face-to face meetings, info exchange in the team; set equal across groups</i>	84.03	57	0.94	0.050	7.05**	1
<i>H3d) Amount of information exchange in the team, providers' satisfaction with communication; set equal across groups</i>	82.50	57	0.94	0.048	5.50*	1

Note: \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\* indicates  $p < .001$

Table 6. Summary of all Hypothesis Tests

Nr	Hypotheses	Value	True/False
H1a	The availability of internal guidelines and standards increases information exchange within the team.	$\beta = -0.09$ n.s.	Not confirmed
H1b	The use of those available internal guidelines and standards increases information exchange within the team.	$\beta = 0.15$ **	Confirmed
H1c	The opportunity for face-to-face meetings (e.g. in the context of meetings, roundtables and supervisions) increases information exchange.	$\beta = 0.48$ ***	Confirmed
H1d	The use of electronic tools to manage patient files increases information exchange within the team and fosters continuous exchange of patient information.	$\beta = 0.03$ n.s.	Not confirmed
H1e	The regular evaluation of work processes with quality circles or feedback rounds increases information exchange within the team.	$\beta = 0.10$ *	Confirmed
H1f	The presence of a case manager in the immediate work environment results in increased information exchange within the team	$\beta = 0.07$ n.s.	Not confirmed
H1g	Frequent changes of caregivers in a team hinder general information exchange.	$\beta = -0.15$ ***	Confirmed

H2a	The extent of information exchange in the team predicts providers' satisfaction with communication.	$\beta = 0.27^{***}$	Confirmed
H2b	A clear division of responsibility within the team increases information exchange within the team and fosters continuous exchange of patient information.	$\beta = 0.10^*$	Confirmed
H2c	Sharing the same values increases providers' satisfaction with communication	$\beta = 0.32^{***}$	Confirmed
H2d	Provider's satisfaction with communications affects their satisfaction with work-related tasks.	$\beta = 0.24^{***}$	Confirmed
H3a	Colleagues who share the same values report higher satisfaction with communication especially in the primary palliative care setting.	$(\Delta\chi^2[1]=9.61, p<0.01)$	Confirmed
H3b	The use of E-tools to share patient files is expected to play a stronger role for information transfer and satisfaction with communication in specialized settings.	$(\Delta\chi^2[1]=0.46, p=0.50)$	Not confirmed
H3c	Opportunities for interprofessional exchange, such as face-to face meetings are expected to contribute to better information sharing in both settings, but especially in specialized settings.	$(\Delta\chi^2[1]=7.05, p<0.01)$	Confirmed

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Discussion

This paper contributes in two main ways to the existing literature on how information transfer between palliative care professionals is facilitated. First, this study demonstrates the need for personal, face-to-face information exchange for care providers who work in a team. Although it might be expected that electronic patient records in particular are essential for successful information sharing in the healthcare sector, this specific sample of palliative care providers highlights the fact that, to date, opportunities for face-to-face meetings are paramount for successful information exchange in Swiss palliative care. Face-to-face meetings may be useful to support the social functions of healthcare teams, improving mutual respect in the care team, allowing team members to solve problems more efficiently, and facilitating the transmission of organizational culture (Mitchell et al., 2012). In a study by Ellingston and colleagues, communication was reported to be the most effective in interdisciplinary healthcare teams, where both formal and informal meetings occurred on a regular basis (Ellingston et al., 2003). Second, this research highlights that the success of interprofessional collaboration in PC is partially care context dependent. This is because primary and specialized care has historically evolved in isolation, with SPC showing higher levels of institutionalization and regulatory pathways for collaboration than PPC (Alvarado & Liebig, 2015). Given the aging population

and growing burden of serious illness, both SPC and PPC are required to meet patients' palliative care needs (Quill & Abernethy, 2013). Aligned with prior expectations, this study also found that colleagues who share the same work-related values reported significantly improved information transfer. High-functioning teams in healthcare settings should not only integrate principles of team-based care, but also agree on shared goals and values for delivery of patient-centred care (Mitchell et al., 2012). Therefore, practice, healthcare facilities, GPs and nursing organizations are encouraged to openly discuss and share their patient-centred values and ideals. Furthermore, we found considerable evidence that providers' shared values, as well as their satisfaction with communication, positively predict their satisfaction with work-related tasks. This is a key finding, as the satisfaction of team members is linked to staff retention, which is a critical element for team function, as well as a predictor for the provision of good healthcare (Barrett & Myrick, 1998; Mitchell et al., 2012).

The findings also suggest that frequent changes to caregiving negatively impact the information exchange in the team, as loss of information and misunderstandings occur easily when care teams are fluctuating. Much information is lost when health professionals change teams; therefore, each palliative care team member should be trained to maintain the flow of information. Furthermore, making written records of standards and guidelines on work procedures available to all team members is recommended. Given the diversity of organizational enablers for information transfer and collaboration presented above, we recommend further investigation of what variables affect information transfer for PC teams in specific care facilities and care contexts.

### **Limitations**

First, the impact of case managers and the use of electronic tools (to share patient records) for information transfer must be better operationalized in future research. This is necessary because their specifications and degree of implementation might differ substantially across institutions and care settings. The results of this study may be further biased due to its use of a convenience sample of palliative care providers who volunteered to participate in the online survey. This may have led to selection bias in the sense that study participants might be more engaged in palliative care than average, and thus rate organizational aspects of care provision differently than non-participants. Furthermore, the findings are based solely upon the responses of Swiss palliative care providers and therefore may not be representative of other countries with different healthcare settings.

## **12. Conclusion**

### **12.1 Studies' contributions to the field**

In study A, I conducted a social network analysis, which showed gaps in professional networking between different groups of medical providers. The extent to which medical professionals collaborate when caring for shared palliative care patients has not previously been investigated in the Swiss context. However, this research is relevant, since it is known from the literature that strong collaborative networking between professions can ensure the provision of cost-efficient and high-quality healthcare (Clements, Dault & Priest, 2007; Sicotte, D'Amour & Moreault, 2002; San Martín-Rodríguez et al., 2005). In contrast, inhibition of the formation of strong ties between professionals, especially between primary and specialized care can lead to negative patient outcomes due to a lack of continuity of care, especially when patients are referred from one care setting to another (Bainbridge, 2010).

Study A revealed significant gaps in the collaboration of GPs, and at the interface of primary and specialized care, especially pointing from PPC to SPC. Since GPs are the first point of reference for most palliative care patients, they must make referrals by communicating with specialized care, and are frequently involved with other supportive services. In the discussion of this study, we suggested different ways to foster the collaboration and networking of GPs. For example, GPs' networking could be improved by introducing new electronic applications to share patient records, as such applications could presumably save time and lower the barrier of communication with unknown colleagues, or by offering better remuneration for their collaborative services, as we know from the literature (Giezendanner et al., 2018) that time and financial constraints often hinder GPs from initiating communication with fellow palliative care providers. Moreover, we suggest that mobile palliative care teams, which often work in both primary and specialized care facilities, can serve as "adhesives", facilitating first contact between GPs and doctors working in acute care hospitals. MPCTs are not yet available throughout Switzerland; however, we argue that these services should be established and offered more extensively in the near future, as they could significantly improve shortcomings in collaboration between GPs and the primary palliative care sector in general (Wächter & Bommer, 2014).

In study B, we conducted an explorative, qualitative study with the main aim to identify and characterize different situations in which interprofessional collaboration in palliative care might occur. Similar to paper A, this work shed more light on the occurrence and status quo of interprofessional collaboration in Switzerland. To date, the real-world situations in which

interprofessional collaboration occurs in palliative care remain largely unexamined, and only one previous paper has addressed with this research question in Switzerland, albeit for different medical fields (Atzeni, Schmitz & Berchtold, 2017). Study B's explorative approach closes a gap in research by generating a better understanding of collaborative situations in palliative care on the basis of interviews with specialists from the field. Its interviews revealed that specialized doctors working in palliative care consider working in comprehensive palliative care networks helpful for fostering interprofessional collaboration, as such networks presuppose the formalization of care principles. Such formalization could exist as an agreement between several organizations, a mandate, a protocol or a report. The formalization of care principles facilitates the integration of GPs and nurses from primary care and was considered helpful for continuity of care and decision-making regarding patient transfers. Furthermore, the characterization of the collaborative modes we named "program-like collaboration", "selective collaboration", "interim network" and "comprehensive network", can serve as a basis for future research. For example, future studies could examine different facilitators or barriers of successful collaboration for each of the presented collaborative modes, since we showed that they differ strongly in their occurrence, leadership, structure and organization. Thus, when discussing interprofessional collaboration in palliative care, it could make sense to not only distinguish between the care settings of PPC and SPC, as I have done in this thesis, but also between everyday situations where interprofessional collaboration occurs.

In study C, I applied an SEM approach to examine in detail what levers improve information transfer at an organizational level while also accounting for the two different settings of provision of palliative care in Switzerland. This was never previously investigated within the Swiss healthcare context. The results point to striking evidence that some organizational aspects affect successful information exchange between palliative care providers more drastically than others. Sufficient opportunities for face-to-face meetings and supervisions, feedback tools to improve collaborative practices and the application of guidelines and standards for collaboration turned out to be especially strong predictors for successful information exchange in palliative care teams. Furthermore, this research highlights that the success of interprofessional collaboration in palliative care is partially care context dependent. While we found that sharing the same care-based values with colleagues predicts satisfaction with communication strongly in primary care, sufficient opportunities for face-to-face meetings seem to be more important in specialized care settings. Importantly, study C found considerable evidence that providers' shared values, as well as their satisfaction with communication,

positively predict their satisfaction with work-related tasks. This is an important finding, as the satisfaction of team members is linked to staff retention, a critical element for efficient team function and continuity of care. The main value of paper C is its identification of the organizational components of efficacious palliative care programs, which can inform decision-makers' development of interventions to improve interprofessional collaboration. As this study only examined the collaboration of palliative care teams composed of nurses and doctors, future studies could extend such analyses to other professions participating in palliative care. Furthermore, the organizational barriers and facilitators investigated in study C could also be assessed for the "comprehensive palliative care networks" described in study B.

## **12.2 Implications for future research**

As our descriptive survey results, as well as the study results presented in this thesis, reveal, there are considerable shortcomings of interprofessional collaboration and networking in Swiss palliative care, especially concerning GPs and ambulant nurses' integration into collaborative networks, as well as collaboration in rural communities (as perceived by PC providers) (see Schweighoffer, Nagy, Reeves & Liebig, 2019). The major conclusion of this thesis is therefore, that research and new strategies are needed on how to establish sustainable, integrated palliative care networks in Switzerland. New research and health strategies should especially focus on how to foster collaboration between the fields of PPC and SPC, of GPs and of ambulant nurses, and rural regions specifically. On a meta-level, this implies that interprofessional collaboration in palliative care in Switzerland might benefit from the establishment of "comprehensive, integrated palliative care networks", as described in paper B. Before conducting such research, however, integrated or comprehensive palliative care networks in Switzerland must be better studied and understood.

Although the first Swiss survey on integrated care revealed an increasing number of integrated care-initiatives in Switzerland in the last five years, it stresses that the country still seems to lag behind internationally and does not provide details on the total number of such initiatives (Fillietaz, Berchtold, Kohler & Peytremann-Bridevaux, 2018). This is also true for the specialty of palliative care, where it is unclear how many and what kinds of initiatives have been started to provide integrated palliative care provision in the individual cantons. Importantly, before planning and implementing initiatives to foster collaboration within integrated palliative care networks, it is an imperative to actively research patients' and relatives' experiences and needs and take them into account (Monroe & Oliviere, 2003).

Existing literature implies, that the integration of palliative care in this context (on a meta-level) might be achieved by more extensive horizontal integration of services, meaning that independent provider entities from either SPC or PPC have to be formally linked to increase service delivery capacity, scope and efficiency (Thaldorf & Liberman, 2007; Schweizer Forum für integrierte Versorgung, 2014 ). In a next step, vertical integration of services should be undertaken, meaning that cross-sectoral networking between PPC and SPC along the care chain (e.g. primary care provider- acute hospital -long-term care- hospice) should be formally undertaken, steered by official agreements or contracts (Schweizer Forum für integrierte Versorgung, 2014).

Bainbridge and colleagues proposed a customized tool to determine the perceptions of the processes of palliative care delivery concerning horizontal integration from the perspective of nurses, physicians and allied health professionals working in an integrated palliative care network, which could be used by future studies in the Swiss healthcare context for the same purpose (Bainbridge et al., 2015). Future studies could adapt this framework for vertical integration of palliative care services.

Future studies aiming to investigate interprofessional collaboration, and the integration of health services in Swiss palliative care, could further investigate the influence of professional rivalries as a barrier to the establishment of integrated palliative care networks. In line with this statement, recently published work by the Swiss Academy of Medical Sciences, which reflects on interprofessional collaboration from the perspective of primary palliative care, states that “individual professional groups, which are powerful and politically well connected, have so far succeeded in preventing genuine inter-professional collaboration at an eye level, despite all the advantages for patients. The fear of a loss of prestige, power or financial losses have made an implementation [of interprofessional collaboration] in everyday clinical practice impossible” (Schmitz, Atzeni & Berchtold, 2020).

Derived from this statement, rivalries between PPC and SPC might be a particularly large barrier to integrate palliative services vertically.

Hopefully, nationally funded research, such as the Swiss National Science Foundation research program NRP 74 “smarter healthcare”, will soon reveal further implications to achieve patient-centred, integrated healthcare care approaches. A recently initiated "coordinated care" project initiated by the FOPH aims to improve coordinated care for very old people with multiple diseases and could render important insights for interprofessional collaboration and coordination in palliative care in upcoming years (BAG, 2015). Moreover, a funding program, "Interprofessionalism in the Swiss health care system", has been conducted from 2017–2020 with the primary aim of improving the healthcare system’s efficiency by strengthening interprofessional collaboration. A final conference on the results will be held at the end of November 2020, where exemplary models of good practice will be presented and discussed (BAG, 2017). It is to be hoped that these recent initiatives will foster knowledge on innovative healthcare models in Switzerland that are also applicable to the demanding subfield of palliative care.

## Bibliography

Alvarado, V., & Liebig, B. (2015). Conditions of palliative home care: The case of family physicians in Switzerland. *Primary Health Care*, 5(180), 2167-1079.

Atzeni, G., Schmitz, C., & Berchtold, P. (2017). Die Praxis gelingender interprofessioneller Zusammenarbeit. *Swiss Academies Report*, 12 (2), 1, 59.

Amelung, V., Stein, V., Goodwin, N., Balicer, R., Nolte, E., & Suter, E. (Eds.). (2017). Handbook integrated care. *Basel, Switzerland, Springer*.

Bundesamt für Gesundheit (2015). *Koordinierte Versorgung*. Retrieved on the 7<sup>th</sup> of October 2020. <https://www.bag.admin.ch/bag/de/home/strategie-und-politik/nationale-gesundheitspolitik/koordinierte-versorgung.html>

Bundesamt für Gesundheit (2017). *Förderprogramm Interprofessionalität im Gesundheitswesen*. Retrieved on the 7<sup>th</sup> of October 2020. <https://www.bag.admin.ch/bag/de/home/strategie-und-politik/nationale-gesundheitspolitik/foerderprogramme-der-fachkraefteinitiative-plus/foerderprogramme-interprofessionalitaet.html>

Bainbridge, D., Brazil, K., Krueger, P., Ploeg, J., & Taniguchi, A. (2010). A proposed systems approach to the evaluation of integrated palliative care. *BMC palliative care*, 9(1), 1-12.

Bainbridge, D., Brazil, K., Krueger, P., Ploeg, J., Taniguchi, A., & Darnay, J. (2015). Measuring horizontal integration among health care providers in the community: an examination of a collaborative process within a palliative care network. *Journal of interprofessional care*, 29(3), 245-252.

Barrett, C., & Myrick, F. (1998). Job satisfaction in preceptorship and its effect on the clinical performance of the preceptee. *Journal of Advanced Nursing*, 27(2), 364-371.

Bastian, M., Heymann, S., & Jacomy, M. (2009). Gephi: an open source software for exploring and manipulating networks. *Icwsn*, 8(2009), 361-362.

Berchtold, P., & Peytremann-Bridevaux, I. (2011). Integrated care organizations in Switzerland. *International journal of integrated care*, 11(Special 10th Anniversary Edition).

Bernabei, R., Landi, F., Gambassi, G., Sgadari, A., Zuccala, G., Mor, V., ... & Carbonin, P. (1998). Randomised trial of impact of model of integrated care and case management for older people living in the community. *BMJ*, 316(7141), 1348.

Bowen, G. A. (2019). Sensitizing concepts. SAGE Research Methods Foundations. SAGE Publications. doi, 10(9781526421036788357).

Binder, J., & von Wartburg, L. (2009). Nationale Strategie Palliative Care 2010-2012. *Bundesamt für Gesundheit BAG*.

Bundesamt für Statistik, BFS (2009). Bestand und Entwicklung der Bevölkerung der Schweiz im Jahr 2019: Definitive Ergebnisse. *Neuchâtel: Bundesamt für Statistik*.

Bronstein, L. R. (2002). Index of interdisciplinary collaboration. Instrument Development. *Social work research*, 26(2), 113-127.

Cabello, C. C. (2002). A collaborative approach to integrating outpatient and inpatient transplantation services. *Outcomes Management*, 6(2), 67-72.

- Camenzind, P. (2013). The Swiss health care system, 2013. *International profiles of health care systems*, 119-27.
- Calman, N., Hauser, D., Lurio, J., Wu, W. Y., & Pichardo, M. (2012). Strengthening public health and primary care collaboration through electronic health records. *American journal of public health*, 102(11), e13-e18.
- Chung, K. S. K., & Hossain, L. (2010). Towards a social network model for understanding information and communication technology use for general practitioners in rural Australia. *Computers in Human Behavior*, 26(4), 562-571.
- Clark, D., Baur, N., Clelland, D., Garralda, E., López-Fidalgo, J., Connor, S., & Centeno, C. (2020). Mapping levels of palliative care development in 198 countries: the situation in 2017. *Journal of pain and symptom management*, 59(4), 794-807.
- Clements, D., Dault, M., & Priest, A. (2007). Effective teamwork in healthcare: Research and reality. *Healthcare Papers*, 7(I), 26.
- D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: core concepts and theoretical frameworks. *Journal of interprofessional care*, 19(sup1), 116-131.
- Davis, K., Stremikis, K., Squires, D., & Schoen, C. (2014). Mirror, mirror on the wall. How the performance of the US Health care system compares internationally. *New York: Commonwealth Fund*.
- De Pietro, C., & Francetic, I. (2018). *E-health in Switzerland: The laborious adoption of the federal law on electronic health records (EHR) and health information exchange (HIE) networks. Health Policy*, 122(2), 69-74.
- Donabedian, A. (1988). The quality of care: how can it be assessed? *Jama*, 260(12), 1743-1748.
- Dudgeon, D., Vaitonis, V., Seow, H., King, S., Angus, H., & Sawka, C. (2007). Ontario, Canada: using networks to integrate palliative care province-wide. *Journal of Pain and Symptom Management*, 33(5), 640-644.
- Ebert, S., Peytremann-Bridevaux, I., & Senn, N. (2015). Les programmes de prise en charge des maladies chroniques et de la multimorbidité en Suisse. *Observatoire suisse de la santé (Obsan, dossier Nr. 44)*.
- Egli, S., von Wartburg, L., & Näf, F. (2016). Das interprofessionelle Team in der Palliative Care: die Grundlage einer bedürfnisorientierten Betreuung und Behandlung am Lebensende. *Bundesamt für Gesundheit BAG, Direktionsbereich Gesundheitspolitik*.
- Eisenberg, E. M. (2017). The social construction of healthcare teams. In *Improving Healthcare Team Communication*. CRC Press, 9-21.
- Eychmüller, S., & Benedetti, F. D. (2012). Community palliative care in Switzerland: from assessment to action. *Participatory Research in Palliative Care: Actions and Reflections*, 76-84.
- Ellingston, L. L. (2003). Interdisciplinary health care teamwork in the clinic backstage. *Journal of Applied Communication Research*, 31(2), 93-117.
- Freeth, D. (2001). Sustaining interprofessional collaboration. *Journal of interprofessional care*, 15(1), 37-46.

- Friese, S. (2019). *Qualitative data analysis with ATLAS. ti*. SAGE Publications Limited.
- Filliettaz, S. S., Berchtold, P., Kohler, D., & Peytremann-Bridevaux, I. (2018). Integrated care in Switzerland: Results from the first nationwide survey. *Health Policy*, 122(6), 568-576.
- Federal Office for Public Health, palliative.ch, Swiss conference of cantonal directors (2014). Care structures for specialized palliative care in Switzerland. *BAG publication number: GP*, 8.
- Federal Office for Public Health (2014). Mobile Palliative-Care-Dienste in der Schweiz–Eine Bestandesaufnahme aus der Perspektive dieser Anbieter. *BAG*.
- Giezendanner, S., Bally, K., Haller, D. M., Jung, C., Otte, I. C., Banderet, H. R., ... & Gudat, H. (2018). Reasons for and Frequency of End-of-Life Hospital Admissions: General Practitioners' Perspective on Reducing End-of-Life Hospital Referrals. *Journal of palliative medicine*, 21(8), 1122-1130.
- Gröne, O., & Garcia-Barbero, M. (2002). Trends in integrated care: Reflections on conceptual issues. *Copenhagen: World Health Organization*.
- Harkness, J., Pennell, B. E., & Schoua-Glusberg, A. (2004). Survey questionnaire translation and assessment. *Methods for testing and evaluating survey questionnaires*, 546, 453-473.
- Johnson, C., Girgis, A., Paul, C., Currow, D. C., Adams, J., & Aranda, S. (2011). Australian palliative care providers' perceptions and experiences of the barriers and facilitators to palliative care provision. *Supportive Care in Cancer*, 19(3), 343-351.
- Klarare, A., Hagelin, C. L., Fürst, C. J., & Fossum, B. (2013). Team interactions in specialized palliative care teams: a qualitative study. *Journal of palliative medicine*, 16(9), 1062-1069.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford Publications.
- Kodner, D. L., & Spreeuwenberg, C. (2002). Integrated care: meaning, logic, applications, and implications—a discussion paper. *International journal of integrated care*, 2.
- Kuckartz, U. (2018). *Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung (Grundlagentexte Methoden, 4., überarbeitete Auflage)*.
- Kuckartz, U., & Rädiker, S. (2019). Datenaufbereitung und Datenbereinigung in der qualitativen Sozialforschung. In *Handbuch Methoden der empirischen Sozialforschung* (pp. 441-456). Springer VS, Wiesbaden.
- Krones, T., & Monteverde, S. (2017). Gute Lebens- und Sterbensqualität–Versorgung und Versorgungslücken von Palliative Care in der Schweiz. *Therapeutische Umschau*, 74, 805-811.
- Liebig, B., & Piccini, C. (2017). Inter-professional communication in palliative care: General practitioners and specialists in Switzerland. *Clinical Case Reports and Reviews*, 3(2), 1-5.
- Lynch, T., Connor, S., & Clark, D. (2013). Mapping levels of palliative care development: a global update. *Journal of pain and symptom management*, 45(6), 1094-1106.
- Mahmood-Yousuf, K., Munday, D., King, N., & Dale, J. (2008). Interprofessional relationships and communication in primary palliative care: Impact of the Gold Standards Framework. *Br J Gen Pract*, 58(549), 256-263.

- Metz, T. (2017). Netzwerkanalyse. In *Neue Trends in den Sozialwissenschaften* (pp. 203-237). Springer VS, Wiesbaden.
- Mickan, S., & Rodger, S. (2000). Characteristics of effective teams: A literature review. *Australian Health Review*, 23(3), 201-208.
- Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., Rohrbach, V., and Von Kohorn, I. (2012). Core principles & values of effective team-based health care. Discussion Paper, Institute of Medicine, Washington, DC. [www.iom.edu/tbc](http://www.iom.edu/tbc).
- Monroe, B., & Oliviere, D. (Eds.). (2003). *Patient participation in palliative care: a voice for the voiceless*. OUP Oxford.
- Morin, D., Saint-Laurent, L., Bresse, M. P., Dallaire, C., & Fillion, L. (2007). The benefits of a palliative care network: a case study in Quebec, Canada. *International Journal of Palliative Nursing*, 13(4), 190-196.
- Murphy-Ende, K. (2001). Barriers to palliative and supportive care. *The Nursing clinics of North America*, 36(4), 843.
- Murray, S. A., Kendall, M., Boyd, K., & Sheikh, A. (2005). Illness trajectories and palliative care. *BMJ*, 330(7498), 1007-1011.
- Naylor, M., & Keating, S. A. (2008). Transitional care. *Journal of Social Work Education*, 44(sup3), 65-73.
- Oishi, A., & Murtagh, F. E. (2014). The challenges of uncertainty and interprofessional collaboration in palliative care for non-cancer patients in the community: a systematic review of views from patients, carers and health-care professionals. *Palliative medicine*, 28(9), 1081-1098.
- Otte, I. C., Jung, C., Bally, K., Elger, B. S., & Schildmann, J. (2016). Interprofessional silence at the end of life: do Swiss general practitioners and hospital physicians sufficiently share information about their patients?. *Journal of palliative medicine*, 19(9), 983-986.
- Otte, E., & Rousseau, R. (2002). Social network analysis: a powerful strategy, also for the information sciences. *Journal of information Science*, 28(6), 441-453.
- Plattform palliative.ch (2020). Accessed on Sept. 12<sup>th</sup>, 2020. <https://www.palliative.ch/de/ueber-uns/fachgesellschaft/>
- Petrini, L., & Sturny, I. (2013). *Erfahrungen der Allgemeinbevölkerung im Gesundheitssystem: Situation in der Schweiz und internationaler Vergleich Auswertung der Erhebung «International Health Policy Survey» im Auftrag des Bundesamtes*. Obsan Dossier 26. Neuchâtel: schweizerisches Gesundheitsobservatorium.
- Quill, T. E., & Abernethy, A. P. (2013). Generalist plus specialist palliative care- creating a more sustainable model. *New England Journal of Medicine*, 368(13), 1173-1175.
- R Development Core Team (2008). R: A language and environment for statistical computing.
- Reeves, E., Schweighoffer, R., & Liebig, B. (2019). Community readiness for palliative care services in Switzerland: Basis for public health strategy for health psychologists. *Psychreg Journal of Psychology*, 3(2), 94-95.
- Rossee, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12

(BETA). *Journal of Statistical Software*, 48(2), 1-36.

Sager, F., & Moser, L. (2014). Palliative Care und Föderalismus: Eine qualitative Untersuchung zum „Entwicklungsland“ Schweiz.

Schenk, M., Mohler, P. P., & Pfennig, U. (1992). Egozentrierte Netzwerke in der Forschungspraxis: Ausschöpfungsquoten und Validität soziodemographischer Variablen. *ZUMA Nachrichten*, 16(31), 87-120.

Schmitz, C. J., Atzeni, G., & Berchtold, P. (2020). Interprofessionelle Zusammenarbeit in der Gesundheitsversorgung: erfolgskritische Dimensionen und Fördermassnahmen: Differenzierung, Praxis und Implementierung. *Schweizerische Akademie der Medizinischen Wissenschaften*.

Schweighoffer, R., Nagy, N., Reeves, E., & Liebig, B. (2019). Collaboration in Palliative Care Networks in Urban and Rural Regions of Switzerland. *International Journal of Nursing and Health Science*, 13(1), 18-21.

Schweizer Forum für Integrierte Versorgung (Hrsg.) (2014). *Denkstoff*. Trendszenarien Integrierte Versorgung Schweiz, Neuägeri.

Sepúlveda, C., Marlin, A., Yoshida, T., & Ullrich, A. (2002). Palliative care: the World Health Organization's global perspective. *Journal of pain and symptom management*, 24(2), 91-96.

Siouta, N., Van Beek, K., Van der Eerden, M. E., Preston, N., Hasselaar, J. G., Hughes, S., ... & Radbruch, L. (2016). Integrated palliative care in Europe: a qualitative systematic literature review of empirically-tested models in cancer and chronic disease. *BMC palliative care*, 15(1), 56.

Sottas, B. (2018). Interprofessionelle Teams sind effizienter und senken die Kosten. *Innovationen in der Gesundheitswirtschaft: Theorie und Praxis von Businesskonzepten-10 Jahre B. Braun-Stiftung Mentoringprogramm*, 40.

Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American journal of community psychology*, 13(6), 693-713.

Stettler, P., Bischof, S., Bannwart, L., & Schempp, D. (2017). Bevölkerungsbefragung Palliative Care 2017. *Ergebnisse der Befragung*.

Tasselli, S. (2014). Social networks of professionals in health care organizations: a review. *Medical Care Research and Review*, 71(6), 619-660.

Thaldorf, C., & Liberman, A. (2007). Integration of health care organizations: using the power strategies of horizontal and vertical integration in public and private health systems. *The health care manager*, 26(2), 116-127.

*The Economist* (2015). The 2015 Quality of Death Index: Ranking palliative care across the world. London: The Economist Intelligence Unit, 15.

van der Plas, A. G., Onwuteaka-Philipsen, B. D., van de Watering, M., Jansen, W. J., Vissers, K. C., & Deliens, L. (2012). What is case management in palliative care? An expert panel study. *BMC Health Services Research*, 12, 163. doi:10.1186/1472-6963-12-163

Van de Sande, C., Der Rijt, C., Visser, A., Voorde, M., & Pruyn, J. (2005). Function of local networks in palliative care: a Dutch view. *Journal of Palliative Medicine*, 8(4), 808-816.

von Wartburg, L., & Näf, F. (2012). Nationale Strategie Palliative Care 2013-2015. *Bundesamt für Gesundheit BAG*.

Wächter, M., Bommer, A. (2014). *Mobile Palliative-Care-Dienste (MPCD) in der Schweiz – Eine Bestandsaufnahme aus der Perspektive dieser Anbieter*. [cited 2019 June 25]. Available from: [https://www.pallnetz.ch/cm\\_data/Mobile Palliative Care Dienste Schlussbericht.pdf](https://www.pallnetz.ch/cm_data/Mobile_Palliative_Care_Dienste_Schlussbericht.pdf)

Witt Sherman, D., Maitra, K., Gordon, Y., Simon, S., Olenick, M., Barbara, S. & Singh, A. (2017). Illustrating and analyzing the processes of interprofessional collaboration: a lesson learned from palliative care in Deconstructing the concept. *Journal of palliative medicine*, 20(3), 227-234.

World Health Organization. (2002). National cancer control programs: policies and managerial guidelines. 2nd ed. Geneva.

World Health Organization. (2014). Strengthening of palliative care as a component of integrated treatment throughout the life course. *Journal of Pain & Palliative Care Pharmacotherapy*, 28(2), 130-134.

Zalot, G. N. (1989). Planning a regional palliative care services network. *Journal of palliative care*, 5(1), 42-46.

Zeltner, C., De Simone-Nalotto, L., & Balthasar, A. (2020). Förderprogramm Interprofessionalität im Gesundheitswesen; Jahresbericht 2019. *Eidgenössisches Departement des Inneren, EDI., & Bundesamt für Gesundheit, BAG*.

## **Curriculum Vitae**

Name	Reka Schweighoffer
Date of birth	10. 01.1992
Place of birth	Maryland, Washington
Email address	reka.schweighoffer@usb.ch

## **Education**

2017-2021	PhD in Psychology, University of Basel
2015-2017	M.Sc. in Clinical Psychology and Neuroscience, University of Basel
2012-2015	B.Sc. in Psychology, University of Basel
2010	Highschool diploma, Gymnasium Bäumlhof, Basel

## **Professional experience**

since 12/2019	Researcher, University Hospital Basel, Division of Palliative Care
2017-2019	Researcher and PhD student, School of Applied Psychology Northwestern Switzerland
2016-2017	Research assistant, University Hospital Basel, Division of Psychosomatics
2013-2015	Research assistant, UPK Basel, Department C



# The Open Public Health Journal

Content list available at: <https://openpublichealthjournal.com>



## RESEARCH ARTICLE

### Collaborative Networks in Primary and Specialized Palliative Care in Switzerland - Perspectives of Doctors and Nurses

R. Schweighoffer<sup>1,\*</sup>, E. Reeves<sup>1</sup> and B. Liebig<sup>2</sup>

<sup>1</sup>Department of Psychology, University of Basel, Basel, Switzerland

<sup>2</sup>Applied Psychology, FHNW Olten, Riggbachstrasse 16, Switzerland

#### Abstract:

##### Purpose:

To date, information about collaborative networks of doctors and nurses in palliative care is still scarce, yet of great importance in revealing gaps in collaboration. This paper investigates the collaboration frequencies of medical doctors and nurses within, and across, different settings of palliative care.

##### Methods:

The study was based on a Swiss national survey on "Collaboration and cooperation in Palliative Care". The subjects surveyed included service providers in the primary and specialized palliative care sectors, as well as support services (N=1111). Information about ties between providers was gathered by asking professionals to estimate the frequency of interaction with other professionals within the last year, on a daily, weekly, monthly and yearly basis. Social network analysis was used to assess the interaction patterns of nurses and doctors (N= 728) in primary and specialized care settings.

##### Results:

Visual representations indicated that, contrary to primary care settings, healthcare providers in specialized care settings reported of numerous interactions with other professions. In primary care, general practitioners reported the least frequent interactions with other professions. Of all providers investigated, specialized doctors in hospitals and hospices reported the densest collaborative networks.

##### Implication:

Gaps regarding collaboration in Swiss palliative care provision were revealed. Based on the results of the study, recommendations on how to improve service quality by strengthening the interaction patterns of general practitioners, as well as community-based palliative care, are provided.

**Keywords:** Palliative Care Networks, Inter-professional collaboration, Multidisciplinary teams, Healthcare provision, Swiss national, Social network.

#### Article History

Received: October 12, 2019

Revised: December 26, 2019

Accepted: January 07, 2020

## 1. INTRODUCTION

According to the definition of the WHO, Palliative Care (PC) is a holistic approach to caregiving, which aims to improve the quality of life of patients and their families in their last stage of life [1]. Over the last decade, several European countries have invested in new strategies, which aim to foster PC, often with the focus of improving the provision of PC in local communities and rural areas [2 - 4]. Switzerland has followed suit and initiated two national palliative care strategies, which lasted from 2010 to 2015 [5, 6]. Considerable

efforts have been made since to promote official regional and inter-organizational PC networks, aimed at improved management, collaboration and coordination of care [7].

Successful PC delivery relies on many professions, their individual expertise and collaborative exchanges across institutions and settings of care [8, 9]. The discipline of collaborative networks, to which this paper refers, is an overarching field, which addresses the structure and dynamics of networks of different organizational units, which interact with each other in order to accomplish common goals [10]. By definition, it is not just a single institution or an individual, but a PC network that is the smallest unit of regional PC [11]. Therefore, it can be reasoned that collaborative networks are

\* Address correspondence to this author at the Department of Psychology, University of Basel, Basel, Switzerland; Tel: 0041774304420; E-mail: [reka.schweighoffer@unibas.ch](mailto:reka.schweighoffer@unibas.ch)

the breeding ground for developing sustainable PC structures.

In Switzerland, specialized palliative care (SPC) is offered by highly specialized medical doctors and nursing staff, who provide care in the context of a complex medical and psychosocial treatment system in PC hospital wards, hospices and specialized practices. Primary palliative care (PPC), on the other hand, is typically provided for less challenging patient trajectories, by general practitioners (GPs) and nurses providing care in a home-care setting or in retirement homes [6]. In particular, PC in home care settings requires a stable network of professionals and relatives who work closely together, while the smallest professional PPC network consists of at least one general practitioner and one ambulant nurse [12]. Based on the resources available in the region, volunteer groups, physiotherapists, and pastoral and community social services are part of a PPC network as well.

It is well-known that strong collaborative networking of various medical and supporting professions can ensure cost-efficient, yet high-performance care planning in each of the two care settings [13]. On the other hand, when the formation of strong ties between professionals, especially between doctors and nurses, is being inhibited or coordination regarding the management of complex care provision is impaired, this often leads to negative patient outcomes and additional healthcare costs [8, 14].

Numerous studies have shown that collaborative patterns of healthcare providers do not necessarily follow the given organizational structure, and are often informal. Thus, gaining an understanding of how multiple specialties work together in PC provision is a challenge that should best be undertaken bottom-up [15]. One of the most popular ways to operationalize collaborative networks has been to quantify the number of mutual exchanges of information [16]. To our knowledge, this research paper is the first one to reconstruct collaborative networks of the following key professions working in PC from the bottom-up: (i) GPs in primary care, (ii) nurses in primary care, (iii) medical doctors with additional training in PC (specialists for PC, oncologists and internal medicine) working in hospitals and hospices, and (iv) nurses in PC wards in hospitals and hospices.

**2. METHODS**

The main aim of this study was to explore the following collaborative networks by counting and presenting visual representations of their interaction frequencies: (i) GPs and (ii) nurses' collaboration networks in primary care (iii) specialized

doctors' collaborative networks in hospitals and hospices and (iv) nurses' collaborative networks in hospitals and hospices. In the model, the collaboration frequencies of nurses and medical doctors were reconstructed by depicting their weighted degree of connections to other professional groups.

**3. PARTICIPANTS**

This study was based on a Swiss national survey on "Collaboration and coordination in Palliative Care conducted on Palliative Care networks in Switzerland". Regarding inclusion criteria, Healthcare Providers (HCP), who regularly cared for PC patients were eligible to participate. General practitioners obtained a link *via* email to the online survey through the Swiss association of general practitioners and pediatricians, "mfe". Other PC providers had to be contacted with the support of various organizations and platforms, such as "palliative.ch", the Swiss cancer league, curaviva and a wide number of hospitals and local nursing organizations. These organizations sent a link to the online survey to their members and three rounds of reminders were sent out in total. The survey addressed roughly 4,500 service providers in palliative care provision in Switzerland and was available in German, French and Italian languages (N=1111, mean age= 50.91, SD=10.3, f= 64.7%, n.a. = 21.0%). We assume that 21% of the respondents did not want to state their gender in order to maintain their anonymity in all circumstances. However, the anonymity of responders was ensured at all times by coding, which was clarified at the beginning of the survey. A detailed description of the demographic characteristics of the study population is given in Table 1.

**3.1. Data Collection and Measurements**

A pretest was conducted beforehand using HCP's from similar fields, and survey items were reviewed for comprehensibility and validity by an expert panel. Data collection was carried out between the 19<sup>th</sup> of September and the 30<sup>th</sup> of November 2018. On average, it took participants 25 minutes to complete the questionnaire. An informed consent was needed to be signed by each participant beforehand.

For the collaborative network analysis, participants were asked to provide information about the amount of collaboration with other professions when caring for mutual PC patients, by estimating the frequencies of social interaction with professionals in the last year (2017) on a daily, weekly, monthly and yearly basis (scale: interaction at least once per day, several times per week, at least once per month, several times a year, less, never).

**Table 1. Demographic and professional characteristics of the study sample.**

	n	Mean age	Mean work experience in PC in years	Mean no. of patients per year, ambulant/ long-term
Nurses in primary care	323	49 +/- 9.4	6-10, range: 0-35	13.8 / 23.1
Nurses in specialized care	208	48 +/- 9.1	6-10, range: 0-35	116.7/ 128.6
Doctors in specialized care	73	53 +/- 9.0	16-25, range: 0-35+	116.2 / 112.4
General practitioners	94	58 +/- 8.6	26-35, range: 0-35+	21.7/ 19.43

A study indicated that certain doubts about the validity and reliability of network relationships obtained through self-disclosure are justified, since memories are easily distorted [17]. However, there is evidence that the ability to remember social interactions is particularly problematic when querying short-term interaction sequences, while long-term social structures seem to be adequately remembered [18]. Therefore, we specifically chose a longer time period of 12 months in our assessment, over which interactions had to be estimated. Besides collaborative networks between doctors and nurses in primary and specialized palliative care, the frequencies of social interactions of doctors and nurses with the following professional groups were assessed: members of mobile palliative care teams, psychologists, pastoral carers, social workers, nutritionists, ergo therapists and physiotherapists, pharmacists, volunteers and informal caregivers of patients (usually family or friends). Although collaboration with case managers and music, animal and art therapists has been investigated as well, these marginal groups have not been included in this study. Visual representations of the social interactions in the fields of primary and specialized PC, as well as of mobile care and support services were created.

3.2. Statistical Methods

The method of listwise deletion was used for data cleaning. Although listwise deletion can sometimes affect the statistical

strength of the tests conducted [19], in this case, we had a sufficiently large sample size in all four groups, with only a few missing. For the social network analysis (SNA), separate tables in CSV-format were created four times for both the nodes and the edges, by depicting the average of the professions weighted degree of connection to other professional groups. The tables were read with Gephi [20] and traced with Adobe Illustrator for visual representation. Additionally, descriptive frequency distributions of the individual social interactions were counterchecked with histograms. Interaction frequencies have not been adapted to differing patient numbers in the different occupational fields since the primary aim of this study was to reconstruct true-to-life collaborative networks of nurses and doctors in both community and specialized palliative care.

4. RESULTS

Visual representations of interaction frequencies of GPs and nurses in PPC are reported in Fig. (1). Fig. (2) shows collaborative networks of medical doctors and nurses in SPC.

Fig. (3) shows the strongest ties in the collaborative network and provides a summary of external factors that influence collaboration. It displays the main finding of this study, namely that considerably higher amounts of interactions originate from HCPs working in SPC, then from HCPs working in PPC.

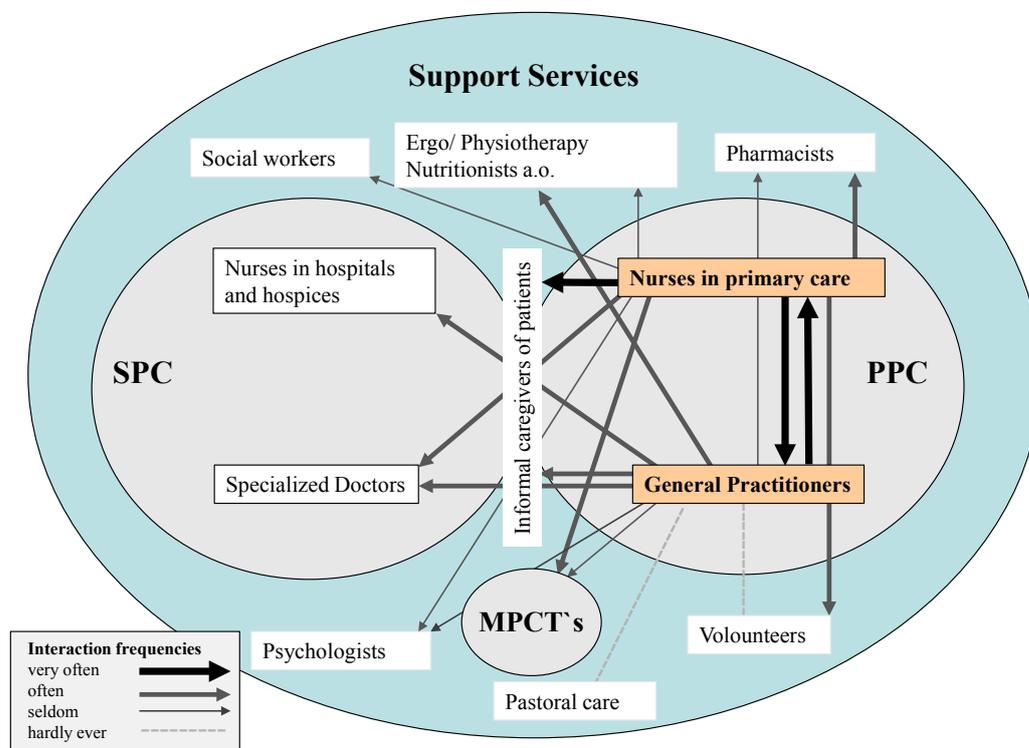


Fig. (1). Collaborative network of GPs and nurses in primary palliative care (PPC).

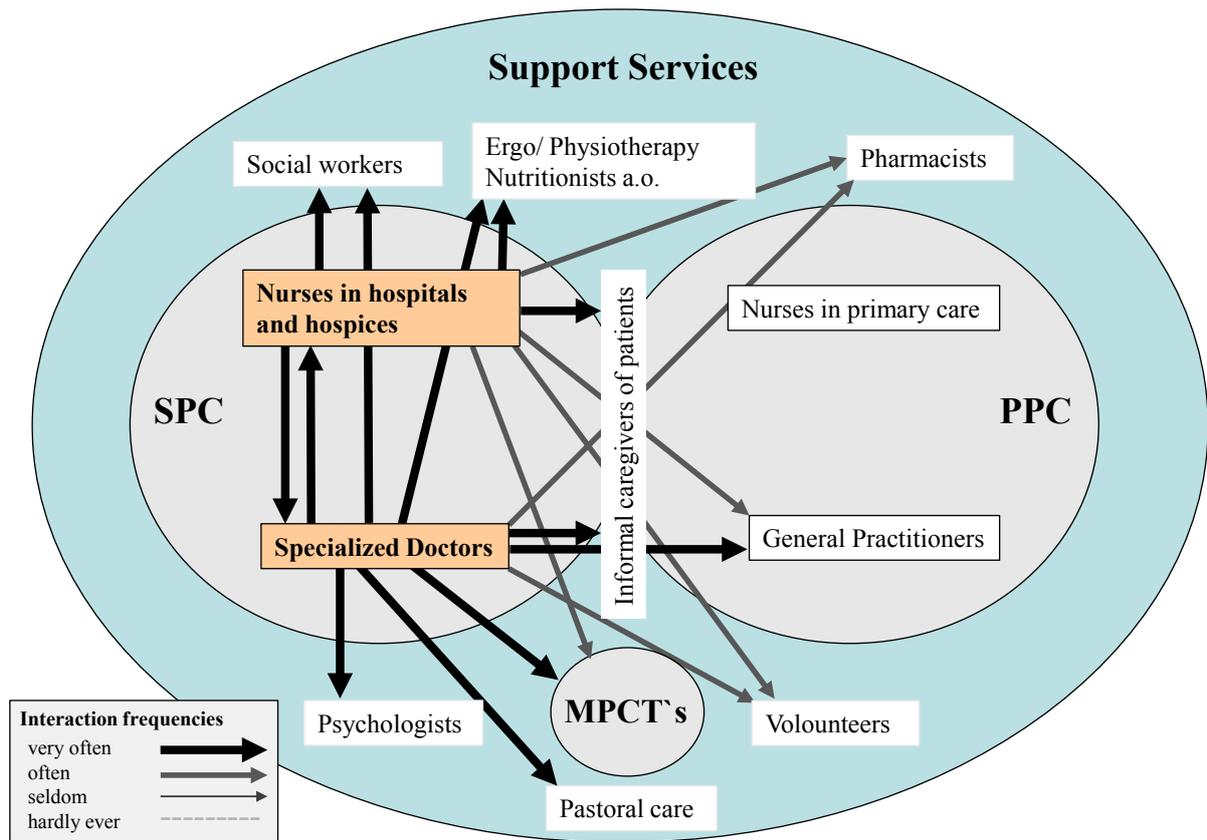


Fig. (2). Collaborative network of doctors and nurses in specialized palliative care (SPC).

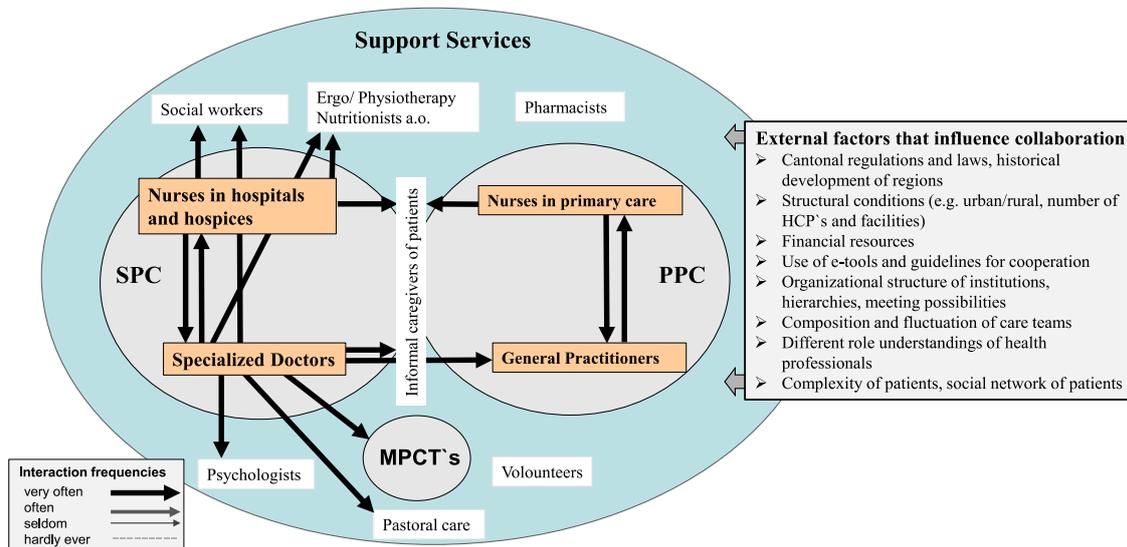


Fig. (3). Overview of the strongest interaction frequencies of nurses and medical doctors in PPC and SPC (collaborating “very often”). Considerably higher amounts of interactions originate from HCPs working in SPC, than from HCPs working in PPC. External factors that influence collaboration, as identified via a literature search, are listed in the box on the right.

Since the organizational functioning of healthcare organizations can be limited by various other barriers to collaborative network building, a number of further external factors that strongly influence collaboration of PC providers in Switzerland have been identified *via* a literature search. Those are, amongst others, different regional regulations and policies, the historical development of the regions, structural conditions (*e.g.* urban vs. rural areas, number of specialized facilities, number of GPs *etc.*), financial resources and lack of reimbursement for coordinative tasks, the use of e-tools and guidelines for cooperation, the organizational structure of institutions, varying hierarchies within work teams, the composition and fluctuation of care teams, different role understandings and assignments of HCPs, and lastly, the social network of patients [8, 9, 13, 14, 21 - 23].

In PPC (Fig. 1), GPs reported comparably low interaction frequencies with other professionals and only reported daily contact with nurses. Interactions with relatives, doctors in specialized practices, specialized doctors in hospitals or hospices and physiotherapists and allied professions occurred at least a few times per week. Mobile palliative care services (MPCTs) and psychosocial professions seem to be of subordinate importance in the GPs' professional networks when caring for PC patients. GPs particularly reported little to no contact with pastoral carers, psychologists and volunteers.

In contrast to GPs, nurses in primary palliative care reported a much higher frequency of interaction with other HCPs and relatives. Nurses in the primary palliative care sector were in contact with relatives, other nurses and GPs on a daily basis when caring for PC patients. Moreover, they collaborated with some supporting services, such as pharmacists or social workers, several times per month. Nurses in PPC were hardly ever in contact with psychologists, pastoral carers and physiotherapists.

Looking at the sphere of SPC (Fig. 2), nurses showed significantly higher frequencies of collaboration with other professions than nurses in PPC. They reported very high (daily) frequencies of collaboration with a lot of different actors, such as doctors and nurses from SPC, relatives, psychologists, pastoral care and various support services when caring for PC patients. Further, they reported contact with GPs, nurses from PPC, MPCT's and volunteers on a weekly basis. Interestingly, most well-connected participants investigated in this study were medical doctors who worked in hospitals and hospices [Fig. 2]. They stated that they were in close contact with numerous people from the listed professions on a daily basis, except for volunteers and pharmacists.

In summary, the reconstructed networks showed that HCPs in SPC shared considerably higher interaction frequencies with a large number of HCPs than was the case for doctors and nurses in PPC. Within both fields, doctors and nurses appeared to be very well connected to each other; however, at the interfaces of SPC and PPC, there was room for further improvement of professional networking. By far, as measured by the self-statements, the least well-connected group was that of GPs, who indicated a significantly lower degree of networking than the other three investigated professional groups. GPs showed especially low interaction rates with

support services.

## 5. DISCUSSION

The main findings of the study revealed strong networks within the two fields of SPC and PPC, but rather weak ties between the two fields, as well as limited contact of GPs with other HCPs in PC, especially support services.

One of the main results of our study showed that both doctors and nurses working in a hospital or hospice reported more interactions with other HCPs than doctors and nurses in PPC.

This is in line with a study by Wensing and colleagues, who investigated the collaboration of HCPs for Parkinson patients, and found that professionals working in PPC showed significantly lower frequencies of interaction with other care professionals than those who were working in a hospital [24].

The main reason for this lies in the fact that fixed organizational structures are more present in certain fields of SPC, which facilitate interprofessional collaboration through predetermined exchange mechanisms, such as case discussions, round tables and supervisions [25, 26]. Furthermore, hospitals and hospices usually feature detailed guidelines and standards as well as training programs, which are known to foster inter-professional collaboration, and which challenge traditional role models and hierarchies [25]. Previous studies also found that the mere geographic proximity of healthcare suppliers in hospitals and hospices leads to higher frequencies of interaction since logistic interconnections are easier to make when HCPs are more visible to each other [27].

Contrary to doctors in SPC, GPs reported limited contact with members of MPCT teams, pastoral care teams, psychologists, volunteers and pharmacists when caring for PC patients. Some of the reasons for low interaction frequencies originating from GPs in this study might include the lower complexity levels of patients in PPC, GPs' unfamiliarity of fellow HCPs and psychosocial services, as well as less use of e-tools, less possibilities for inter-professional exchange and insufficient remuneration for collaborative tasks [28 - 30].

However, strengthening GPs' collaborative interactions with other professions in PC is vital, since up to 80% of all PC patients in Switzerland are currently being treated in primary care [6]. A Swiss population survey from 2017 reports that GPs are the first point of reference for 72% of responders with palliative care needs [31]. Being the first point of reference for a majority of the population, it is essential for GPs to be aware of the wide range of palliative care services available, including psychological and pastoral care. Besides physicians, who are strongly linked to their external professional environment are also associated with better clinical performance [32].

The authors suggest that inter-professional collaboration of GPs should be fostered by establishing standardized communication structures appropriate for the setting of PPC, which specifically caters for the needs of GPs and nurses working in ambulant settings. Shared online tools for reporting and assessment do not only promote common ground between various professional groups in the same area but reduce the

barriers for GPs of reaching out to unknown colleagues or professionals. This is supported by a study from Australia, which demonstrated that GPs that frequently used information technologies and e-tools revealed sustainable network structures and stronger ties to other professional groups in healthcare, which in turn resulted in better clinical performance [33].

The authors further suggest that the services of specialized MPCTs should be further promoted and strengthened from a professional basis, in order to fill in gaps in provision, and to facilitate high-standing PC provision in the community and in remote areas. Not only are MPCTs needed for GPs and informal caregivers to consult with when challenging decisions have to be made, but they might serve as an effective coordinating interface between SPC and PPC in the future, since MPCTs are mostly commissioned by, or affiliated with, hospitals and hospices [34]. MPCTs are not yet available comprehensively throughout the whole country of Switzerland; however, it is to be expected that these services will be expanded in the near future [35].

One of the main barriers towards more interprofessional collaboration in PC concerns overall healthcare reimbursement. Previous research indicated that especially the collaborative services of GPs are not adequately remunerated if they concern activities apart from immediate contact with the patient [30]. However, GPs should ideally be able to take their time to consult with, and refer patients to other HCPs and allied services, as well as to advise family members on important decisions [30]. Recent literature suggests that the number of GPs who are willing to do home-visits in Switzerland is declining, which could be a hint of dissatisfaction with their reimbursement for time-consuming responsibilities [28, 36]. Therefore, new concepts for remunerating GPs' collaborative activities are required to foster collaborative activities in PC within Switzerland.

Last but not least, experts from the field have recommended the development of innovative, community-based and community-owned models that facilitate palliative care delivery to patients in a home care setting [37, 38]. These community networks are typically built up by residents in close cooperation with healthcare facilities while following certain educational and ethical standards that strengthen the resident's capacity to provide appropriate PC at home [38 - 40]. Community-based care networks can consist of, amongst others, family members, neighbours, case managers, local organisations, faith groups and volunteers with special training in PC. Evidence suggests that community-networks for PC are not only cost-saving and sustainable, but they also relieve the workload of HCPs working in PC and promote patients' autonomy at the end of life [38, 40].

## CONCLUSION

This study has provided insight into collaborative patterns of doctors and nurses in primary and specialized PC provision in Switzerland. Examples on how to improve service quality by strengthening the interaction patterns of GPs, as well as community-based palliative care, are provided.

This information is relevant in order to plan healthcare

provision more efficiently, by highlighting possible shortcomings in inter-professional communications. It is important to emphasize that each individual network of palliative care providers may substantially differ from the visual networks portrayed in our study. Compared to other medical areas, much more variance can be expected regarding the professional network building of HCPs in PC [22]. This is mainly due to the complex care situation of PC patients, who require an individually tailored treatment plan according to their present physical and psychosocial needs. Depending on the severity of the patient's condition, frequent transfers between, and within SPC and PPC settings may occur, which are a major contributing factor to the changes in professional network formation [13].

This research did not aim to directly compare the quality of collaborative networking between the two areas of PPC and SPC. This claim cannot be fulfilled, since the two areas handle different numbers of patients and treat patients with different degrees of severity.

Self-reported measures, as used in this study, can have certain disadvantages, such as an increased probability that events or interactions are not being recalled correctly. Thus, over or under estimation of interaction frequencies are possible and the question arises as to whether the survey primarily measures the actual, or subjectively perceived, professional networks. Nevertheless, literature suggests that effects on the behavior of individuals can be expected in both cases [41]. For future social network studies in healthcare, the authors recommend an observational approach in order to avoid self-ratings. Moreover, future research should aim at analyzing the impact of frequency of collaboration of HCPs on patient outcomes, as well as on data security. External factors, which influence collaborative networking on an individual level, should be taken into account as well.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the the Ethics Committee of Northwestern Switzerland (EKNZ) on the 29th of August 2018 (Req-2018-00490).

## HUMAN AND ANIMAL RIGHTS

Not applicable.

## CONSENT FOR PUBLICATION

Not applicable.

## AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are available from the corresponding author, [R.S], upon reasonable request.

## FUNDING

The study was funded by the Swiss National Research Foundation SNF within the National Research Programme NRP 74 "Smarter Healthcare", grant No. 167345.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

**ACKNOWLEDGEMENTS**

The authors thank Eveline Degen for her assistance in conducting this research and all participating healthcare providers for their contributions.

**REFERENCES**

- [1] WHO, World Health Organization. WHO definition of palliative care cited 2019 June 29 Available from: <http://www.who.int/cancer/palliative/definition/en/>
- [2] Unit EI. The 2015 quality of death index. Ranking palliative care across the world. *The Economist* 2015.
- [3] Cole TR, Carlin NS, Carson RA. *Medical humanities: An introduction*. In: New York: Cambridge University Press 2015; pp. 230-1.
- [4] Lynch T, Connor S, Clark D. Mapping levels of palliative care development: A global update. *J Pain Symptom Manage* 2013; 45(6): 1094-106. [<http://dx.doi.org/10.1016/j.jpainsymman.2012.05.011>] [PMID: 23017628]
- [5] Binder J, von Wartburg L. Nationale Strategie. Palliat Care 2009; 2010-2. [Bundesamt für Gesundheit BAG].
- [6] Von Wartburg L, Näf F. Nationale Strategie. Palliat Care 2012; 2013-5. [Bundesamt für Gesundheit BAG].
- [7] Mehira N. Plattform Palliative Care 2017. Available from: <https://www.palliative.ch/de/palliative-ch/>
- [8] Egli S, von Wartburg L, Näf F. Das interprofessionelle Team in der Palliative Care: die Grundlage einer bedürfnisorientierten Betreuung und Behandlung am Lebensende. Bundesamt für Gesundheit BAG, Direktionsbereich Gesundheitspolitik 2016.
- [9] Sullivan T. *Collaboration: A health care imperative*. New York: McGraw-Hill 1998.
- [10] Camarinha-Matos LM, Afsarmanesh H. The emerging discipline of collaborative networks. Working Conference on Virtual Enterprises Springer. Boston, MA. 2004; pp. 3-16.
- [11] Eychmüller S, Benedetti FD. Oxford University Press Oxford 2012; pp. Community palliative care in Switzerland: from assessment to action. In: *Participatory Research in Palliative Care: Actions and Reflections*. 76-84. [<http://dx.doi.org/10.1093/acprof:oso/9780199644155.003.0007>]
- [12] Näf F. Verbreitung der allgemeinen Palliative Care bei der Nonprofit-Spitex in der Schweiz Modularbeit am Institut Alter der Berner Fachhochschule 2018.
- [13] Sottas B. Interprofessionelle Teams sind effizienter und senken die Kosten. Innovationen in der Gesundheitswirtschaft: Theorie und Praxis von Businesskonzepten Jahre B Braun-Stiftung Mentoring programm 2018; 40
- [14] Currie G, White L. Inter-professional Barriers and Knowledge Brokering in an Organizational Context: The Case of Healthcare. *Organ Stud* 2012; 33(10): 1333-61. [<http://dx.doi.org/10.1177/0170840612457617>]
- [15] Tasselli S. Social networks of professionals in health care organizations: a review. *Med Care Res Rev* 2014; 71(6): 619-60. [<http://dx.doi.org/10.1177/1077558714557079>] [PMID: 25380607]
- [16] Serdült U. Soziale Netzwerkanalyse: eine Methode zur Untersuchung von Beziehungen zwischen sozialen Akteuren. *Osterr Z Politwiss* 2002; 31(2): 127-41.
- [17] Schenk M, Mohler PP, Pfennig U. Egozentrierte Netzwerke in der Forschungspraxis: Ausschöpfungsquoten und Validität soziodemographischer Variablen. *ZUMA Nachrichten* 1992; 16(31): 87-120.
- [18] Jansen D. Wiesbaden: Erhebung von Netzwerkdaten. In *Einführung in die Netzwerkanalyse*. VS Verlag für Sozialwissenschaften 2003; pp. 69-90.
- [19] Allison P D. *Missing data* Sage publications 2001; 136
- [20] Bastian M, Heymann S, Jacomy M. Gephi: An open source software for exploring and manipulating networks Third international AAAI conference on weblogs and social media.
- [21] Sullivan T J. *Collaboration: A health care imperative*. McGraw-Hill Medical Publishing 1998.
- [22] Schmitz C, Atzeni G, Berchtold P. Challenges in interprofessionalism in Swiss health care: the practice of successful interprofessional collaboration as experienced by professionals. *Swiss Med Wkly* 2017; 147(4344): w14525.. [PMID: 29120009]
- [23] Bainbridge D, Brazil K, Krueger P, Ploeg J, Taniguchi A. A proposed systems approach to the evaluation of integrated palliative care. *BMC Palliat Care* 2010; 9(1): 8. [<http://dx.doi.org/10.1186/1472-684X-9-8>] [PMID: 20459734]
- [24] Wensing M, van der Eijk M, Koetsenruijter J, Bloem BR, Munneke M, Faber M. Connectedness of healthcare professionals involved in the treatment of patients with Parkinson's disease: a social networks study. *Implement Sci* 2011; 6(1): 67. [<http://dx.doi.org/10.1186/1748-5908-6-67>] [PMID: 21722400]
- [25] Chase SK. The social context of critical care clinical judgment. *Heart Lung* 1995; 24(2): 154-62. [[http://dx.doi.org/10.1016/S0147-9563\(05\)80010-X](http://dx.doi.org/10.1016/S0147-9563(05)80010-X)] [PMID: 7538987]
- [26] Boyer L, Belzeaux R, Maurel O, Baumstarck-Barrau K, Samuelian J-C. A social network analysis of healthcare professional relationships in a French hospital. *Int J Health Care Qual Assur* 2010; 23(5): 460-9. [<http://dx.doi.org/10.1108/09526861011050501>] [PMID: 20845677]
- [27] Kraut R E, Fussell S R, Brennan S E, Siegel J. Understanding effects of proximity on collaboration: Implications for technologies to support remote collaborative work *Distributed work* 2002; 137-62.
- [28] Giezendanner S, Bally K, Haller DM, et al. Reasons for and frequency of end-of-life hospital admissions: General practitioners' perspective on reducing end-of-life hospital referrals. *J Palliat Med* 2018; 21(8): 1122-30. [<http://dx.doi.org/10.1089/jpm.2017.0489>] [PMID: 29727249]
- [29] Sheppard M. Contact and collaboration with general practitioners: a comparison of social workers and community psychiatric nurses. *Br J Soc Work* 1992; 22(4): 419-36.
- [30] Alvarado V, Liebig B. Conditions of palliative home care: the case of family physicians in Switzerland. *Prim Health Care* 2015; 5(180): 2167-1079.
- [31] Stettler P, Bischof S, Bannwart L, Schempp D. Bevölkerungsbefragung. *Palliat Care* 2017; 2017. [Ergebnisse der Befragung].
- [32] Hansen H, Pohontsch NJ, Bole L, Schäfer I, Scherer M. Regional variations of perceived problems in ambulatory care from the perspective of general practitioners and their patients - an exploratory focus group study in urban and rural regions of northern Germany. *BMC Fam Pract* 2017; 18(1): 68. [<http://dx.doi.org/10.1186/s12875-017-0637-x>] [PMID: 28545402]
- [33] Chung KSK, Hossain L. Towards a social network model for understanding information and communication technology use for general practitioners in rural Australia. *Comput Human Behav* 2010; 26(4): 562-71. [<http://dx.doi.org/10.1016/j.chb.2009.12.008>]
- [34] Bundesamt für Gesundheit B. A. G.. *Mobile Palliative-Care-Dienste in der Schweiz– Eine Bestandsaufnahme aus der Perspektive dieser Anbieter*. Gesundheitsmanagement 2014; C: L. [F. Ö., & IBR, H.].
- [35] Wächter M, Bommer A. *Mobile palliative-care-dienste (mpcd) in der schweiz – eine bestandsaufnahme aus der perspektive dieser anbieter*. cited : 2019 June 252014. Available from: [https://www.pallnetz.ch/cm\\_data/Mobile\\_Palliative\\_Care\\_Dienste\\_Schlussbericht.pdf](https://www.pallnetz.ch/cm_data/Mobile_Palliative_Care_Dienste_Schlussbericht.pdf).
- [36] Efstathopoulou A, David S, Herzig L. [Home visits by GPs - Considerations in Europe and in Switzerland]. *Rev Med Suisse* 2016; 12(537): 1874-8. [PMID: 28696626]
- [37] Reid MC, Ghesquiere A, Kenien C, Capezuti E, Gardner D. Expanding palliative care's reach in the community via the elder service agency network. *Ann Palliat Med* 2017; 6(Suppl. 1): S104-S107.. [<http://dx.doi.org/10.21037/apm.2017.03.10>] [PMID: 28595429]
- [38] Kumar SK. Kerala, India: a regional community-based palliative care model. *J Pain Symptom Manage* 2007; 33(5): 623-7. [<http://dx.doi.org/10.1016/j.jpainsymman.2007.02.005>] [PMID: 17482058]
- [39] Prince H, Nadin S, Crow M, et al. "If you understand you cope better with it": the role of education in building palliative care capacity in four First Nations communities in Canada. *BMC Public Health* 2019; 19(1): 768. [<http://dx.doi.org/10.1186/s12889-019-6983-y>] [PMID: 31208402]
- [40] Abel J, Walter T, Carey LB, et al. Circles of care: should community

development redefine the practice of palliative care? *BMJ Support Palliat Care* 2013; 3(4): 383-8.  
[<http://dx.doi.org/10.1136/bmjspcare-2012-000359>] [PMID: 24950517]

[41] Hirschi C, Serdült U, Vögeli C, Widmer T. The Actor-Process-Event Scheme (APES): issues of validity and reliability for network applications. *Second Conference on Applications of Social Network Analysis*. 20-1.

---

© 2020 Schweighoffer *et al.*

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## **Modes of collaboration and comprehensive network building in palliative care**

### **1 Modes of collaboration and comprehensive network building in Swiss palliative care - an 2 explorative study**

3

#### **4 Abstract**

5 Interprofessional collaboration in palliative care has been the focus of many research projects  
6 in the last decade. However, it remains unclear what forms, or modes, of interprofessional  
7 collaboration exist in everyday situations, and how they can be characterized in terms of  
8 organization, management and leadership. Semi-structured interviews with 18 specialized  
9 physicians and experts from the field from the German-speaking Cantons of Basel-City, Basel-  
10 Country, Lucerne, Zürich and St. Gallen were used to investigate modes of collaboration in  
11 Swiss palliative care exploratively. Kuckartz's (2018) approach to structural content analysis  
12 was used to reconstruct patterns of meaning within the qualitative data. Four distinct modes of  
13 collaboration in palliative care are identified and described, namely "program-like  
14 collaboration", "selective collaboration", "interim networks" and "comprehensive palliative  
15 care networks". As our findings show, these four modes differ in their organization with  
16 respect to regularity, location of occurrence, characteristics of coordination and styles of  
17 leadership. Moreover, recommendations on how to establish regional palliative care networks  
18 to foster interprofessional collaboration, are put forward.

19 Our findings shed light on the organization of interprofessional collaboration in palliative care.  
20 The discussed prerequisites to establish integrated, regional care networks can support  
21 initiatives with the aim to foster comprehensive palliative care provision across Switzerland.

22

23 **Keywords: palliative care, interprofessional collaboration, care networks, Switzerland**

24

## **Modes of collaboration and comprehensive network building in palliative care**

### **25 Introduction**

26 Satisfactory outcome quality for palliative care patients can only be achieved through efficiently  
27 organized interprofessional collaboration. Thus, this topic has been the focus of a number of  
28 research projects in the last decade in palliative care (1-4). By definition, interprofessional  
29 collaboration in healthcare is a form of negotiated agreement that values the expertise and  
30 contribution that various professionals bring into patient care (1). Palliative care teams aim to  
31 provide the best possible, holistic care for patients, as well as their relatives (2, 3).

32 Efficient interprofessional collaboration is one of the major prerequisites for integrated  
33 healthcare provision, especially in rural communities (5-7). As the WHO states: “Integration of  
34 healthcare is a coherent set of methods and models on the funding, administrative,  
35 organizational, service delivery and clinical levels designed to create connectivity, alignment  
36 and collaboration within and between the cure and care sectors. The goal of these methods and  
37 models is to enhance quality of care and quality of life, consumer satisfaction and system  
38 efficiency for people by cutting across multiple services, providers and settings ...” (8).

39 Countries such as Canada, the Netherlands and the United Kingdom have included  
40 interprofessional collaboration within integrated care structures as key elements in their  
41 governmental health policy on the provision of palliative care (9). In Switzerland, though, the  
42 regional cantons (districts) are free to decide the extent to which they foster local palliative care  
43 provision. Thus, there has always been great variation in the legal, socio-geographic and  
44 funding preconditions for palliative care provision in Switzerland (10).

45 The inconsistent organization of interprofessional collaboration in palliative care is still one of  
46 the biggest challenges for integrated, comprehensive care provision across Switzerland (11).  
47 Structural and organizational barriers cause serious gaps in collaboration between different  
48 professional groups working in primary and specialized palliative care (12-14).

## **Modes of collaboration and comprehensive network building in palliative care**

49 Moreover, it remains largely unclear, what forms these operating structures take in everyday  
50 collaborative situations, and how they can be characterized in terms of organization,  
51 management and leadership (15, 16). For other countries and other medical fields, it has been  
52 described in more detail, how interprofessional palliative care teams operate (17, 18). Thus, in  
53 order to investigate different forms of interprofessional collaboration in Swiss palliative care,  
54 the findings of Schmitz, Atzeni and Berchtold (19), who have identified different modes of  
55 interprofessional collaboration for certain medical fields in Switzerland, shall be used as a  
56 sensitizing concept (20). Furthermore, prerequisites for successful interprofessional  
57 collaboration in regional communities will be discussed.

58

### **59 Methods**

60 A qualitative study design was applied to explore different modes of interprofessional  
61 collaboration in Swiss palliative care from the perspectives of specialized physicians working  
62 in acute-care hospitals and at a hospice with hospital status. The selection of these settings was  
63 intended to provide an overview of collaborative situations between professionals as they are  
64 common in palliative care. The reconstructed modes of collaboration can be understood as  
65 explorative results, which describe patterns of interprofessional interactions that can occur  
66 when palliative patients are treated.

67 Importantly, all reconstructed modes involve more than one medical profession.  
68 Interprofessional interactions might occur between nursing experts, nurses, general  
69 practitioners (GPs), specialist physicians in hospitals, hospices or private practice, social  
70 workers, psychosocial caregivers, and many other professions. Building on the primary aim of  
71 the study, which is to investigate different modes of interprofessional collaboration in palliative  
72 care, specialized physicians' perspectives on the necessary prerequisites for successful  
73 collaboration in comprehensive, interprofessional palliative care networks, are investigated.

## **Modes of collaboration and comprehensive network building in palliative care**

### **74 Sample**

75 Semi-structured interviews were conducted with 18 specialized physicians working in palliative  
76 care in seven acute-care hospitals and two hospices with hospital status and medical care offer.  
77 Physicians specialized in palliative care were specifically surveyed since they have the best  
78 overview of palliative care provision and referral pathways in their respective regions (as  
79 compared to physicians from other specialties, or general practitioners). This is because they  
80 treat palliative care patients exclusively. Therefore, their professional group interacts the most  
81 frequently with care providers from other levels of healthcare services, and is the most well-  
82 informed about physician-led primary care, non-physician-led primary care, specialized  
83 medical outpatient services, specialized non-physician-led outpatient services, home care  
84 services, community services and public health departments (11). Our sample is comprised of  
85 established experts in palliative care in their respective regions, with at least seven doctors being  
86 actively involved in the structural development of regional palliative care services. The  
87 facilities were located in the German-speaking cantons of Basel-City, Basel-Country, Lucerne,  
88 Zürich and St. Gallen. These cantons were selected due to their different socio-geographic  
89 features, as well as their diverse histories and policies for palliative care provision. The  
90 interviewees (8 men, 10 women) were an average of 46.5 years old (range: 30–59) and reported  
91 an average of 8.8 years of experience in palliative care. Most held or aspired to a specialist title  
92 in internal medicine; two had specializations in oncology and radiology. In addition, the  
93 majority of respondents had additional training in palliative care (“idS”, interdisciplinary  
94 training in palliative care), and some reported additional training in geriatrics, oncology, in  
95 psychosocial and psychosomatic medicine or in interdisciplinary pain medicine.

96

97

## **Modes of collaboration and comprehensive network building in palliative care**

### **98 Data collection**

99 The interviewees were identified in each canton via personal contacts of the authors, as well as  
100 an internet search, and were recruited via e-mail. Data collection was carried out between  
101 January and May 2020. Demographic data were collected via an online form from all  
102 participants. The same researcher interviewed all physicians in a semi-structured interview  
103 form. The interviews lasted for a maximum of 50 minutes and were all (except the first two),  
104 conducted by telephone instead of face-to-face due to the COVID-19 pandemic.

105 The semi-structured interview guideline was based on the theoretical concept of Atzeni,  
106 Schmitz and Berchtold (2017), as well as on Bainbridge`s (2010) theoretical perspective on  
107 collaboration in integrated palliative care networks (19, 4). Key topics regarding collaboration  
108 within specialized palliative care and between practitioners of specialized and primary  
109 palliative care in Switzerland were covered (Table 1). After informed consent was obtained,  
110 interviews were audio-recorded and transcribed verbatim with the help of a research assistant,  
111 with all personal identifiers removed for reasons of anonymity.

112 **Table 1. Excerpt of interview questions (English translation of the German interview guideline)**

---

(1) **Can you describe how palliative care is provided in your team, and your role in care provision?**

---

(2) **Would you describe day-to-day situations, in which you collaborate with others in palliative care? (interviewee should provide at least 1 situation)**

---

(3) **Who is the first to make contact in the specific situation?**

---

(4) **How are tasks and responsibilities divided in this situation?**

---

(5) **Who takes the lead in this situation(s)?**

---

(6) **Can you describe which actors might be involved in this situation?**

---

(7) **Can you describe specific situations in which you collaborate with professionals from primary care/with GPs in palliative care?**

---

## Modes of collaboration and comprehensive network building in palliative care

---

(8) Can you describe the typical communication pathways in your collaboration with healthcare professionals from primary palliative care? (probes: intensity, quality, means of communication)

---

(9) In your opinion, what are important prerequisites for successful collaboration with other palliative care providers of your immediate team?

---

(10) In your opinion, what are important prerequisites for working together successfully within a provisional region? What are prerequisites to work together successfully with GPs and ambulant nurses? (probes: structural preconditions, leadership, communication tools, personal relationships)

---

(11) In your opinion, how could the collaboration with other palliative care providers (f.e. GPs) in your region be further improved? (probe: can you think of any best-practice model?)

---

113

### 114 Data analysis

115 Kuckartz's (2018) approach to structural content analysis was used to identify, classify and  
116 report patterns within the qualitative data (21). The researchers first familiarized themselves  
117 with the audiotapes and transcribed the data. This was followed by discussing the initial  
118 findings and main clusters, which was carried out by the core research group. Data in the  
119 transcripts were systematically coded according to the main clusters with the qualitative data  
120 analysis software package ATLAS.ti, version v8.4.24 (22). For reasons of clarity, the coding  
121 followed two parts: in the first part of the study, the interpretation was carried out deductively  
122 (23) based on information about different modes of collaboration in certain medical fields, as  
123 described by Atzeni, Schmitz & Berchtold, 2017 (19). These modes provided the basis for the  
124 construction of our main categories. In a second step, the analysis was carried out inductively  
125 by saturating and supplementing these constructs (23). This way, we were able to identify also  
126 new modes of collaboration that were specific to the setting of palliative care in Switzerland.  
127 In a further step the categories were enriched with information derived from the 18 qualitative  
128 interviews with the palliative care experts.

## **Modes of collaboration and comprehensive network building in palliative care**

129 The second part of category formation was based on characteristics of interprofessional  
130 collaboration, as addressed in the theoretical framework for high quality, integrative palliative  
131 care of Bainbridge and colleagues (4).

### **132 Ethical considerations**

133 Formal research approval for this study was obtained from the Ethics Committee of  
134 Northwestern Switzerland on the 29<sup>th</sup> of August 2018 (EKNZ, Req-2018-00490). Due to the  
135 recent coronavirus outbreak, participants who had already agreed to face-to-face interviews  
136 were asked to reschedule for telephone interviews for safety reasons. Before the start of every  
137 interview, the interviewees consented to participation in the study and recording of the  
138 interviews for later transcription. Before each interview, the interviewer restated the research  
139 objectives, the reasons for recording the telephone interviews, the option to withdraw from the  
140 study, and assured participants of the confidentiality of data. The anonymity of participants was  
141 guaranteed.

### **142 Results**

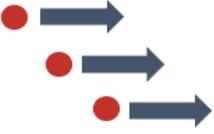
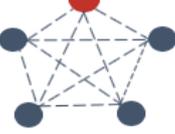
#### **143 Different modes of collaboration in palliative care**

144 The interpretation resulted in the reconstruction of four different modes of inter-  
145 professional collaboration, starting from the theoretical considerations of Atzeni, Schmitz  
146 and Berchtold, 2017 (19). Their empirical findings on collaborative modes in medicine  
147 serve as a basis for our depiction of collaborative modes in the setting of palliative care. As  
148 described by the interviewees, the four modes of collaboration in this paper differ in their  
149 organization with respect to regularity, location of occurrence, coordination and leadership  
150 style. Importantly, these ideal-typical portrayals of interprofessional collaboration in palliative  
151 care might overlap and cannot reproduce reality exhaustively. An overview of the ideal-typical

## Modes of collaboration and comprehensive network building in palliative care

152 modes of collaboration is depicted in Table 2.

153

Modes of collaboration in palliative care	Program-like collaboration	Selective collaboration	Interim network	Comprehensive network
<p><b>Characteristics</b></p>  <p><b>Predefined procedures</b></p>	 <p><b>Consultation of a node</b></p>	 <p><b>Dialogues to solve problems in scheduled appointments</b></p>	 <p><b>Dialogues to solve problems in a comprehensive network</b></p>	
<p><b>Example of occurrence</b></p>	<p>Surgery, palliative radio- and chemotherapy in acute care</p>	<p>Consultations in primary and specialized palliative care</p>	<p>Interdisciplinary case discussions, roundtables or tumor boards in both primary and specialized care</p>	<p>Palliative care provision across settings in a local or regional care network</p>
<p><b>Organization of collaboration</b></p>	<p>Treatment processes are predetermined and rigid, individual competences (e.g., of physicians and nurses) can be arranged in a program-like way.</p>	<p>Request for consultation passed by individual seeking help. Interaction is selective and irregular.</p>	<p>Several, mostly medical professions come together at their workplace to discuss cases. Scheduled meetings take place regularly.</p>	<p>Project-like, formalized collaboration of various professions and facilities over a long period. Interaction occurs through ingrained communication pathways, inclusion of the public.</p>
<p><b>Leadership</b></p>	<p>Temporary lead stays with physician who carries out the procedure; limits of the physician's expertise are not exceeded.</p>	<p>Case exceeds expertise of an individual. Lead role for the case is typically kept by the individual who receives advice (unless otherwise agreed upon).</p>	<p>Professionals involved in care provide information within their area of responsibility, physician in charge of the case leads.</p>	<p>Professionals and relatives involved in care negotiate and take the lead situationally, depending on patients' current situation.</p>

154 **Table 2. Modes of collaboration in palliative care (partly based on Atzeni, Schmitz & Berchtold, 2017).**

155 **Red nodes indicate leadership role.**

156

157

158

159

### 160 **1. Program-like collaboration**

161 The construct of “program-like collaboration” is described by Atzeni et al. (2017) as a  
162 standard form of collaboration in a traditional medical setting, where various  
163 professional competencies are coordinated side-by-side to be able to effectively handle  
164 urgent medical interventions in intensive care units or in surgery (19). As our interviews  
165 show, this type of collaboration can also be found in palliative care. Typically, program-  
166 like collaboration occurs in medical palliative therapies, which do not primarily aim to  
167 cure a disease, but to alleviate symptoms or reduce adverse effects to improve the  
168 patients’ quality of life. One example is palliative radio- or chemotherapy, which is  
169 typically carried out in acute-care hospitals. In this mode, collaboration is characterized  
170 by a predetermined, systematic and time-limited pattern of action, performed by  
171 physicians. The intervention is directed and led by the treating physician. Nevertheless,  
172 day-to-day interprofessional collaboration occurs with nurses and nursing experts in the  
173 hospital, as well as via consultations with palliative consultation services, relatives, and  
174 occasionally, the patient’s GP.

### 175 **2. Selective collaboration**

176 “Selective collaboration” is a collaborative mode which has not often been mentioned in  
177 literature in the context of healthcare. Our interviewees described situations of selective  
178 collaboration that occurred both in specialized as well as in primary palliative care settings.  
179 This mode refers to a situation in which a single actor (e.g. a physician or a nurse) reaches out  
180 to other(s) for advice, for example, in the case of a medical emergency. Selective collaboration  
181 is described to be often found in hospitals, when a consultation is requested from a physician  
182 from another medical field, or from a professional of another specialty (e.g. a clinical

## **Modes of collaboration and comprehensive network building in palliative care**

183 psychologist or a physiotherapist). The appointed consulting professional usually provides his  
184 or her recommendations for diagnosis or therapy in writing in a “consultation report”. As the  
185 interviewees explained, a consultation is an institutionalized service for the assessment and co-  
186 care of patients that can be requested by any professional or caretaker. The consultation offer  
187 can be limited to one healthcare facility/practice or can extend to a larger radius of action. The  
188 interviewed physicians indicated that selective collaboration is one of the most crucial modes  
189 of collaboration for successful provision of palliative care, as advice, especially from other  
190 specialist doctors, is often needed in complex cases.

191 An example for selective collaboration is provided by a physician specialized in palliative care:

192 “In those cases, when decision making is very difficult due to missing advanced care  
193 planning or disagreements between guardians, we as specialists have to set up an ethics  
194 council. Then we are advised by experienced ethicists concerning the next steps and the  
195 legal framing.”

196 Another example of facilitating selective collaboration within a larger radius is the advisory  
197 hotline of a cantonal hospital, which is operated by specialized nursing experts and physicians.  
198 This hotline is available around the clock, every day of the year, for those seeking help with  
199 medical questions. As a physician reports:

200 “Since we established the 24/7 hotline, I do have the feeling that a major barrier to  
201 contact initiation was removed and collaboration between primary and specialized  
202 palliative care was further improved. In my opinion, just the knowledge that such a  
203 hotline for emergency situations exists can be extremely reassuring and empowering,  
204 especially for GPs.”

205

206

## **Modes of collaboration and comprehensive network building in palliative care**

### **207 3. Interim network**

208 Interim palliative care networks are found within institutions, such as acute-care hospitals,  
209 nursing homes and hospices. This mode of collaboration typically occurs when professionals  
210 from different fields within the institution come together for coordinative purposes and to  
211 exchange information about ongoing cases. As the interviews show, medical professionals  
212 (physicians and nurses) and other professionals, such as physiotherapists, occupational  
213 therapists, spiritual counsellors, and social workers, come together in scheduled meetings at  
214 their workplace, actively forming a collaborative network within their institution. In some  
215 healthcare facilities, we found descriptions of “outsiders”, such as GPs or family members,  
216 who are also being invited to interim meetings. Examples of this situational or “interim” mode  
217 of collaboration in palliative care can range from round-table meetings in primary care (e.g.,  
218 nursing homes), to interprofessional tumor boards in acute-care hospitals, or meetings initiated  
219 by assigned case managers (e.g. in hospices or hospitals). The attending physician usually leads  
220 the meeting.

221

### **222 4. Comprehensive palliative care network**

223 As described by our interviewees, most of their workplaces are part of a regionally  
224 interconnected, comprehensive care network. Integrated or “comprehensive” care networks,  
225 in which various medical professionals work together situationally and embedded into regional  
226 communities, are to date seen as best-practice provisional structures internationally (24-26). By  
227 definition, a comprehensive palliative care network is a formalized, loco-regional  
228 association of institutions (hospitals, hospices, retirement homes), organizations, and  
229 primary caregivers, that seek to improve the quality of care for palliative patients in their  
230 region (24). According to Gomez-Batiste et al. (2017), the primary aim of a comprehensive  
231 palliative care network is the establishment of an integrated, preventive, and continued process

## **Modes of collaboration and comprehensive network building in palliative care**

232 of care through formalized communication channels across all care settings (7). To date, it is  
233 only described very vaguely, if and to what extent- comprehensive palliative care networks  
234 exist in Switzerland.

235 According to the description of the interviewed experts, a comprehensive palliative care  
236 network differs from an interim network, since it presupposes the formalization of care  
237 principles, which could be an agreement between several organizations, a mandate, a  
238 protocol or a report. Furthermore, it presupposes the integration of two or more different  
239 groups of healthcare professionals, such as primary care physicians, specialized physicians,  
240 general, specialized or advanced practice nurses, occupational therapists, pharmacists,  
241 physiotherapists, social workers, volunteers, dieticians and informal caregivers.  
242 Importantly, all of the previously presented modes of collaboration in this paper seem to  
243 occur simultaneously or subsequently, and on several meta-levels, in an integrated palliative  
244 care network. The interviewees further stated that in comprehensive palliative care  
245 networks, actors from primary and specialized palliative care are jointly responsible for  
246 providing services in their region, and leadership often changes depending on the case-  
247 severity of the patients and the responsibilities of the different providers. Typically, no  
248 single profession takes on the leading role in the patient's care in the long term; decision-  
249 making authority seems to be based on situational agreements within day-to-day practice  
250 and may need reevaluation as soon as the patient's condition changes. Everyone involved  
251 in the care process - from relatives to social workers and nurse practitioners - could  
252 potentially serve as a key coordinator. Interestingly, several interviewees suggested that  
253 GPs would be suited to act as key coordinators in their respective local care networks. The  
254 reasoning behind this is that GPs often know the patients and their families well and are  
255 also well-informed about local options for palliative care and psychosocial services. As one  
256 physician stated:

## **Modes of collaboration and comprehensive network building in palliative care**

257            “In my opinion, GPs are the ones in a regional care network who are the most  
258 informed about the patient, since they are the ones to receive the patients` treatment  
259 report letters. Therefore, they can keep track of the list of medicines, the diagnostic  
260 list and the advanced care plan and are also best able update these documents.”

261 The interviewees emphasized that leadership can and should still change situationally, and  
262 that a possible “gatekeeper” role for GPs should not be confused with GPs bearing the sole  
263 responsibility for the treatment and well-being of the patient. One physician described their  
264 collaborative process with GPs,

265            “In our regional network, we try to live according to the model of primary and  
266 specialized palliative care very strictly. In other words, the GP and the local nursing  
267 team provide palliative care, and we support them. The mobile palliative care team,  
268 which advises professionals from primary palliative care, is equipped with highly  
269 capable nursing experts, who advise the local nursing team, as well as the GPs on a  
270 regular basis. Only when their expertise is exceeded, are we asked to come into the  
271 situation to provide medical advice and to take over the lead.”

272 Thus, in a comprehensive palliative care network, various professional and individual skills  
273 are described to be combined in a discursive and interactive fashion over an extensive period  
274 of time. Contrary to interim networks, the involvement of the public is essential to sustain  
275 comprehensive palliative care networks. As a doctor states: “The better the public is informed  
276 about local or regional offers, the more efficiently our resources are used, while new care  
277 concepts or volunteer programs can be introduced more easily and with higher acceptance  
278 rates.”

279

280

281

## **Modes of collaboration and comprehensive network building in palliative care**

### **282 Discussion**

283 To date, it remains largely unclear which collaborative modes characterize interprofessional  
284 palliative care in Switzerland. This explorative approach tries to close this gap on the basis of  
285 interviews with specialists from the field.

286 Our findings show, that “program-like collaboration”, which Atzeni, Schmitz and Berchtold  
287 (19) described as a typical collaborative mode in intensive care or surgery, can also be found in  
288 palliative care. However, in palliative care, where healing is not the primary goal of the  
289 treatment, “program-like collaboration” is usually embedded into a holistic treatment process  
290 and aims to alleviate symptom distress. While the treating physician has the temporary lead in  
291 the mode of “program-like collaboration”, and his or her expertise during the treatment is not  
292 exceeded, interprofessional collaboration still might occur within an interim network in the  
293 hospital and/ or within a comprehensive palliative care network in correspondence with other  
294 care providers across different settings. The mode of “selective collaboration”, which describes  
295 the consultation of a single actor or a group of care providers, occurs in almost every medical  
296 field and in both primary and specialized care. However, since illness trajectories and individual  
297 needs are extremely diverse in palliative care patients, it is one of the medical fields which  
298 necessitates interprofessional deliberation the most to achieve satisfactory patient outcomes.

299 Atzeni, Schmitz and Berchtold argued that palliative care typically takes place in a co-creative  
300 collaborative environment within a network (19). On the basis of our interviews, we identified  
301 two different types of networks for palliative care provision, namely “interim” and  
302 “comprehensive networks”. Interim networks, as described by the interviewees, can exist  
303 without being part of a local or regional, comprehensive palliative care network.  
304 Comprehensive palliative care networks typically entail collaborative pathways between  
305 several institutions and primary care, including mobile nursing and palliative care services as  
306 well as community engagement. Importantly, in a comprehensive palliative care network,

## **Modes of collaboration and comprehensive network building in palliative care**

307 project-like collaboration, selective collaboration and interim networks may occur  
308 simultaneously or subsequently and on several meta-levels.

309

### **310 Recommendations**

311 To date, there is insufficient integration between primary and secondary care (10-14), and  
312 although comprehensive palliative care networks are acknowledged as best-practice care  
313 provision in many countries (7, 25, 26), most regions of Switzerland do not dispose of matured,  
314 comprehensive palliative care networks yet.

315 In light of this, we argue that establishing and further developing existing local and regional  
316 comprehensive palliative care networks is highly desirable. Therefore, we aim to provide some  
317 recommendations on how to establish and foster comprehensive palliative care networks in  
318 Swiss communities.

319 On a macro-level, Gomez-Batiste and colleagues recommend systematic, nation-wide programs  
320 and policies to establish comprehensive care networks, which include specific tools that address  
321 the countries' educational (training professionals), organizational (adapting to needs and  
322 demands), and ethical challenges (promoting benefits for patients) (7). However, an  
323 overarching national strategy that determines and provides comprehensive provisional  
324 structures and funding, such as in the United Kingdom (28), does not seem realistic given the  
325 fragmented health care system in Switzerland, where each canton has its own regulations and  
326 policies for healthcare provision (10, 12). In line with this, the interviewees described very  
327 different stages of network maturation in their respective provisional regions. However,  
328 individual cantonal representatives should aim to introduce palliative-care specific policies  
329 which foster education, organization, management and the handling of ethical issues.

330 One of the main findings of this study is its delineation of the importance of engaging both local  
331 communities and cantonal health authorities in the bottom-up establishment of local or regional  
332 palliative care networks. Especially in Switzerland, initiative from pioneers, professional

## **Modes of collaboration and comprehensive network building in palliative care**

333 associations and healthcare facilities are required to promote the discourse on efficient palliative  
334 care networks.

335 On a meso-level, our findings suggest that collaborative processes should be embedded into  
336 regional care networks with clear referral pathways and 24/7 access to specialist palliative care  
337 consultation for primary caregivers (15). Moreover, shared electronic health records could help  
338 to develop more common ground between different professional groups and facilitate reporting  
339 and hand-offs (29). Electronic health records which are shared across care settings might also  
340 improve the intensity and quality of care (30), and care providers might be able to identify  
341 patients with specific palliative care needs earlier in the care process (7, 29, 30).

342 Furthermore, efforts are needed from loco-regional palliative care networks to inform and  
343 involve the community in its activities to foster familiarity and acceptance among the public  
344 for new incentives (31).

345 Sufficient educational and networking opportunities, as well as opportunities for  
346 interprofessional service planning, network evaluation, knowledge transfer, and the inclusion  
347 of the public are necessary for the development of strong and sustainable palliative care  
348 networks (15).

349 Interprofessional case trainings do not only increase knowledge exchange, but also improve  
350 the perception of the skill set and competencies of other professionals, as seen in previous  
351 studies (32, 33). Network-encompassing training courses with a focus on interprofessional  
352 collaboration, such as simulation trainings, can act as “adhesives” that promote network  
353 cohesion by clarifying areas of responsibility and highlighting collaborative pathways across  
354 care settings (15, 33). The recognition of formalized collaborative pathways is an imperative,  
355 particularly with respect to the ever-changing constellations of collaboration between palliative  
356 care wards, conciliar care and primary care (15).

## **Modes of collaboration and comprehensive network building in palliative care**

357 Finally, a number of factors should be considered regarding the implementation of the proposed  
358 measures. These include, amongst others, outlining possible risks and benefits of each of the  
359 measures, the steady assessment of the implementation process, and importantly, involving  
360 representatives of the cantons, of existing palliative and healthcare services, ethical committees,  
361 as well as patient advocates and relatives (7). Ongoing quality controls are needed to improve  
362 identified weaknesses and to sustain a palliative care network once it is established and  
363 operating (7, 15).

364

### **365 Limitations**

366 The authors acknowledge several limitations of this study. Qualitative interviews are reflections  
367 of personal experiences and the beliefs of a few and therefore may not be representative for all  
368 palliative care providers working in Switzerland. Furthermore, this study only included the  
369 views of physicians specialized in palliative care, since they have the most contact with other  
370 professional groups working in palliative care (see Schweighoffer et. al. 2020). The inclusion  
371 of perspectives of other care providers and family members could have provided an interesting  
372 addition, which future studies should take into account. Future studies will also need to evaluate  
373 the preconditions described in this study and assess their usefulness for fostering  
374 interprofessional collaboration in comprehensive palliative care networks.

### **375 Conclusions**

376 This study shed light on different modes of collaboration in Swiss palliative care. The discussed  
377 prerequisites to establish integrated, regional care networks could support initiatives with the  
378 aim to foster comprehensive palliative care provision across Switzerland. So far, only a few  
379 studies have measured the effectiveness of established palliative care networks (17, 18, 34, 35),  
380 and to our knowledge, none have yet been conducted in Switzerland. Studies that measure the

## **Modes of collaboration and comprehensive network building in palliative care**

381 impact of the above-mentioned preconditions on the effectiveness of palliative care networks  
382 in Switzerland, in which improved patient outcomes could serve as an outcome measure, remain  
383 an unmet need.

### **384 Declarations**

### **385 Ethical considerations**

386 Formal research approval for this study was obtained from the Ethics Committee of  
387 Northwestern Switzerland on the 29<sup>th</sup> of August 2018 (EKNZ, Req-2018-00490).

### **388 Availability of data and materials**

389 Data and materials can be acquired upon request from the corresponding author R. S.  
390 According to ethical guidelines, the data will be stored for no more than 10 years.

### **391 Competing interests**

392 The authors declared no conflicts of interest with respect to the research, authorship, or  
393 publication of this article.

### **394 Funding**

395 The Swiss National Science Foundation (SNF) kindly funded the research within the National  
396 Research Program 74 “Smarter Health Care”. The funding body did not have any role in the  
397 design of the study, in the collection, analysis, interpretation and summary of the data.

398

399

## Modes of collaboration and comprehensive network building in palliative care

400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454

### References

1. Gagliardi, A. R., Dobrow, M. J., & Wright, F. C. (2011). How can we improve cancer care? A review of interprofessional collaboration models and their use in clinical management. *Surgical oncology*, 20(3), 146-154.
2. Gardiner, C., Gott, M., & Ingleton, C. (2012). Factors supporting good partnership working between generalist and specialist palliative care services: a systematic review. *Br J Gen Pract*, 62(598), e353-e362.
3. Oishi, A., & Murtagh, F. E. (2014). The challenges of uncertainty and interprofessional collaboration in palliative care for non-cancer patients in the community: a systematic review of views from patients, carers and health-care professionals. *Palliative medicine*, 28(9), 1081-1098.
4. Bainbridge, D., Brazil, K., Krueger, P., Ploeg, J., & Taniguchi, A. (2010). A proposed systems approach to the evaluation of integrated palliative care. *BMC palliative care*, 9(1), 8.
5. Zalot, G. N. (1989). Planning a regional palliative care services network. *Journal of palliative care*, 5(1), 42-46.
6. Eychmüller S, Benedetti FD. Oxford University Press Oxford 2012; pp. Community palliative care in Switzerland: from assessment to action. In: Participatory Research in Palliative Care: Actions and Reflections. 76-84.
7. Gómez-Batiste, X., Murray, S. A., Thomas, K., Blay, C., Boyd, K., Moine, S., ... & Engels, Y. (2017). Comprehensive and integrated palliative care for people with advanced chronic conditions: an update from several European initiatives and recommendations for policy. *Journal of Pain and Symptom Management*, 53(3), 509-517.
8. World Health Organization (2016). Integrated care models: an overview. Health Services Delivery Programme Division of Health Systems and Public Health.
9. Alliance, W. P. C., & World Health Organization. (2014). Global atlas of palliative care at the end of life. London: Worldwide Palliative Care Alliance.
10. Reeves, E., Schweighoffer, R., & Liebig, B. (2019). Community readiness for Palliative Care Services in Switzerland: Basis for public health strategy for health psychologists. *Psychreg Journal of Psychology*.
11. Schweighoffer, R., Reeves, E., & Liebig, B. (2020). Collaborative Networks in Primary and Specialized Palliative Care in Switzerland-Perspectives of Doctors and Nurses. *The Open Public Health Journal*, 13(1).
12. Liebig, B., & Piccini, C. (2017). Inter-professional communication in palliative care: general practitioners and specialists in Switzerland. *Clin Case Rep Rev.*, 3(2), 1-5.
13. Reeves, E., Schweighoffer, R., & Liebig, B. (2020). An investigation of the challenges to coordination at the interface of primary and specialized palliative care services in Switzerland: A qualitative interview study. *Journal of Interprofessional Care*, 1-7.
14. Otte, I. C., Jung, C., Bally, K., Elger, B. S., & Schildmann, J. (2016). Interprofessional silence at the end of life: do Swiss general practitioners and hospital physicians sufficiently share information about their patients? *Journal of palliative medicine*, 19(9), 983-986.
15. Swiss Academy of Medical Sciences SAMW (2020). Interprofessionelle Zusammenarbeit in der Gesundheitsversorgung: erfolgskritische Dimensionen und Fördermassnahmen. Differenzierung. Praxis und Implementierung. *Swiss Academies Communications*, 15(2).
16. Liechti, L., & Künzi, K. (2019): Stand und Umsetzung von Palliative Care in den Kantonen, im Auftrag des Bundesamts für Gesundheit, Bern. Büro für arbeits- und sozialpolitische Studien BASS.
17. Meier, D. E., & Beresford, L. (2008). The palliative care team. *Journal of Palliative Medicine*, 11(5), 677-681.
18. D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, 19(sup1), 116-131.
19. Atzeni, G., Schmitz, C., & Berchtold, P. (2017). Die Praxis gelingender interprofessioneller Zusammenarbeit. *Swiss Academies Report*, 12 (2), 1, 59.
20. Bowen, G. A. (2019). Sensitizing concepts. *SAGE Research Methods Foundations*. SAGE Publications. doi, 10(9781526421036788357).
21. Kuckartz, U. (2018). Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung (Grundlagentexte Methoden, 4., überarbeitete Auflage).
22. Friese, S. (2019). Qualitative data analysis with ATLAS. ti. SAGE Publications Limited.

## Modes of collaboration and comprehensive network building in palliative care

- 455 23. Kuckartz, U., & Rädiker, S. (2019). Datenaufbereitung und Datenbereinigung in der qualitativen  
456 Sozialforschung. In *Handbuch Methoden der empirischen Sozialforschung* (pp. 441-456). Springer VS,  
457 Wiesbaden.
- 458 24. Van de Sande, C. V., Der Rijt, C. V., Visser, A. P., Voorde, M. T., & Pruyn, J. F. A. (2005). Function of  
459 local networks in palliative care: a Dutch view. *Journal of Palliative Medicine*, 8(4), 808-816.
- 460 25. Mitchell, G., & Price, J. (2001). Developing palliative care services in regional areas: the Ipswich  
461 Palliative Care Network model. *Australian family physician*, 30(1), 59.
- 462 26. Morin, D., Saint-Laurent, L., Bresse, M. P., Dallaire, C., & Fillion, L. (2007). The benefits of a palliative  
463 care network: a case study in Quebec, Canada. *International journal of palliative nursing*, 13(4), 190-196.
- 464 27. Filliettaz, S. S., Berchtold, P., Kohler, D., & Peytremann-Bridevaux, I. (2018). Integrated care in  
465 Switzerland: Results from the first nationwide survey. *Health Policy*, 122(6), 568-576.
- 466 28. England, N. H. S. (2014). Actions for end of life care: 2014–16. *London: NHS England*.
- 467 29. Kern, L. M., Edwards, A., Kaushal, R., & with the HITEC Investigators. (2015). The meaningful use of  
468 electronic health records and health care quality. *American Journal of Medical Quality*, 30(6), 512-519.
- 469 30. Bates, D. W. (2010). Getting in step: electronic health records and their role in care coordination.
- 470 31. Kellehear, A. (2013). Compassionate communities: end-of-life care as everyone's responsibility. *QJM:*  
471 *An International Journal of Medicine*, 106(12), 1071-1075.
- 472 32. Head, B. A., Schapmire, T., Earnshaw, L., Faul, A., Hermann, C., Jones, C., ... & Pfeiffer, M. (2016).  
473 Evaluation of an interdisciplinary curriculum teaching team-based palliative care integration in  
474 oncology. *Journal of Cancer Education*, 31(2), 358-365.
- 475 33. Gellis, Z. D., Kim, E., Hadley, D., Packel, L., Poon, C., Forcica, M. A., ... & Johnson, J. (2019).  
476 Evaluation of interprofessional health care team communication simulation in geriatric palliative  
477 care. *Gerontology & Geriatrics Education*, 40(1), 30-42.
- 478 34. Bainbridge, D., Brazil, K., Krueger, P., Ploeg, J., Taniguchi, A., & Darnay, J. (2015). Measuring  
479 horizontal integration among health care providers in the community: an examination of a collaborative  
480 process within a palliative care network. *Journal of interprofessional care*, 29(3), 245-252.
- 481 35. Iliffe, S., Davies, N., Manthorpe, J., Crome, P., Ahmedzai, S. H., Vernooij-Dassen, M., & Engels, Y.  
482 (2016). Improving palliative care in selected settings in England using quality indicators: a realist  
483 evaluation. *BMC palliative care*, 15(1), 69.
- 484

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

**Organizational Determinants of Information Transfer in Palliative Care  
Teams: A Structural Equation Modeling Approach**

R. Schweighoffer, R. Blaese, Prof. Dr. B. Liebig

24 **Abstract**

25           Several organizational factors facilitate or hinder information transfer in palliative care teams.  
26 According to past research, organizational factors that reduce information transfer include the  
27 inconsistent use of shared electronic patient files, frequent changes of healthcare staff, a lack of  
28 opportunities for personal exchange, and a lack of evaluation of collaborative processes. Insufficient  
29 information sharing between professionals can negatively impact patient safety, whereas studies have  
30 shown that some organizational factors improve collaboration between professionals and thus  
31 contribute to improved patient outcomes. The main purpose of this study is thus to investigate  
32 whether, and if so how, organizational factors contribute to successful information exchange in  
33 palliative care teams in Switzerland, while also accounting for the different care contexts of primary  
34 and specialized palliative care. A nationwide survey was aimed at medical professionals working in  
35 palliative care. In total, 379 participants (mean age=49.8 years, SD=10.3) were included in this study.  
36 Two main outcome variables were examined: healthcare providers' satisfaction with information  
37 transfer in their team and their overall satisfaction with communication in their team. Hypotheses  
38 were tested by employing structural equation modeling. Findings revealed that the strongest predictors  
39 for effective information transfer in palliative care teams were sufficient opportunities for face-to-face  
40 meetings and supervision alongside feedback tools to improve collaborative practices and the  
41 application of guidelines and standards for collaboration. Face-to-face meetings were an even greater  
42 contributor to information transfer in specialized settings, whereas sharing the same work-based  
43 values with colleagues was considered more important in primary settings. Results from this study  
44 contribute to the existing literature elucidating how information transfer is facilitated in the field of  
45 palliative care. If proposed measures are implemented, this could possibly improve patient outcomes  
46 in palliative care. Furthermore, the findings can be useful for healthcare organizations and  
47 associations to make more efficient resource allocation decisions with the aim to optimize information  
48 transfer within the workforce.

## 49 **Introduction**

50           The topic of interprofessional collaboration in healthcare has received considerable  
51 attention in recent decades and has specifically gained importance in the interdisciplinary  
52 field of palliative care (PC). Due to the broad spectrum of PC patients' needs, successful PC  
53 delivery relies on efficient collaboration between medical doctors, nurses, and a wide range  
54 of support services within and across different institutions and settings (1). Interprofessional  
55 collaboration in healthcare is described as the collaboration between at least two profession-  
56 als with differing specializations who work interdependently of each other, fulfill specific  
57 roles, and share the same work-related, patient-centered goals (2). The multiple advantages of  
58 successful interdisciplinary collaboration in PC are confirmed by recent reviews, which re-  
59 port of increased patient satisfaction with health services and optimized referral processes, as  
60 well as cost reductions and improved symptom management in patients (3, 4, 5). In particu-  
61 lar, research highlights the importance of seamless information transfer between and within  
62 healthcare professionals as a major contributor to fruitful collaboration, which is the main fo-  
63 cus of this research paper (6).

### 64 **Significance of Organizational Enablers on Information Transfer in Teams**

65           Palliative care teams can be described generally as complex, flexible, yet adaptive  
66 structures that shape the team, its members, and its environment (7). Bainbridge et al. (2010)  
67 proposed a comprehensive input-process-output (I-P-O) model to evaluate PC services. This  
68 framework postulates that collaboration in PC teams is comprised of three main elements:  
69 systemic, process of care, and patient outcome-related determinants (8). Organizational as-  
70 pects of collaboration, which are part of the "process of care," entail team resources and ad-  
71 ministrative support, tools that facilitate or regulate information transfer and coordination,  
72 and shared team values (8). In a review of the determinants of successful collaboration, San

73 Martin and colleagues suggested that systemic determinants (e.g. the structural embeddedness  
74 of care teams) have received more attention in collaboration research than organizational as-  
75 pects (9). In PC specifically, a large knowledge gap exists regarding what organizational and  
76 care-process related factors promote an efficient collaboration in terms of improved infor-  
77 mation transfer. However, Bainbridge et al. (2010) argues that in the case of palliative care,  
78 satisfactory patient outcomes can only be achieved via efficient information transfer and sat-  
79 isfactory team communication. Moreover, with the rise of new concepts for interprofessional  
80 communication in healthcare, an evaluation of key mechanisms that foster collaboration on  
81 an intraorganizational level in PC is needed more now than ever before (10).

82         There are several organizational barriers to information transfer. Often originating  
83 from a lack of structural resources and time pressure, organizational factors that can hinder  
84 information transfer in PC teams include the lack of standardized guidelines for collabora-  
85 tion, the inconsistent use of shared electronic patient files, and the lack of opportunities for  
86 personal exchange and feedback through meetings or supervisions (8, 9).

87         The primary objective of this study is to test the influence of select organizational vari-  
88 ables on the perceived quality of information exchange of PC providers. Moreover, this study  
89 exploratively assesses how the quality of information transfer affects PC providers' perceived  
90 satisfaction with collaboration, as well as their satisfaction with job-related tasks.

91         The methods section in this paper is presented in three parts. First, the paper will exam-  
92 ine the organizational variables that facilitate or hinder information exchange in the study  
93 sample of Swiss PC providers. Second, the paper investigates whether information transfer  
94 affects PC providers' satisfaction with communication, and consequently, their satisfaction  
95 with job-related tasks. Third, the paper investigates if certain organizational determinants for

96 information transfer are context dependent. For this purpose, the two settings of primary pal-  
97 liative care (PPC) and specialized care (SPC, test for moderation) are distinguished.

### 98 **The Impact of Organizational Variables on Information Transfer**

99 The development of interprofessional collaboration in healthcare has been shown to  
100 vastly benefit from the formalization of rules and procedures (10, 11). Existing research liter-  
101 ature suggests that the application of standardized procedures leads to improved information  
102 exchange in healthcare teams, as well as to enhanced communication with patients them-  
103 selves (9, 10, 11).

104 Establishing standardized procedures is best achieved by the dissemination and applica-  
105 tion of guidelines and standards for best practices for interprofessional collaboration (8). The  
106 use of best-practice guidelines and standards for collaboration (e.g. standardized communica-  
107 tion protocols), in turn, can result in a more balanced share of role responsibilities between  
108 providers, which also facilitates information exchange (12). Furthermore, opportunities for  
109 formal and informal face-to-face meetings, group discussions, and roundtables have been  
110 highlighted as facilitators for information exchange (13). Regular face-to-face contact of the  
111 team members fosters team cohesion and trust in healthcare teams and helps to build lasting  
112 care networks (13, 10). E-tools in the form of electronic health records allow members to eas-  
113 ily share and update patient information and are widely used in Switzerland by specialized  
114 PC facilities, such as hospitals and hospices (14). According to the World Health Organiza-  
115 tion (2019), if well designed and implemented, electronic patient files improve information  
116 transfer and facilitate handovers between healthcare providers (15). However, it remains un-  
117 certain whether electronic tools to share patient information are perceived as helpful by pro-  
118 viders in Swiss palliative care provision. In addition to providing formalized channels for in-  
119 formation exchange and opportunities for face-to face meetings, the literature has pointed to

120 the importance of the management and coordination of processes by predestined administra-  
121 tive personnel, such as case managers (16, 17, 18). Case management (CM) is a widely used  
122 term for mostly administrative aspects of care, consisting largely of planning, implementing,  
123 coordinating, and monitoring of service needs of healthcare providers, patients, and patients'  
124 families (17). Some research has identified positive effects of the presence of CM on im-  
125 proved information exchange, which in turn, improves quality of patient care in PC (16, 18).  
126 However, if and how case managers facilitate information transfer in PC teams still remains  
127 unclear (17). The researchers hypothesize that due to its coordinative nature, the presence of a  
128 CM in the immediate work environment improves information transfer and increases PC pro-  
129 viders' satisfaction with communication.

130 With respect to the healthcare setting, frequent transitions of healthcare providers hin-  
131 der information flow within the team (19). This led us to hypothesize that frequent changes in  
132 PC staff would impair information transfer. Finally, opportunities to provide feedback and  
133 evaluate ongoing work processes have been cited as an essential factor to foster information  
134 transfer. Research implies that only by generating opportunities to improve collaborative pro-  
135 cesses via feedback rounds, it is possible to maintain successful interpersonal networks at the  
136 workplace possible over time (20).

137 Thus, based on the theoretical framework of Bainbridge et al. (2010), the primary ob-  
138 jective of this study is to examine the influence of certain organizational variables on the per-  
139 ceived quality of information exchange of Swiss PC providers. The following hypotheses  
140 concerning organizational determinants were tested in the first part of this study:

141 **H1a:** The availability of internal guidelines and standards increases information ex-  
142 change within the team.

143           **H1b:** The use of internal guidelines and standards increases information exchange  
144 within the team.

145           **H1c:** The opportunity for face-to-face meetings (e.g. in the context of meetings,  
146 roundtables, and supervisions) increases information exchange.

147           **H1d:** The use of electronic tools to manage patient files increases information ex-  
148 change within the team.

149           **H1e:** The regular evaluation of work processes with quality circles or feedback  
150 rounds increases information exchange within the team.

151           **H1f:** The presence of a case manager in the immediate work environment increases  
152 information exchange within the team.

153           **H1g:** Frequent changes of caregivers in a team reduces general information exchange  
154 in the team.

155

### 156 **The Impact of Information Transfer on Providers' Satisfaction with Collaboration**

157           This part of the study investigates what factors affect PC providers' satisfaction with  
158 communication in PC teams. Ultimately, team communication in healthcare is more than just  
159 accurate information transmission. Multidisciplinary PC teams are socially constructed  
160 groups that operate at the intersection of multiple institutional and professional cultures (21).

161 PC professionals are more likely to develop mutual respect and a trusting working relation-  
162 ship if they share certain professional standards and values regarding patient care (20, 22, 23)

163 The importance of shared values and standards for teamwork is also emphasized in Bain-  
164 bridge et al.'s (2010) I-P-O model under "process of care."

165           Moreover, healthcare research indicates that an open communication culture is facili-  
166 tated by a clear delineation of roles and tasks among team members, alongside collective

167 risk-taking (20, 24). Therefore, researchers have hypothesized that a clear division of respon-  
168 sibility, as well as shared values between fellow PC providers, improves HCPs satisfaction  
169 with collaboration in their respective work teams.

170         The study also explores how satisfaction with communication affects providers' satis-  
171 faction with job-related tasks. Impaired communication in PC teams can lead to increased  
172 misunderstandings at the workplace, which can trigger disputes within the workforce and  
173 lower job satisfaction for providers (25). PC providers' satisfaction with job-related tasks, in  
174 turn, positively impacts patient safety, as healthcare providers who enjoy their work tend to  
175 show better clinical performance and remain longer in the same healthcare team (24, 26).  
176 Since the satisfaction of team members is linked to staff retention, this is a critical element  
177 for team functioning, as well as a major predictor for good healthcare provision (24, 26).

178         In order to investigate HCPs satisfaction with communication, the following hypothe-  
179 ses were tested:

180         **H2a:** The extent of information exchange in the team predicts providers' satisfaction  
181 with communication.

182         **H2b:** A clear division of roles within the team increases providers' satisfaction with  
183 communication.

184         **H2c:** If providers share the same values, this increases their satisfaction with commu-  
185 nication.

186         **H2d:** Providers' satisfaction with communication increases their satisfaction with  
187 work-related tasks.

## 188 **The Context of Primary and Specialized Palliative Care as a Moderating Factor**

189         This study investigates whether the importance of certain organizational variables for  
190 information transfer is moderated by the context of two different PC-settings, namely primary

191 palliative care (PPC) and specialized palliative care (SPC), which are distinguished by the pa-  
192 tients' current condition (1). Patients in primary care (Group A) require basic PC and are  
193 mostly treated in retirement homes or home-care settings. Patients who receive specialized  
194 palliative care (Group B) receive complex medical and psychosocial PC that is provided at  
195 acute-care hospitals or hospices, as well as by specialist mobile palliative care teams (1).

196       Especially in PPC, general practitioners (GPs) and nurses face limited time and finan-  
197 cial reimbursement for collaborative activities, which can result in gaps in information shar-  
198 ing and, consequently, in care shortages (27). Moreover, GPs often work in private practices  
199 while nurses are organized in local or private nursing-groups. This can lead to spatial frag-  
200 mentation of the PPC care team and represent a barrier to efficient information transfer (27,  
201 28). Therefore, PC providers in PPC sharing the same patient-centered values and ideals  
202 might be especially important so that, despite spatial barriers, healthcare providers feel moti-  
203 vated to share valuable information since they feel personally committed to their coworkers  
204 (23).

205       A greater degree of institutionalization can be expected in SPC, where different  
206 healthcare providers work together in proximity and where collaboration is often governed by  
207 existing guidelines and standards (1, 8). Looking at the sphere of SPC, e-tools are likely used  
208 to share patient files and therefore contribute more to information exchange. Furthermore,  
209 routine face-to-face meetings and supervisions may be more important in the context of SPC,  
210 where, due to the more complex patients, more rapid information exchanged is required (29).  
211 Based on profound differences in the two care contexts of PPC and SPC, the third part of the  
212 study aims to identify context-dependent organizational prerequisites for successful infor-  
213 mation transfer, and tests the following hypotheses:

214           **H3a:** Colleagues who share the same values report higher satisfaction with communi-  
215 cation, especially in the setting of primary palliative care.

216           **H3b:** The use of e-tools to share patient files is expected to play a stronger role for in-  
217 formation transfer in specialized palliative care.

218           **H3c:** Opportunities for face-to-face exchanges in the form of meetings and supervi-  
219 sions are expected to contribute to better information sharing in both settings, but especially  
220 in specialized palliative care.

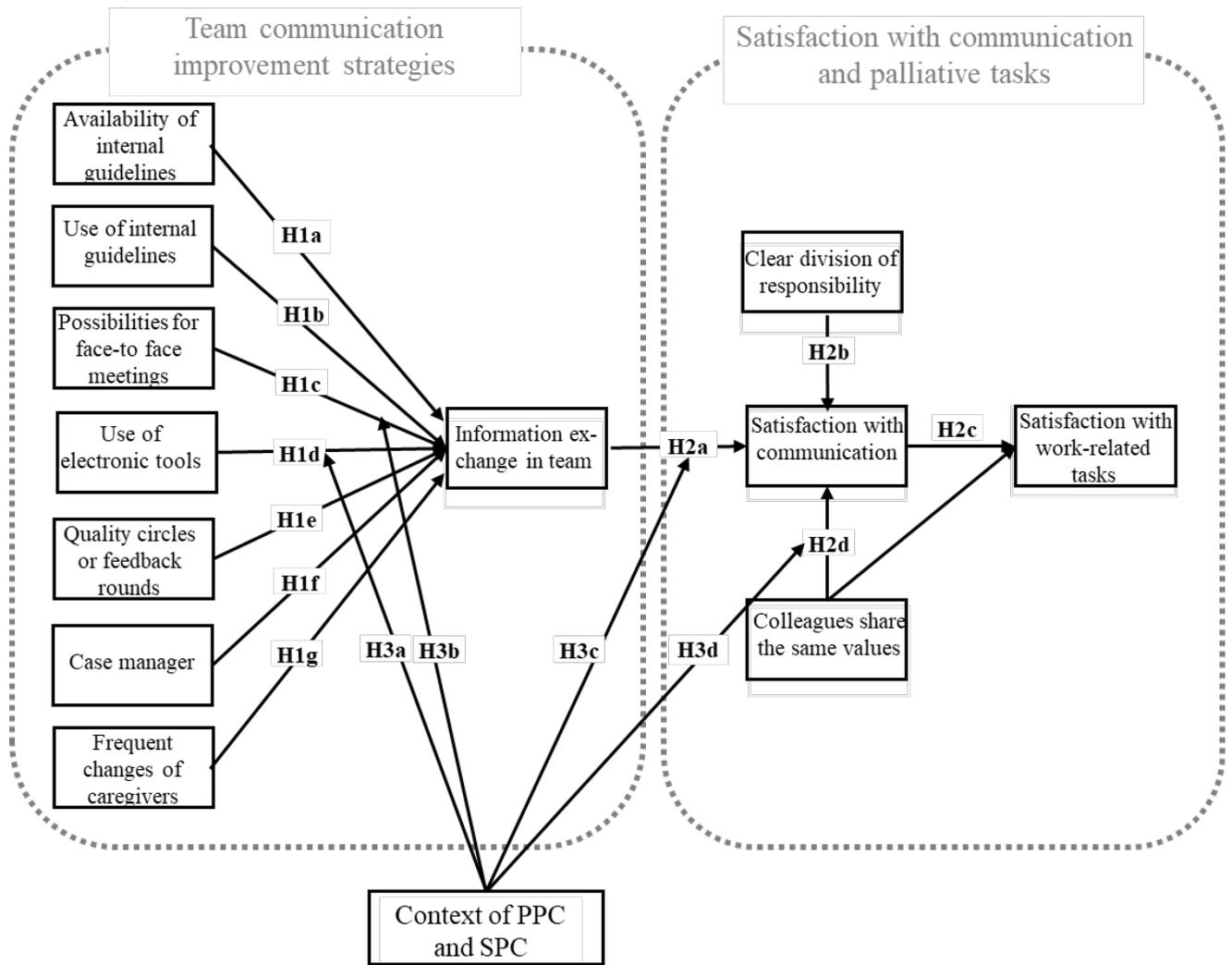
221           To date, explorations of the organizational factors that improve information transfer  
222 and the dissemination of patient information is rare in PC-related contexts. Therefore, the  
223 first and main objective of this study is to test the influence of the organizational variables  
224 mentioned above on the perceived quality of information exchange and the dissemination of  
225 patient information. Hypothesized predictors of information exchange in the team and hy-  
226 pothesized additive and interactive effects of information exchange in the team on satisfac-  
227 tion with communication and satisfaction with work-related tasks are depicted in Fig 1.

228

229

230

Figure 1. Theoretical model



231

232

233

234

235

236

Hypothesized predictors of information exchange in the team and hypothesized additive and interactive effects of information exchange in the team on satisfaction with communication and satisfaction with work-related tasks (after Bainbridge et al., 2010)

237 **Methods**

238 In order to examine associations of organizational factors and information transfer on multi-  
239 ple levels, the study uses structural equation modeling (SEM, 30). This study is the first to  
240 use SEM to show in detail what levers improve information transfer at an organizational level  
241 while also accounting for the two different settings of PC provision.

242 **Participants**

243 The survey was aimed at healthcare professionals, primarily medical doctors and  
244 nurses, who were active in palliative care provision in Switzerland in 2017. The data collec-  
245 tion via email was performed between September 19 and November 30, 2018. Three rounds  
246 of reminders, including informed consent, were sent out the following month. In Switzerland,  
247 we estimate the total number of palliative care providers, including GPs who regularly treat  
248 palliative care patients, at around 4500\*. In this survey, a total number of 1,111 healthcare  
249 providers who are actively involved in palliative care provision took part in the online study  
250 (f= 64.7%, m=14.3%, mean age= 50.9 years, SD= 10.3). At around 24.5 %, the response rate  
251 of this study can be considered representative.

252 In order to contact medical doctors and nurses, a two-step recruiting approach was  
253 carried out by identifying organizations of interest, which then recruited their employed or  
254 associated healthcare providers to complete the survey. The anonymity of responders was en-  
255 sured at all times and the study data was handled in accordance with the Swiss law governing  
256 the use of scientific data.

257

258

259

260 **Measures**

261 The survey items were adapted from Bainbridge et al.'s (2010) tool for evaluation of  
262 healthcare provision (8), and supplemented with items drawn from the Index of Interdiscipli-  
263 nary Collaboration from Bronstein (IIC) – 42 (31) and basic demographic data of participants  
264 (age, gender, occupational field, institutional affiliation). The items of the questionnaire were  
265 translated by professionals in a multistage process into German, French, and Italian versions.  
266 The final questionnaire was composed in an online survey provider and required 25-30  
267 minutes to complete.

268 **Dependent Variables**

269 Two items were selected as main outcome variables.

270 **PC providers' satisfaction with information transfer in their PC team.** In order to  
271 assess information transfer in their care teams, PC providers were asked to evaluate the infor-  
272 mation exchange with their immediate team members (6-point Likert scale: "very good" to  
273 "very bad").

274 **PC providers' satisfaction with communication.** To assess the satisfaction with  
275 overall communication in providers' immediate work environments, the following item was  
276 selected: The communication within our organization/our institute is good (6-point Likert  
277 scale: "does not apply at all" to "fully applies").

278 **Independent Variables**

279 The following seven predictor variables for information transfer were measured: (1)  
280 the availability and use of internal guidelines and standards for collaboration in the providers'  
281 immediate work environment (two dichotomy items: 0=no;1=yes), (2) if a clear share of re-  
282 sponsibility was present in the immediate work environment (4-point Likert scale: "yes," "ra-  
283 ther yes," "rather no," to "no"), (3) if regular opportunities for face-to-face meetings were

284 present, (4) whether or not the team used electronic tools to manage patient files, (5) whether  
285 or not work processes were regularly evaluated with quality circles or feedback rounds, (6)  
286 whether or not PC providers had a case manager in their immediate work environment (all  
287 dichotomy, dummy-coded items: 0=no; 1=yes), (7) and whether or not there were frequent  
288 changes of caregivers in the immediate work environment (4-point Likert scale: “yes”; “ra-  
289 ther yes”; “rather no”; and, “no”).

290 The following covariates were included in the analysis to control for gender (0= male;  
291 1=female), age, position (leading vs. no leading position), socio-geographic workplace  
292 (1=large city, 5=small village in rural area), job description (nurse, medical doctor), and addi-  
293 tional training in palliative care.

## 294 **Statistical Analyses**

295 All hypotheses were tested using a structural equation model via the SEM function of  
296 the package ‘Lavaan’ (latent variable analysis, version 0.6-4, in R: Development Core Team  
297 2012) (32, 33). This method allows researchers to test path models, including latent variables  
298 that are not affected by measurement error. The following fit indices were evaluated accord-  
299 ing to standards in social science after Kline et. al (2015): chi-square ( $X^2$ ), Comparative fit  
300 Index (*CFI*) [for testing the overall fit], root mean square of approximation (*RMSEA*) [for  
301 model complexity], and *Tucker-Lewis Index (TLI)* (34). According to best practice, a good  
302 model fit is considered by p value for the model  $>.05$ , *RMSEA*  $<.06$ , *CFI* and *TLI*  $\geq .90$  (34).  
303 Missing values were handled according to the method of listwise deletion.

## 304 **Results**

### 305 **Sample Characteristics**

306 In total, 379 participants, aged between 24 and 76 years (Mean=49.8 years, SD=10,3)  
307 were included in this study. The detailed sample description is summarized in Table 1.

308

309 Table 1. *Baseline Demographic of the Study Sample of n = 379 Palliative Caregivers*

	PPC (n=229)	SPC (n=150)	Overall (n=379)
<b>Age</b>			
Mean (SD)	50.7 (9.86)	48.4 (10.9)	49.8 (10.3)
Median [Min, Max]	53.0 [25.0, 75.0]	50.0 [24.0, 76.0]	52.0 [24.0, 76.0]
<b>Gender</b>			
Male	31 (13.5%)	36 (24.0%)	67 (17.7%)
Female	198 (86.5%)	114 (76.0%)	312 (82.3%)
<b>Function</b>			
Nurses	196 (85.6%)	111 (74.0%)	307 (81.0%)
Medical doctors	33 (14.4%)	39 (26.0%)	72 (19.0%)
<b>Workplace demographics</b>			
Larger city	69 (30.1%)	96 (64.0%)	165 (43.5%)
Other	160 (69.9%)	54 (36.0%)	214 (56.5%)
<b>Additional training</b>			
None	70 (30.6%)	39 (26.0%)	109 (28.8%)
Yes	159 (69.4%)	111 (74.0%)	270 (71.2%)
<b>E-Tool to share patient files</b>			
No	35 (15.3%)	13 (8.7%)	48 (12.7%)
Yes	194 (84.7%)	137 (91.3%)	331 (87.3%)
<b>Case Manager</b>			
No	182 (79.5%)	93 (62.0%)	275 (72.6%)
Yes	47 (20.5%)	57 (38.0%)	104 (27.4%)
<b>Guidelines for collaboration available</b>			
No	17 (7.4%)	2 (1.3%)	19 (5.0%)
Yes	212 (92.6%)	148 (98.7%)	360 (95.0%)
<b>Application of these guidelines</b>			
No	29 (12.7%)	11 (7.3%)	40 (10.6%)
Yes	200 (87.3%)	139 (92.7%)	339 (89.4%)

310

311 **Correlation Coefficients**

312 Standard deviations (SD) and zero-order correlations are provided in Table 2. Aligned  
313 with *a priori* expectations, the majority of the organizational variables were significantly cor-  
314 related to information exchange, as well as to providers' satisfaction with communication.  
315 Especially regarding the opportunities for face-to-face meetings in the context of meetings,  
316 round-tables, and supervisions ( $\rho=0.57$ ,  $p < .001$ ), colleagues who share the same values  
317 ( $\rho=0.44$ ,  $p < .001$ ), and the use of feedback-tools ( $\rho=0.31$ ,  $p < .001$ ) were positively corre-  
318 lated to the information exchange within the team.

Organizational Determinants of Information Transfer in Palliative Care Teams

319 Table 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Information exchange in the team	1														
2 Guidelines available	0.15**	1													
3 Application of these guidelines	0.26***	0.59***	1												
4 E-Tools to share patient files	0.02	0.09	0.05	1											
5 Case Manager	0.15**	0.06	0.10	0.04	1										
6 Feedback Tools	0.32***	0.21***	0.25***	-0.03	0.17**	1									
7 Opportunities for face to face meetings	0.58***	0.22***	0.23***	-0.00	0.10*	0.35***	1								
8 Frequent changes of caregivers	-0.31***	-0.11*	-0.11*	0.02	-0.04	-0.15**	-0.28***	1							
9 Good division of responsibility	0.28***	0.21***	0.23***	0.09	0.15**	0.24***	0.25***	-0.22***	1						
10 Colleagues share the same values	0.44***	0.07	0.24***	0.01	0.03	0.21***	0.28***	-0.28***	0.25***	1					
11 Satisfaction with communication	0.43***	0.11*	0.21***	-0.06	0.04	0.19***	0.32***	-0.31***	0.26***	0.46***	1				
12 Satisfaction with work-related tasks	0.29***	0.04	0.15**	-0.06	0.01	0.14**	0.20***	-0.18***	0.18***	0.47***	0.40***	1			
13 Workplace demographics	0.08	0.08	0.06	0.05	0.19***	0.07	0.16**	0.07	-0.02	0.06	0.03	0.04	1		
14 Additional training	-0.03	-0.01	0.05	-0.05	-0.01	0.02	-0.03	0.12*	0.04	-0.03	-0.05	0.10*	-0.10	1	
15 Gender	-0.09	0.05	0.07	-0.03	0.01	0.05	-0.13*	0.14**	-0.08	0.08	-0.03	0.05	-0.05	0.12*	1

320

321 Standard deviations and correlations with confidence intervals. Pearson correlation coefficient (1-tailed), \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\*

322 indicates  $p < .001$ . Correlations of binary variables should be interpreted with care.

323 **Structural Equation Modeling**

324 **Dependent Variable: Information Exchange in the Team**

325           Following best statistical practices, we report the measurement model on the full sam-  
326 ple of  $n=379$  (33). The researchers first tested the hypothesized model (Figure 1) including  
327 control variables. This model achieved a good fit ( $X^2[30] = 57.1, p = 0.002; CFI =$   
328  $0.94; RMSEA = 0.49; TLI = 0.91$ ) and accounted for 39% of the variance in information  
329 exchange in the team, 26% of variance in satisfaction with communication, and 29% of vari-  
330 ance in satisfaction with work-related tasks.

331           **H1a.** Internal guidelines and standards are relevant to information exchange; thus,  
332 their presence should improve information exchange within the team. We found little evi-  
333 dence in support of this hypothesis ( $\beta = -0.09, p = 0.08$ ).

334           **H1b.** The use of those available internal guidelines and standards significantly ex-  
335 plained the increase in information exchange within the team ( $\beta = 0.15, p < 0.01$ ).

336           **H1c.** The opportunity for face-to-face meetings (e.g. in the context of meetings,  
337 roundtables, and supervisions) significantly explained the increase of information exchange  
338 within the team ( $\beta = 0.48, p < 0.001$ ).

339           **H1d.** The use of electronic tools to manage patient files was not significantly corre-  
340 lated to an increase in information exchange within the team ( $\beta = 0.03, p = 0.50$ ).

341           **H1e.** The regular evaluation of work processes with quality circles or feedback rounds  
342 predicted information exchange within the team ( $\beta = 0.10, p < 0.05$ ).

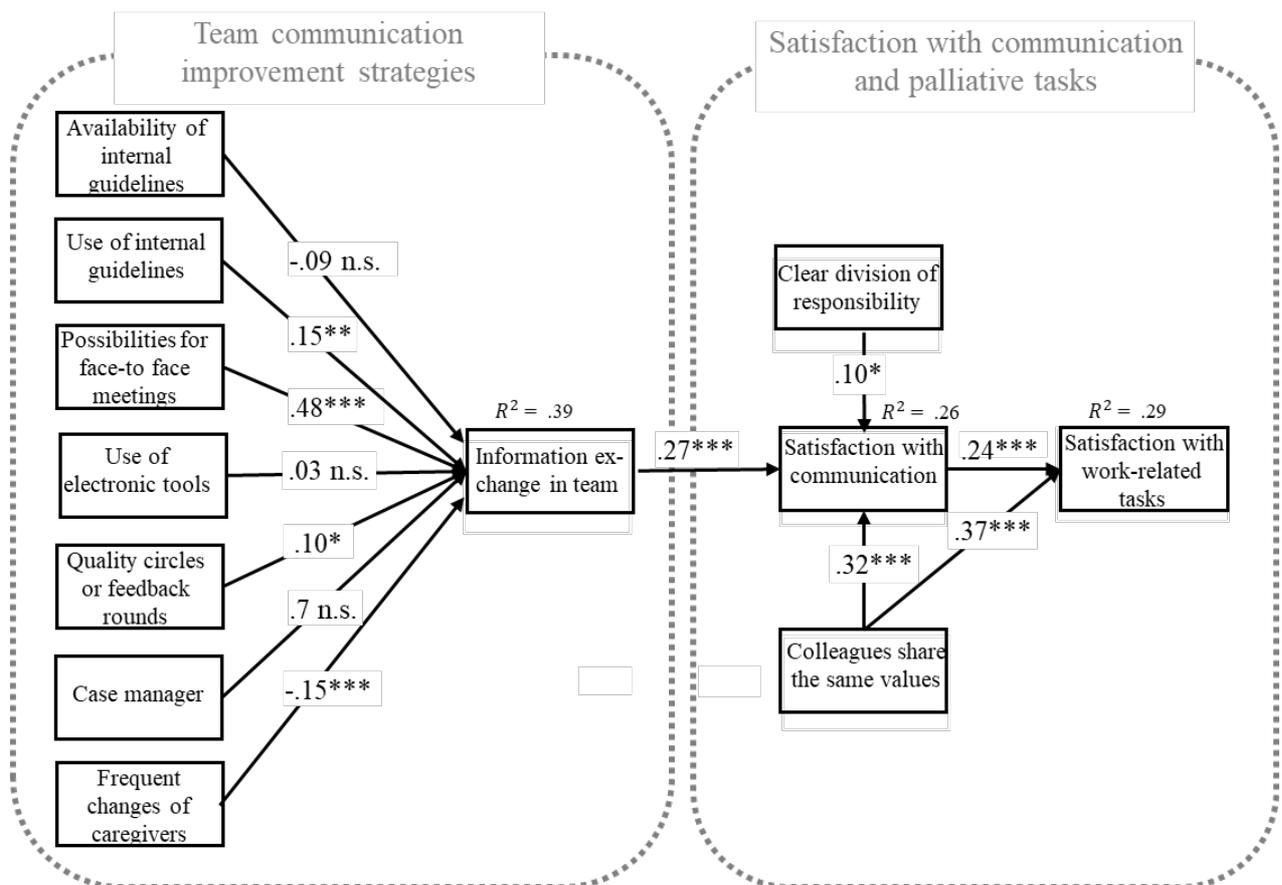
343           **H1f.** The presence of a case manager in the immediate work environment results did  
344 not significantly explain changes in information exchange within the team ( $\beta = 0.07, p =$   
345  $0.09$ ).

346 **H1g.** Frequent changes of caregivers in a team indeed predicted general information  
 347 exchange in teams negatively ( $\beta = -0.15, p < 0.001$ ).

348 By applying a structural equation model, there was no support for hypotheses H1a,  
 349 H1d, and H1f (for an overview, see Table 4). The empirical model is depicted in Fig 2.

350

351 *Figure 2.* Empirical model.



352

353 \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\* indicates  $p < .005$

354 Standardized effects are given. All effects are controlled for position (lead/no lead), type of caregiver  
 355 (context), place of work (city vs. countryside), function (job description), additional training, and gen-  
 356 der;  $n = 379$ .

357

358

359

360

361 **The Impact of Information Transfer on Provider's Satisfaction with Collaboration**

362 **H2a.** The more frequently information is exchanged in the team, the more satisfied  
363 are care providers with communication ( $\beta = 0.27, p < 0.001$ ).

364 **H2b.** A clear division of responsibility within the team positively predicted providers'  
365 satisfaction with communications ( $\beta = 0.10, p < 0.05$ ).

366 **H2c.** When colleagues felt that they shared the same values, this was positively asso-  
367 ciated with their satisfaction with communication ( $\beta = 0.32, p < 0.001$ ) as well as their satis-  
368 faction with work-related tasks ( $\beta = 0.37, p < 0.001$ ).

369 Exploratively, this study investigated the extent to which providers' satisfaction with  
370 their communication affects their satisfaction with job-related tasks (H2d). Indeed, the results  
371 provide considerable evidence that providers' satisfaction with communication positively  
372 predicts their satisfaction with work-related tasks ( $\beta = 0.24, p < 0.001$ ). Little support for  
373 hypotheses H2a-H2d were found (see Table 4).

374 **Moderating Effect of Care Giving Context of PPC vs. SPC: H3a-H3c**

375 In order to test the moderating effect of care-giving context of primary care versus spe-  
376 cialized care on select organizational factors, cross-group structural equalization modeling  
377 was employed. In both groups of PPC (n=229) versus SPC (n=150), the model explained a  
378 considerable amount of variance of information exchange in the team (34%, 46%), as well as  
379 providers' satisfaction with work related tasks (31%, 28%).

380 **H3a.** Unsurprisingly, colleagues who share the same values reported higher satisfac-  
381 tion with communication in their team. Within PPC ( $\beta = 0.42, p < 0.001$ ), individuals who re-  
382 ported sharing the same care-based values and ideals indeed showed higher predictive scores  
383 of satisfaction with communication as compared to SPC ( $\beta = 0.14, p = 0.06$ ).

384           **H3b.** The use of e-tools to share patient files is expected to play a stronger role for in-  
385 formation exchange in SPC. The use of e-tools to exchange patient records showed no signif-  
386 icant effect on information exchange in teams, neither in PPC ( $\beta = 0.01$ ,  $p = 0.85$ ) nor in SPC  
387 ( $\beta = 0.06$ ,  $p = 0.31$ ).

388           **H3c.** Opportunities for interprofessional exchange, such as face-to-face meetings, are  
389 expected to contribute to greater information sharing in SPC. Indeed, interprofessional ex-  
390 change in the form of face-to-face meetings and supervisions had a strong effect for the set-  
391 ting of SPC ( $\beta = 0.60$ ,  $p < 0.001$ ), compared to PPC ( $\beta = 0.40$ ,  $p < 0.001$ ).

392           A moderation analysis including  $X^2$  difference tests were performed to test whether  
393 the group differences of the paths are statistically significant. First, the researchers tested for  
394 measurement invariance across the groups by comparing the unconstrained multi-group  
395 model with a constrained multi-group model where the respective factor loadings and meas-  
396 urement intercepts were set equal for both groups. A difference test on  $\chi^2$  showed no differ-  
397 ence between the two models ( $\Delta\chi^2 [3] = 1.85$ ,  $p = 0.61$ ), indicating measure invariance across  
398 both groups. Second, researchers tested the unconstrained model against models where one of  
399 the paths was set equal across both groups (Table 3). A moderation effect of the care context  
400 was found for the relationship between H3a, sharing the same values with colleagues and sat-  
401 isfaction with communication ( $\Delta\chi^2 [1] = 9.6$ ,  $p < 0.001$ ), and H3c, opportunities for interpro-  
402 fessional exchange, such as face-to-face meetings and supervisions, and satisfaction with  
403 communication ( $\Delta\chi^2 [1] = 7.05$ ,  $p < 0.01$ ). Little evidence was found for a moderating effect  
404 of the care context in the relationship between H3b, e-tools to share patient files, and the ex-  
405 change of patient information ( $\Delta\chi^2 [1] = 0.41$ ,  $p = 0.50$ ). Statistical support for hypotheses  
406 H3a and H3c was found, whereas H3b had little support (see Table 4).

407

## Organizational Determinants of Information Transfer in Palliative Care Teams

408 Table 3. Fit Indices and  $\chi^2$  Difference Test for Moderation Effect of Context.

Models	$\chi^2$	df	CFI	RMSEA	$\Delta\chi^2$	$\Delta df$
Unconstrained model	76.98	56	0.95	0.044		
<i>H3a) Colleagues share same values</i> -> satisfaction with communication; set equal across groups	86.60	57	0.93	0.052	9.61**	1
<i>H3b) Use of e-tools -&gt; info exchange</i> in team; set equal across groups	77.44	57	0.95	0.044	0.46	1
<i>H3c) Opportunities for face-to face meetings</i> -> info exchange in the team; set equal across groups	84.03	57	0.94	0.050	7.05**	1
<i>Amount of information exchange in the team</i> -> providers' satisfaction with communication; set equal across groups	82.50	57	0.94	0.048	5.50*	1

409 Note: \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\* indicates  $p < .001$

410

411

412 Table 4. *All Hypotheses at one glance*

Nr	Hypotheses	Value	True/False
H1a	The availability of internal guidelines and standards increases information exchange within the team.	$\beta = -0.09$ n.s.	Not confirmed
H1b	The use of those available internal guidelines and standards increases information exchange within the team.	$\beta = 0.15^{**}$	Confirmed
H1c	The opportunity for face-to-face meetings (e.g. in the context of meetings, roundtables and supervisions) increases information exchange.	$\beta = 0.48^{***}$	Confirmed
H1d	The use of electronic tools to manage patient files increases information exchange within the team and fosters continuous exchange of patient information.	$\beta = 0.03$ n.s.	Not confirmed
H1e	The regular evaluation of work processes with quality circles or feedback rounds increases information exchange within the team.	$\beta = 0.10^*$	Confirmed
H1f	The presence of a case manager in the immediate work environment results in increased information exchange within the team	$\beta = 0.07$ n.s.	Not confirmed
H1g	Frequent changes of caregivers in a team hinder general information exchange.	$\beta = -0.15^{***}$	Confirmed
H2a	The extent of information exchange in the team predicts providers' satisfaction with communication.	$\beta = 0.27^{***}$	Confirmed
H2b	A clear division of responsibility within the team increases information exchange within the team and fosters continuous exchange of patient information.	$\beta = 0.10^*$	Confirmed
H2c	Sharing the same values increases providers' satisfaction with communication	$\beta = 0.32^{***}$	Confirmed
H2d	Provider's satisfaction with communications affects their satisfaction with work-related tasks.	$\beta = 0.24^{***}$	Confirmed
H3a	Colleagues who share the same values report higher satisfaction with communication especially in the primary palliative care setting.	$(\Delta\chi^2[1]=9.61, p<0.01)$	Confirmed
H3b	The use of E-tools to share patient files is expected to play a stronger role for information transfer and satisfaction with communication in specialized settings.	$(\Delta\chi^2[1]=0.46, p=0.50)$	Not confirmed
H3c	Opportunities for interprofessional exchange, such as face-to-face meetings are expected to contribute to better information sharing in both settings, but especially in specialized settings.	$(\Delta\chi^2[1]=7.05, p<0.01)$	Confirmed

413 Note: \* indicates  $p < .05$ . \*\* indicates  $p < .01$ . \*\*\* indicates  $p < .001$

## 415 **Discussion**

416           A vital aspect of quality of care in PC is the extent to which information is shared be-  
417 tween HCPs who work together closely in a team. To optimize the quality of PC services pro-  
418 vided, identifying organizational factors that enable explicit collaboration between coworkers  
419 is of utmost importance. Using a survey instrument, this study investigates the extent to  
420 which information transfer affects PC providers' satisfaction with collaboration and, ulti-  
421 mately, their satisfaction with job-related tasks.

422           This paper contributes in two main ways to the existing literature on how information  
423 transfer is facilitated in the field of palliative care. First, we demonstrate the need for per-  
424 sonal, face-to-face information exchange for PC providers who work in a team. Although it  
425 would be expected that electronic patient records in particular are essential for successful in-  
426 formation sharing in the healthcare sector, this specific sample of palliative care providers  
427 highlights the fact that to date, opportunities for face-to-face meetings are paramount for suc-  
428 cessful information exchange in PC. Face-to-face meetings may be useful to support the so-  
429 cial functions of healthcare teams, improving mutual respect in the care team, allowing team  
430 members to solve problems more efficiently, and facilitating the transmission of organiza-  
431 tional culture (24). In a study by Ellingston and colleagues, communication was reported to  
432 be the most effective in interdisciplinary healthcare teams, where both formal and informal  
433 meetings occurred on a regular basis (35).

434           Second, this research underlines that the success of interprofessional collaboration in  
435 PC is partially care-context dependent. This is due to the fact that primary and specialized  
436 care has evolved in isolation historically, with SPC showing higher levels of institutionaliza-

437 tion and regulatory pathways for collaboration than PPC (27). With regard to the aging popu-  
438 lation and growing burden of serious illness, SPC and PPC are both required to meet patients'  
439 palliative care needs accordingly (36).

440         The results point to striking evidence that some organizational aspects affect success-  
441 ful information exchange between PC providers more drastically than others. Sufficient op-  
442 portunities for face-to-face meetings and supervisions, feedback-tools to improve collabora-  
443 tive practices, and the application of guidelines and standards for collaboration were strong  
444 predictors for information exchange in PC teams. Based on our results, it is recommended  
445 that whenever institutes (hospitals, hospices, retirement homes, ambulant nursing organiza-  
446 tions etc.) are establishing new collaborative processes in PC provision, they should aim to  
447 grant sufficient time for personal exchanges among the PC providers. Further, collaborative  
448 processes should be regularly evaluated in order to maintain and improve a sustainable social  
449 network between suppliers. Staff should be involved as early as possible in the improvement  
450 process to help ensure that changes correspond with their philosophy of collaboration (20).

451         Aligned with prior expectations, the study also found that colleagues who share the  
452 same work-related values reported significantly improved information transfer. High-func-  
453 tioning teams in healthcare settings should not only integrate principles of team-based care,  
454 but also agree on shared goals and values for delivery of patient-centered care (24). There-  
455 fore, practice, healthcare facilities, GPs, and nursing organizations are encouraged to discuss  
456 and share their patient-centered values and ideals openly.

457         Furthermore, the study found considerable evidence that providers' shared values, as  
458 well as their satisfaction with communication, positively predict their satisfaction with work-

459 related tasks. This is a key finding, as the satisfaction of team members is linked to staff re-  
460 tention, which is a critical element for team functioning, as well as a predictor for good  
461 healthcare provision (24, 26).

462 The findings also suggest that frequent changes to caregiving negatively impact the  
463 information exchange in the team, as loss of information and misunderstandings occur easily  
464 when care teams are fluctuating. Much information is lost when health professionals change  
465 teams, therefore each PC team member should be trained to maintain the flow of information.  
466 Furthermore, making available written records of standards and guidelines on work proce-  
467 dures to all team members is recommended.

468 Unexpectedly, the study found little evidence that e-tools used to share patient files  
469 facilitate information transfer among PC team members. This is partly due to the fact that in  
470 Switzerland, e-tools for managing patient files are not yet mandatory for all healthcare pro-  
471 viders and are far from being universally established (14). However, in 2017, Switzerland  
472 passed a new federal law regarding patients' electronic health records that requires hospitals  
473 and hospices to adopt interoperable electronic patient records by 2020 in order to facilitate  
474 information exchange among healthcare providers. Thus, future research in this area is  
475 needed once electronic patient records are introduced comprehensively in the sector of SPC  
476 and have further developed (14). Furthermore, no relationships were found between the pres-  
477 ence of a CM on the information exchange in PC teams. This finding requires further investi-  
478 gation, as CMs are not yet established across the board in PC, while representing a very inho-  
479 mogeneous occupational group with differing job tasks (17). Future research should investi-  
480 gate CMs' possible effects on information transfer in certain facilities and care contexts.

481           This research contributes to a growing body of knowledge pointing to organizational  
482 differences between SPC and PPC, which are important to understand when considering fu-  
483 ture interventions to meet patients' palliative care needs.

484           Given the diversity of organizational enablers for information transfer and collabora-  
485 tion presented above, we recommend further investigation into which variables affect infor-  
486 mation transfer while specifically distinguishing for PC teams in different care facilities and  
487 care contexts.

488           As with any research, we recognize the following limitations of our study. First, some of the  
489 dependent variables should be better operationalized in future research. This applies, for ex-  
490 ample, to the impact of case managers on information transfer in PC teams. Because the  
491 fields of activity and applications of CMs in palliative care in Switzerland remain largely un-  
492 clear, we suggest that the role of CMs in palliative care be clarified in future investigations  
493 before definitive statements can be made about their impact on information transfer. The  
494 same caution applies to e-tools to share electronic patient files, which may depend on user  
495 characteristics, and user interface and user-friendliness; both of which contribute to success-  
496 ful communication in certain environments.

497           Perhaps the main limitation of this study is that it lacks the attributes of a standardized  
498 questionnaire to assess information transfer and organizational aspects of care. Future studies  
499 are advised to use the Care Process Self-Evaluation tool (CPSET), as seen in in the work of  
500 Seys and colleagues (37). However, both the questionnaire used in this study and the CPSET  
501 tool are based on self-evaluation by healthcare professionals, which may contribute to bias.  
502 The results of this study may be further biased due to the use of a convenience sample of PC  
503 providers who volunteered to participate in the online survey. This can lead to a selection bias  
504 in the sense that study participants might be more engaged in PC than average and thus rate

505 organizational aspects of care provision differently. In this study, certain professional groups  
506 were only assessed marginally (e.g. psychologists, social workers, physiotherapists, etc.);  
507 thus, representing a dimension that could be expanded upon in future PC research. Further-  
508 more, the study findings are based upon solely Swiss PC providers and therefore was not at-  
509 tempting to be representative of other countries with different healthcare settings.

510

## 511 **Conclusion**

512         Particularly in the field of palliative care, institutions, employers, and other stakehold-  
513 ers, such as the federal administrations, desire to be informed about organizational factors  
514 that improve the exchange of information between PC providers. The present study is in-  
515 tended to serve as a basis for recommendations as to how information transfer and communi-  
516 cation can be improved by the establishment of certain organizational enablers in interdisci-  
517 plinary PC teams.

518

## 519 **Acknowledgements**

520         The authors would like to thank Emily Reeves, Eveline Degen, and Birgit Schmid  
521 from the University of Applied Sciences and the University of Basel, Switzerland, for their  
522 contribution to the research project.

523

524 **References**

- 525 (1) Egli, S., von Wartburg, L., & Näf, F. (2016). Das interprofessionelle Team in der Palliative  
526 Care: die Grundlage einer bedürfnisorientierten Betreuung und Behandlung am Lebensende.  
527 Bundesamt für Gesundheit BAG, Direktionsbereich Gesundheitspolitik.
- 528 (2) Gagliardi, A. R., Dobrow, M. J., & Wright, F. C. (2011). How can we improve cancer care? A  
529 review of interprofessional collaboration models and their use in clinical management. *Surgi-  
530 cal Oncology*, 20(3), 146-154.
- 531 (3) Billings, J. R., & Leichsenring, K. (2006). Integrating health and social care services for older  
532 persons. Evidence from nine European countries. Ashgate publishing house.
- 533 (4) Davies, E., Higginson, I. J., & World Health Organization. (2004). Better palliative care for  
534 older people. Copenhagen: WHO Regional Office for Europe.
- 535 (5) Higginson, I. J., Finlay, I. G., Goodwin, D. M., Hood, K., Edwards, A. G., Cook, A., ... &  
536 Normand, C. E. (2003). Is there evidence that palliative care teams alter end-of-life experi-  
537 ences of patients and their caregivers? *Journal of Pain and Symptom Management*, 25(2),  
538 150-168.
- 539 (6) Mahmood-Yousuf, K., Munday, D., King, N., & Dale, J. (2008). Interprofessional relation-  
540 ships and communication in primary palliative care: Impact of the Gold Standards Frame-  
541 work. *Br J Gen Pract*, 58(549), 256-263.
- 542 (7) Meier, D. E., & Beresford, L. (2008). The palliative care team. *Journal of Palliative Medi-  
543 cine*, 11(5), 677-681.
- 544 (8) Bainbridge, D., Brazil, K., Krueger, P., Ploeg, J., & Taniguchi, A. (2010). A proposed sys-  
545 tems approach to the evaluation of integrated palliative care. *BMC Palliative Care*, 9(1), 8.
- 546 (9) San Martín-Rodríguez, L., Beaulieu, M. D., D'Amour, D., & Ferrada-Videla, M. (2005). The  
547 determinants of successful collaboration: A review of theoretical and empirical studies. *Jour-  
548 nal of Interprofessional Care*, 19(sup1), 132-147.

## Organizational Determinants of Information Transfer in Palliative Care Teams

- 549 (10) D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D.  
550 (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoreti-  
551 cal frameworks. *Journal of Interprofessional Care*, 19(sup1), 116-131.
- 552 (11) Sicotte, C., D'Amour, D., & Moreault, M. P. (2002). Interdisciplinary collaboration  
553 within Quebec community health care centres. *Social Science & Medicine*, 55(6), 991-1003.
- 554 (12) Clements, D., Dault, M., & Priest, A. (2007). Effective teamwork in healthcare: Re-  
555 search and reality. *Healthcare Papers*, 7(1), 26.
- 556 (13) Cabello, C. C. (2002). A collaborative approach to integrating outpatient and inpatient  
557 transplantation services. *Outcomes Management*, 6(2), 67-72.
- 558 (14) De Pietro, C., & Francetic, I. (2018). E-health in Switzerland: The laborious adoption  
559 of the federal law on electronic health records (EHR) and health information exchange (HIE)  
560 networks. *Health Policy*, 122(2), 69-74.
- 561 (15) World Health Organization. (2019). Multimorbidity: Technical series on safer pri-  
562 mary care. WHO, 2016. [https://www.who.int/patientsafety/topics/primary-care/technical\\_se-](https://www.who.int/patientsafety/topics/primary-care/technical_series)  
563 [ries](https://www.who.int/patientsafety/topics/primary-care/technical_series)
- 564 (16) Bernabei, R., Landi, F., Gambassi, G., Sgadari, A., Zuccala, G., Mor, V., ... & Car-  
565 bonin, P. (1998). Randomised trial of impact of model of integrated care and case manage-  
566 ment for older people living in the community. *BMJ*, 316(7141), 1348.
- 567 (17) van der Plas, A. G., Onwuteaka-Philipsen, B. D., van de Watering, M., Jansen, W. J.,  
568 Vissers, K. C., & Deliens, L. (2012). What is case management in palliative care? An expert  
569 panel study. *BMC Health Services Research*, 12, 163. doi:10.1186/1472-6963-12-163
- 570 (18) van der Plas, A. G., Francke, A. L., Vissers, K. C., Jansen, W. J., Deliens, L., & On-  
571 wuteaka-Philipsen, B. D. (2015). Case management in primary palliative care is associated  
572 more strongly with organisational than with patient characteristics: Results from a cross-sec-  
573 tional prospective study. *BMC Palliative Care*, 14, 31. doi:10.1186/s12904-015-0029-8

## Organizational Determinants of Information Transfer in Palliative Care Teams

- 574 (19) Naylor, M., & Keating, S. A. (2008). Transitional care. *Journal of Social Work Edu-*  
575 *cation*, 44(sup3), 65-73.
- 576 (20) Mickan, S., & Rodger, S. (2000). Characteristics of effective teams: A literature re-  
577 view. *Australian Health Review*, 23(3), 201-208.
- 578 (21) Jünger, S., Pestinger, M., Elsner, F., Krumm, N., & Radbruch, L. (2007). Criteria for  
579 successful multiprofessional cooperation in palliative care teams. *Palliative medicine*, 21(4),  
580 347-354.
- 581 (22) Valaitis, R. K., O'Mara, L., Wong, S. T., MacDonald, M., Murray, N., Martin-  
582 Misener, R., & Meagher-Stewart, D. (2018). Strengthening primary health care through pri-  
583 mary care and public health collaboration: The influence of intrapersonal and interpersonal  
584 factors. *Primary Health Care Research & Development*, 19(4), 378-391.
- 585 (23) Eisenberg, E. M. (2017). The social construction of healthcare teams. In *Improving*  
586 *Healthcare Team Communication*. CRC Press, 9-21.
- 587 (24) Mitchell, P., Wynia, M., Golden, R., McNellis, B., Okun, S., Webb, C. E., Rohrbach,  
588 V., and Von Kohorn, I. (2012). Core principles & values of effective team-based health care.  
589 Discussion Paper, Institute of Medicine, Washington, DC. [www.iom.edu/tbc](http://www.iom.edu/tbc).
- 590 (25) Gausvik, C., Lautar, A., Miller, L., Pallerla, H., & Schlaudecker, J. (2015). Structured  
591 nursing communication on interdisciplinary acute care teams improves perceptions of safety,  
592 efficiency, understanding of care plan and teamwork as well as job satisfaction. *Journal of*  
593 *Multidisciplinary Healthcare*, 8, 33.
- 594 (26) Barrett, C., & Myrick, F. (1998). Job satisfaction in preceptorship and its effect on the  
595 clinical performance of the preceptee. *Journal of Advanced Nursing*, 27(2), 364-371.
- 596 (27) Alvarado, V., & Liebig, B. (2015). Conditions of palliative home care: The case of  
597 family physicians in Switzerland. *Primary Health Care*, 5(180), 2167-1079.
- 598 (28) Oishi, A., & Murtagh, F. E. (2014). The challenges of uncertainty and interprofes-  
599 sional collaboration in palliative care for non-cancer patients in the community: A systematic

- 600 review of views from patients, carers and health-care professionals. *Palliative Medicine*,  
601 28(9), 1081-1098.
- 602 (29) Klarare, A., Hagelin, C. L., Fürst, C. J., & Fossum, B. (2013). Team interactions in  
603 specialized palliative care teams: A qualitative study. *Journal of Palliative Medicine*, 16(9),  
604 1062-1069.
- 605 (30) Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and  
606 fundamental issues.
- 607 (31) Bronstein, L. R. (2002). Index of interdisciplinary collaboration (Instrument Develop-  
608 ment). *Social Work Research*, 26(2), 113-127.
- 609 (32) RStudio Team (2015). RStudio: Integrated development for R. RStudio, Inc., Boston,  
610 MA. Retrieved from <http://www.rstudio.com/>.
- 611 (33) Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more.  
612 Version 0.5–12 (BETA). *Journal of Statistical Software*, 48(2), 1-36.
- 613 (34) Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford  
614 Publications.
- 615 (35) Ellingston, L. L. (2003). Interdisciplinary health care teamwork in the clinic back-  
616 stage. *Journal of Applied Communication Research*, 31(2), 93-117.
- 617 (36) Quill, T. E., & Abernethy, A. P. (2013). Generalist plus specialist palliative care- cre-  
618 ating a more sustainable model. *New England Journal of Medicine*, 368(13), 1173-1175.
- 619 (37) Seys, D., Bruyneel, L., Deneckere, S., Kul, S., Van der Veken, L., Van Zelm, R., ...  
620 & Vanhaecht, K. (2017). Better organized care via care pathways: A multicenter study. *PloS*  
621 *one*, 12(7).

622

## 623 **Supporting information**

624 S1 Questionnaire in original language German

## Sehr geehrte Damen und Herren

Im Rahmen des Projekts "**Kooperation und Koordination in der Palliativversorgung**" führen wir eine schweizweite Befragung der Versorgerinnen und Versorger durch und möchten Sie hiermit um Ihre wertvolle Meinung bitten.

Die Befragung richtet sich an alle, die sich für Palliativversorgung in der Schweiz interessieren oder im Rahmen ihrer Arbeit darin involviert sind. Durch die Erhebung Ihrer Angaben erhoffen wir uns, Rückschlüsse über die Kollaboration und Koordination von Palliative-Care Netzwerken in der Schweiz zu ziehen. Die ersten Resultate der Befragung und der Interviews werden bis Ende 2018 zur Verfügung stehen.

Wir freuen uns, wenn wir Sie für diese Befragung gewinnen können. Die Auswertung der Daten erfolgt vollständig anonymisiert. Die Befragung wird etwa 20 Minuten in Anspruch nehmen und wird streng orientiert an den Regeln des Datenschutzes durchgeführt.

Bitte behalten Sie folgende **Instruktionen** im Kopf beim Ausfüllen des Fragebogens:

- Bitte antworten Sie der Reihe nach und lassen Sie möglichst keine Frage aus.
- Mehrfachantworten sind nur dann möglich, wenn es ausdrücklich vermerkt ist.
- Es gibt keine richtigen oder falschen Antworten. Nur Ihre persönliche Meinung und Situation ist von Interesse.

Vielen Dank für Ihre Mühe und Ihr Interesse.

Bei Fragen oder Rückmeldungen steht Ihnen jederzeit gerne unsere Studienleitung zur Verfügung. Bitte wenden Sie sich per Email an Prof. Dr. Brigitte Liebig ([brigitte.liebig@fhnw.ch](mailto:brigitte.liebig@fhnw.ch)).

Mit freundlichen Grüßen,

Ihr Forschungsteam

# Kollaboration und Koordination in Palliative-Care Netzwerken

1. Geschlecht:  m  w

2. Bitte geben Sie Ihren Jahrgang an: \_\_\_\_\_

3. Bitte geben Sie Ihre höchste Ausbildung an:

- Obligatorische Schulzeit (mind. 9 Jahre)
- Eidg. Berufsattest / Lehrabschluss / eidg. Fähigkeitszeugnis
- Maturität (Gymnasial, Berufs- oder Fachmaturität)
- Eidg. Fachausweis / höhere Fachschule / eidg. Diplom
- Bachelor (FH, Universität, ETH)
- Master (FH, Universität, ETH)
- PhD / Doktorat / Dr. med.
- anderes, nämlich: \_\_\_\_\_

4. Bitte geben Sie Ihre jetzige Funktion im Bereich der Palliativversorgung an:

- Hausarzt/ Hausärztin (Dr. med., Med. pract.)
- Spezialisierter Arzt / Ärztin (Dr. med., Med. pract.)
- AssistentIn Gesundheit und Soziales AGS EBA (früher PflegeassistentIn (PA) oder Spitalgehilfe/-in)
- Fachfrau/-mann Betreuung EFZ (FaBe) (früher: BetagtenbetreuerIn (FA SODK))
- Fachfrau/-mann Gesundheit EFZ (FaGe) (früher: Fachangestellte/-r Gesundheit, Praktische Krankenpflege (PKP) FA SRK)
- Pflegefachfrau/-mann Diplommiveau I
- Dipl. Pflegefachfrau/-mann HF (früher: Dipl. Krankenschwester/-pfleger in Gesundheits- und Krankenpflege Niveau II (DN II))
- Dipl. Pflegefachfrau/-mann (BScN, FH)
- Dipl. Pflegefachfrau/-mann (MScN)
- Advanced Practice Nurse (APN)
- PhysiotherapeutIn / ErgotherapeutIn
- PsychologIn
- Kunst-, Tier-, oder MusiktherapeutIn
- Pastorale Dienste / SeelsorgerInnen
- SozialarbeiterIn
- ApothekerIn / Pharma-AssistentIn
- Case ManagerIn
- Familienangehörige/r von PalliativpatientIn
- Freiwillige/r
- anderes, nämlich: \_\_\_\_\_

5. In welchem Kontext sind Sie im Bereich der Palliativversorgung hauptsächlich tätig?

- |   |   |
|---|---|
| <input type="checkbox"/> in einer Hausarztpraxis                        | <input type="checkbox"/> in einem Spital                                      |
| <input type="checkbox"/> in einem Hospiz                                | <input type="checkbox"/> <i>ohne spezialisierte Palliative Care-Abteilung</i> |
| <input type="checkbox"/> in einem Altersheim / Pflegeheim               | <input type="checkbox"/> <i>mit spezialisierter Palliative Care-Abteilung</i> |
| <input type="checkbox"/> in einer Psychiatrie                           | <input type="checkbox"/> in einer spezialisierten Praxis, z.B. für Onkologie  |
| <input type="checkbox"/> bei der Spitex / Onkospitex                    | <input type="checkbox"/> spezialisierte mobile Palliativ-Konsiliardienste     |
| <input type="checkbox"/> in einer Apotheke                              | <input type="checkbox"/> <i>spitalintern</i>                                  |
| <input type="checkbox"/> zuhause (Betreuung von Angehörigen / Freunden) | <input type="checkbox"/> <i>spitalextern</i>                                  |

- selbstständig (exkl. Hausärzte / Spezialisten in eigener Praxis)     nicht im Bereich Palliativversorgung tätig  
 andere Tätigkeit im Bereich Palliativversorgung,  
nämlich: \_\_\_\_\_

**6. Bitte geben Sie den Namen der Institution oder Praxis an, der Sie angehören:**

\_\_\_\_\_

**7. Zu wie vielen Stellenprozenten sind Sie im Bereich Ihrer Haupttätigkeit im Jahre 2018 angestellt oder selbstständig tätig?**

(0-100%)

\_\_\_\_\_ %

**8. Welche Tätigkeitsbeschreibung trifft am ehesten auf Sie zu?**

- |   |   |
|---|---|
| <input type="checkbox"/> angestellt ohne Führungsposition | <input type="checkbox"/> angestellt in Führungsposition |
| <input type="checkbox"/> selbstständig oder eigene Praxis | <input type="checkbox"/> Freiwillige/r                  |
| <input type="checkbox"/> pensioniert                      | <input type="checkbox"/> zurzeit auf Stellensuche       |
| <input type="checkbox"/> anderes, nämlich:                |   |

\_\_\_\_\_

**9. Arbeiten Sie im Bereich der Palliativversorgung hauptsächlich im Team oder alleine?**

- hauptsächlich im Team  
 hauptsächlich alleine  
 ungefähr gleichermassen im Team und alleine

**10. Welche der folgenden Tätigkeiten führen Sie innerhalb Ihres Berufes aus?**

(mehrere Antworten möglich)

- körperliche Betreuung / Begleitung des Patienten, v.a.  
     pflegerische Leistungen  
     Symptom- und Schmerzmanagement  
 psychologische Betreuung / Begleitung  
 seelsorgerische Betreuung / Begleitung  
 administrative Aufgaben  
 anderes, nämlich: \_\_\_\_\_

**11. In welchen Kantonen sind Sie im Bereich der Palliativversorgung hauptsächlich tätig?**

- |   |  |
|---|--|
| <input type="checkbox"/> Aargau (AG)                | <input type="checkbox"/> Appenzell Ausserrhoden (AR) |
| <input type="checkbox"/> Appenzell Innerrhoden (AI) | <input type="checkbox"/> Basel-Landschaft (BL)       |
| <input type="checkbox"/> Basel-Stadt (BS)           | <input type="checkbox"/> Bern (BE)                   |
| <input type="checkbox"/> Freiburg (FR)              | <input type="checkbox"/> Genf (GE)                   |
| <input type="checkbox"/> Glarus (GL)                | <input type="checkbox"/> Graubünden (GR)             |
| <input type="checkbox"/> Jura (JU)                  | <input type="checkbox"/> Luzern (LU)                 |
| <input type="checkbox"/> Neuenburg (NE)             | <input type="checkbox"/> Nidwalden (NW)              |
| <input type="checkbox"/> Obwalden (OW)              | <input type="checkbox"/> St. Gallen (SG)             |
| <input type="checkbox"/> Schaffhausen (SH)          | <input type="checkbox"/> Schwyz (SZ)                 |

- |   |                                       |
|---|---------------------------------------|
| <input type="checkbox"/> Solothurn (SO) | <input type="checkbox"/> Thurgau (TG) |
| <input type="checkbox"/> Tessin (TI)    | <input type="checkbox"/> Uri (UR)     |
| <input type="checkbox"/> Waadt (VD)     | <input type="checkbox"/> Wallis (VS)  |
| <input type="checkbox"/> Zug (ZG)       | <input type="checkbox"/> Zürich (ZH)  |

**12. Bitte geben Sie die Einwohnerzahl Ihres Arbeitsortes an:**

- Grossstadt**  $\geq 100'000$  EW (Zürich, Genf, Basel, Bern, Lausanne und Winterthur)
- grössere Stadt**  $\geq 20'000$  und  $< 100'000$  EW
- Kleinstadt** oder Kleinstadt im städtischen Einzugsgebiet  $\geq 10'000$  und  $< 20'000$  EW
- Agglomeration** bzw. Dorf im städtischen Einzugsgebiet  $< 10'000$  EW
- ländliche Region / Dorf** oder **Bergregion**  $< 10'000$  EW

**13. Wie viele PalliativpatientInnen haben Sie im Jahr 2017 etwa betreut?**

*Ein/e PalliativpatientIn wird verstanden als Person, bei der im Kontext einer fortschreitenden unheilbaren Erkrankung speziell palliativmedizinische Massnahmen angezeigt sind (wie z.B. Symptomtherapie, vertiefte Gespräche mit Angehörigen, multidimensionale Betreuung, vorausschauende Planung des weiteren Vorgehens).*

Anzahl konsiliarische PatientInnen: \_\_\_\_\_

Anzahl langzeitbetreute PatientInnen: \_\_\_\_\_

**14. Seit wie vielen Jahren sind Sie im Bereich der Palliativversorgung tätig?**

*(exkl. Unterbrüche, wie z.B. Mutterschaftsurlaub oder Forschungsaufenthalte)*

- |                                      |  |
|--------------------------------------|--|
| <input type="checkbox"/> 0-5 Jahre   | <input type="checkbox"/> 16-25 Jahre   |
| <input type="checkbox"/> 6-10 Jahre  | <input type="checkbox"/> 26-35 Jahre   |
| <input type="checkbox"/> 11-15 Jahre | <input type="checkbox"/> über 35 Jahre |

**15. Besitzen Sie eine Zusatzausbildung im Bereich Palliative Care?**

- ja     nein

**15 a. Wenn ja, welches ist Ihre höchste Zusatzausbildung im Bereich Palliative Care?**

- |  |  |
|--|--|
| <input type="checkbox"/> Basiskurs A1  | <input type="checkbox"/> MAS Palliative Care                                       |
| <input type="checkbox"/> Basiskurs A2  | <input type="checkbox"/> CAS Palliative Care                                       |
| <input type="checkbox"/> Basiskurs B1  | <input type="checkbox"/> DAS Palliative Care                                       |
| <input type="checkbox"/> Basiskurs B2 (interprofessioneller Lehrgang)                            | <input type="checkbox"/> interdisziplinärer Schwerpunkt Palliativmedizin           |
| <input type="checkbox"/> Zusatzausbildung Palliative Care (Zertifikat)                           | <input type="checkbox"/> interprofessioneller Basiskurs (Netzwerk Palliative Care) |
| <input type="checkbox"/> Weiterbildung für Laien und Angehörige in Palliative Care (z.B vom SRK) |  |

**15 b. Wenn ja, in welchem Kanton haben Sie diese Zusatzausbildung absolviert?**

- |   |  |
|---|--|
| <input type="checkbox"/> Aargau (AG)                | <input type="checkbox"/> Appenzell Ausserrhoden (AR) |
| <input type="checkbox"/> Appenzell Innerrhoden (AI) | <input type="checkbox"/> Basel-Landschaft (BL)       |
| <input type="checkbox"/> Basel-Stadt (BS)           | <input type="checkbox"/> Bern (BE)                   |
| <input type="checkbox"/> Freiburg (FR)              | <input type="checkbox"/> Genf (GE)                   |
| <input type="checkbox"/> Glarus (GL)                | <input type="checkbox"/> Graubünden (GR)             |
| <input type="checkbox"/> Jura (JU)                  | <input type="checkbox"/> Luzern (LU)                 |
| <input type="checkbox"/> Neuenburg (NE)             | <input type="checkbox"/> Nidwalden (NW)              |
| <input type="checkbox"/> Obwalden (OW)              | <input type="checkbox"/> St. Gallen (SG)             |
| <input type="checkbox"/> Schaffhausen (SH)          | <input type="checkbox"/> Schwyz (SZ)                 |
| <input type="checkbox"/> Solothurn (SO)             | <input type="checkbox"/> Thurgau (TG)                |
| <input type="checkbox"/> Tessin (TI)                | <input type="checkbox"/> Uri (UR)                    |
| <input type="checkbox"/> Waadt (VD)                 | <input type="checkbox"/> Wallis (VS)                 |
| <input type="checkbox"/> Zug (ZG)                   | <input type="checkbox"/> Zürich (ZH)                 |

**15 c. Wenn ja, wurde die Weiterbildung von Ihrer Institution / Ihrem Arbeitgeber ganz oder teilweise finanziert?**

- ja       nein

<b>16. Bitte geben Sie an, wie häufig Sie mit folgenden Berufs- bzw. Personengruppen im Bereich der Palliativversorgung <u>im Jahr 2017</u> zusammengearbeitet haben:</b> <i>(Die Antworten beziehen sich auf eine 100% Stelle, sodass wir sie bitten, Ihre Antworten bei einem geringeren Pensum gedanklich entsprechend aufzurunden.)</i>	Mind. 1x täglich	Mehrere wöchentlich	Mind. 1x im Monat	Mehrere jährlich	Seltener	Nie	Weiss nicht
ÄrztInnen in Spitälern mit spezialisierter Palliative Care-Abteilung	<input type="checkbox"/>						
ÄrztInnen in Spitälern ohne spezialisierte Palliative Care-Abteilung	<input type="checkbox"/>						
ÄrztInnen in Hospizen / Altersheimen	<input type="checkbox"/>						
ÄrztInnen in eigener Praxis (z.B. OnkologInnen)	<input type="checkbox"/>						
HausärztInnen	<input type="checkbox"/>						
Pflegefachpersonen	<input type="checkbox"/>						
Advanced Practice Nurses	<input type="checkbox"/>						
spezialisierte mobile Palliativ-Konsiliardienste (spitalintern)	<input type="checkbox"/>						
spezialisierte mobile Palliativ-Konsiliardienste (spitalextern)	<input type="checkbox"/>						
PsychologInnen	<input type="checkbox"/>						
Pastorale Dienste / SeelsorgerInnen	<input type="checkbox"/>						
SozialarbeiterInnen	<input type="checkbox"/>						
Ergo- & PhysiotherapeutInnen	<input type="checkbox"/>						
Musik-, Tier-, & KunsttherapeutInnen	<input type="checkbox"/>						
ApothekerInnen / Pharma-AssistentInnen	<input type="checkbox"/>						
Freiwillige	<input type="checkbox"/>						
Familienangehörige von PalliativpatientInnen	<input type="checkbox"/>						
Case ManagerInnen	<input type="checkbox"/>						
Kantonale Koordinationsstellen	<input type="checkbox"/>						
Andere, namentlich:	<input type="checkbox"/>						

17. Bitte schätzen Sie die Zusammenarbeit mit den folgenden Berufs- bzw. Tätigkeitsgruppen ein, wenn es um die gemeinsame Betreuung von Palliativpatienten geht:	Sehr schwierig	Schwierig	Eher schwierig	Genügend	Gut	Ausgezeichnet	Weiss nicht
ÄrztInnen in Spitälern mit spezialisierter Palliative Care-Abteilung	<input type="checkbox"/>						
ÄrztInnen in Spitälern ohne spezialisierte Palliative Care-Abteilung	<input type="checkbox"/>						
ÄrztInnen in Hospizen / Altersheimen	<input type="checkbox"/>						
ÄrztInnen in eigener Praxis (z.B. OnkologInnen)	<input type="checkbox"/>						
HausärztInnen	<input type="checkbox"/>						
Pflegefachpersonen	<input type="checkbox"/>						
Advanced Practice Nurses	<input type="checkbox"/>						
spezialisierte mobile Palliativ-Konsiliardienste (spitalintern)	<input type="checkbox"/>						
spezialisierte mobile Palliativ-Konsiliardienste (spitalextern)	<input type="checkbox"/>						
PsychologInnen	<input type="checkbox"/>						
Pastorale Dienste / SeelsorgerInnen	<input type="checkbox"/>						
SozialarbeiterInnen	<input type="checkbox"/>						
Ergo- & PhysiotherapeutInnen	<input type="checkbox"/>						
Musik-, Tier-, & KunsttherapeutInnen	<input type="checkbox"/>						
ApothekerInnen / Pharma-AssistentInnen	<input type="checkbox"/>						
Freiwillige	<input type="checkbox"/>						
Familienangehörige von PalliativpatientInnen	<input type="checkbox"/>						
Case ManagerInnen	<input type="checkbox"/>						
Kantonale Koordinationsstellen	<input type="checkbox"/>						
Andere, namentlich:	<input type="checkbox"/>						

**18. Sind Sie Teil eines oder mehrerer offizieller berufs- und/oder institutionenübergreifender Palliativ-Netzwerke?**

nein

ja, namentlich (mehrere Angaben möglich): \_\_\_\_\_

**20 a. Wenn ja, in welchen Kantonen befinden sich Ihre wichtigsten offiziellen Kooperationspartner? (mehrere Antworten möglich)**

Aargau (AG)

Appenzell Innerrhoden (AI)

Basel-Stadt (BS)

Freiburg (FR)

Glarus (GL)

Jura (JU)

Neuenburg (NE)

Obwalden (OW)

Schaffhausen (SH)

Solothurn (SO)

Tessin (TI)

Waadt (VD)

Zug (ZG)

Appenzell Ausserrhoden (AR)

Basel-Landschaft (BL)

Bern (BE)

Genf (GE)

Graubünden (GR)

Luzern (LU)

Nidwalden (NW)

St. Gallen (SG)

Schwyz (SZ)

Thurgau (TG)

Uri (UR)

Wallis (VS)

Zürich (ZH)

**19. Betrachten Sie sich als Teil eines oder mehrerer informellen berufs- und/oder institutionenübergreifenden Netzwerke im Bereich der Palliativversorgung?**

ja     eher ja     eher nein     nein     weiss nicht

**21 a. Wenn ja, in welchen Kantonen befinden sich Ihre wichtigsten informellen Kooperationspartner? (mehrere Antworten möglich)**

Aargau (AG)

Appenzell Innerrhoden (AI)

Basel-Stadt (BS)

Freiburg (FR)

Glarus (GL)

Jura (JU)

Neuenburg (NE)

Obwalden (OW)

Schaffhausen (SH)

Solothurn (SO)

Tessin (TI)

Waadt (VD)

Zug (ZG)

Appenzell Ausserrhoden (AR)

Basel-Landschaft (BL)

Bern (BE)

Genf (GE)

Graubünden (GR)

Luzern (LU)

Nidwalden (NW)

St. Gallen (SG)

Schwyz (SZ)

Thurgau (TG)

Uri (UR)

Wallis (VS)

Zürich (ZH)

**20. Bitte nennen Sie die Namen der drei Institutionen, mit denen Sie oder Ihre Institution am häufigsten interagieren, z.B. zwecks Patientenüberweisungen oder beratenden Tätigkeiten:**

*(Häufigster Interaktionspartner zuoberst)*

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**21. Bieten Sie oder Ihre Institution rund um die Uhr (d.h. 24h täglich, inkl. Festtage, 7 Tage in der Woche) Palliativversorgung an?**

*Ich selbst*

ja       nein

*Meine Institution*

ja       nein       weiss nicht

**22. Wer bestimmt hauptsächlich über den Behandlungsplan von Palliativpatienten in Ihrem Arbeitsumfeld?**

Vorwiegend ich selbst

Ich und andere Personen, nämlich (Mehrere Antworten möglich):

Arzt/Ärztin in Hospizen / Altersheimen

Arzt/Ärztin in eigener Praxis (z.B. OnkologIn)

Arzt/Ärztin in Spitälern

Hausarzt / Hausärztin

Pflegefachperson

PsychologIn

Case ManagerIn

Kantonale Koordinationsstelle

Familienangehörige

Der/die PatientIn selbst

Andere, nämlich: \_\_\_\_\_

Ausschliesslich andere Personen, nämlich (Mehrere Antworten möglich):

Arzt/Ärztin in Hospizen / Altersheimen

Arzt/Ärztin in eigener Praxis (z.B. OnkologIn)

Arzt/Ärztin in Spitälern

Hausarzt / Hausärztin

Pflegefachperson

PsychologIn

Case ManagerIn

Kantonale Koordinationsstelle

Familienangehörige

Der/die PatientIn selbst

Andere, nämlich: \_\_\_\_\_

Weiss nicht

**23. Wer besitzt in Ihrem Arbeitsumfeld eine Schlüsselrolle hinsichtlich der Koordination von Aufgaben (z.B. Termine vereinbaren, Patientenüberweisungen koordinieren, mit Fachpersonen Kontakt aufnehmen)?**

- Vorwiegend ich selbst
- Ich und andere Personen, nämlich (Mehrere Antworten möglich):
  - Arzt/Ärztin in Hospizen / Altersheimen
  - Arzt/Ärztin in eigener Praxis (z.B. OnkologIn)
  - Arzt/Ärztin in Spitälern
  - Hausarzt / Hausärztin
  - Pflegefachperson
  - PsychologIn
  - Case ManagerIn
  - Kantonale Koordinationsstelle
  - Familienangehörige
  - Der/die PatientIn selbst
  - Andere, nämlich: \_\_\_\_\_
- Ausschliesslich andere Person(en), nämlich (Mehrere Antworten möglich):
  - Arzt/Ärztin in Hospizen / Altersheimen
  - Arzt/Ärztin in eigener Praxis (z.B. OnkologIn)
  - Arzt/Ärztin in Spitälern
  - Hausarzt / Hausärztin
  - Pflegefachperson
  - PsychologIn
  - Case ManagerIn
  - Kantonale Koordinationsstelle
  - Familienangehörige
  - Der/die PatientIn selbst
  - Andere, nämlich: \_\_\_\_\_
- Weiss nicht

**24. Gibt es eine klare Verantwortungsteilung in Ihrem Bereich bzw. in Ihrer Institution, wenn es um die Palliativversorgung geht?**

- ja     eher ja     eher nein     nein     weiss nicht

**25. Sind Ihrer Erfahrung nach palliativmedizinische Dienstleistungen in Ihrem Versorgungsgebiet für alle PatientInnen (jeder Diagnose, jeder Religion, jeder ethnischen Herkunft, jeder sozioökonomischen Schicht) zugänglich?**

- ja     eher ja     eher nein     nein     weiss nicht

**26. Gibt es in ihrem unmittelbaren Arbeitsumfeld häufige Wechsel der primären Betreuungspersonen von PatientInnen?**

ja     eher ja     eher nein     nein     weiss nicht

**27. Werden in Ihrem unmittelbaren Arbeitsumfeld fortlaufend Patienteninformationen zwischen den beteiligten Betreuungspersonen ausgetauscht?**

ja     eher ja     eher nein     nein     weiss nicht



28. Bitte geben Sie an, inwiefern die folgenden Aussagen auf Sie und Ihre Tätigkeit im Bereich der Palliativversorgung zutreffen:	Trifft überhaupt nicht zu	Trifft nicht zu	Trifft eher nicht zu	Trifft eher zu	Trifft zu	Trifft völlig zu	Weiss nicht
Ich habe das Gefühl, dass ich für meine Arbeit angemessen entlohnt werde.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Viele unserer Regeln und Verfahren erschweren eine gute Arbeit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Kommunikation innerhalb unserer Organisation / unseres Institutes ist gut.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich mag die Hauptaufgaben, die meine Arbeit im Bereich der Palliativversorgung umfasst.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personen, mit denen ich täglich in der Palliativversorgung zusammenarbeite, teilen meine Werte und Ideale bezüglich Palliative Care.							

<b>29. Bitte beantworten Sie folgende Fragen hinsichtlich Ihrer Tätigkeit im Bereich der Palliativversorgung:</b>	Ja	Nein	Weiss nicht
Gibt es im Rahmen Ihrer unmittelbaren Zusammenarbeit eine/n Case ManagerIn?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Falls ja:</i> Denken Sie dass der/die Case ManagerIn in Ihrem Team in bedeutsamer Weise zur Verbesserung der Koordination von Abläufen beiträgt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Falls nein:</i> Denken Sie, dass ein/e Case ManagerIn in Ihrem Team zur Verbesserung der Koordination von Abläufen beitragen würde?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Benutzen Sie bzw. Ihre Institution in Ihrer Zusammenarbeit ein Formular zur Rückmeldung (Feedback-Tool), um die Wünsche und Bedürfnisse von PalliativpatientInnen zu erheben?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Benutzen Sie an Ihrem Arbeitsort elektronische Mittel (E-Tools) zur Verwaltung von Patientendossiers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stehen Ihnen und Ihrem Arbeitsumfeld interne Guidelines und Standards für die Palliativversorgung zur Verfügung?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Falls ja:</i> Finden diese Guidelines Ihrer Erfahrung nach Anwendung in Ihrem Arbeitsalltag?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Werden Arbeitsabläufe in Ihrer Organisation / Praxis / Ihrem unmittelbaren Arbeitsumfeld regelmässig evaluiert, z.B. in Form von Qualitätszirkeln oder Feedbackrunden?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. Wie beurteilen Sie im Hinblick auf Ihr unmittelbares Arbeitsumfeld ...	Sehr schlecht	Schlecht	Ungenügend	Genügend	Gut	Sehr gut	Weiss nicht
... die finanzielle Ausstattung in der Palliativversorgung hinsichtlich							
a) der allgemeinen finanziellen Unterstützung durch den Kanton	<input type="checkbox"/>						
b) den finanziellen Ressourcen in Ihrer eigenen Institution / Praxis	<input type="checkbox"/>						
c) der Vergütung Ihrer Leistungen durch TARMED	<input type="checkbox"/>						
d) der Vergütung Ihrer Leistungen durch die Fallpauschale DRG	<input type="checkbox"/>						
... den Informationsaustausch zwischen den Personen, mit denen Sie für die Betreuung von PalliativpatientInnen verantwortlich sind.	<input type="checkbox"/>						
... die Möglichkeit zum interprofessionellen Austausch in Ihrer Organisation / Praxis (z.B. im Rahmen von Meetings, Supervisionen, Qualitätszirkeln etc.).	<input type="checkbox"/>						
... das Ausmass, in dem Familie / Freunde von PatientInnen von Ihrem Arbeitsumfeld in die Palliativversorgung mit einbezogen werden.	<input type="checkbox"/>						
... die Zufriedenheit der PatientInnen in Ihrem Arbeitsumfeld mit der medizinisch-physischen Betreuung (Behandlung von Symptomen / Schmerzmanagement).	<input type="checkbox"/>						
... die Zufriedenheit der PatientInnen in Ihrem Arbeitsumfeld mit der psychologisch-seelsorgerischen Betreuung.	<input type="checkbox"/>						
... die Zufriedenheit der PatientInnen in Ihrem Arbeitsumfeld mit der Informationsweitergabe im Rahmen der Betreuung.	<input type="checkbox"/>						
... die Kontinuität (Nahtlosigkeit) von Versorgungsabläufen in ihrer Organisation / Praxis (z.B. allfällige Therapiewechsel oder Verlegungen Ihrer PatientInnen).	<input type="checkbox"/>						
... die Infrastrukturen für die Palliativversorgung in Ihrem Kanton mit Blick auf folgende Bereiche:							
a) Anzahl Spitäler, die über eine spezialisierte Palliative Care-Abteilung verfügen	<input type="checkbox"/>						
b) Anzahl Spitäler, die ausschliesslich allgemeine Palliativversorgung anbieten	<input type="checkbox"/>						
c) Anzahl Altersheime, die Palliativversorgung anbieten	<input type="checkbox"/>						
d) Anzahl Hospize, die Palliativversorgung anbieten	<input type="checkbox"/>						
e) Anzahl stationärer Palliativbetten insgesamt	<input type="checkbox"/>						
f) Anzahl HausärztInnen mit einer Zusatzausbildung im Bereich der Palliativversorgung	<input type="checkbox"/>						

Herzlichen Dank für Ihre Teilnahme!