Barriers and Facilitators to Nurses Caring for Peritoneal Dialysis (PD) Patients in Rural Emergency Departments in Alberta

by

Lisa Michelle Lillebuen

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Nursing

In

Aging

Faculty of Nursing
University of Alberta

Abstract

As dialysis numbers continue to grow, more Albertans are choosing peritoneal dialysis (PD) as their primary dialysis modality. Home dialysis therapies and especially PD are known to offer decided advantages and can offer patients greater autonomy and satisfaction with health care than in-facility dialysis.

PD can be delivered almost anywhere, including in rural and remote locations and with the geographically diverse nature of Alberta many patients do not live near a center that offers PD. When complications arise, urgent treatment may be needed in a rural emergency department (ED). However, not all rural EDs are willing to provide this treatment. Problems can arise when patients have an issue that cannot be resolved over the phone and they need medical assistance.

There is limited literature that looks at non-dialysis staff providing PD care to patients and most of it is in the context of home care support or long-term care centers. PD is considered a restricted activity by Alberta Health service and as such many nurses in rural communities do not feel comfortable or competent performing PD procedures on these patients. While some health professionals in rural areas have embraced the opportunity to learn PD procedures and have staff willing to assist patients when they present to their ED, other rural areas have staff not willing to do any PD related care even when taking direction over the phone from a PD trained nurse. Therefore, the purpose of this study was to identify the barriers and facilitators for rural emergency department nurses to provide PD care.

An interpretive descriptive study was conducted at four sites across Northern Alberta with nurses who have either cared for a patient requiring PD or transferred a patient to another site to provide PD care. Semi-structured interviews were carried out with seven nurses. Themes that were found included *education (along with the subtheme of resources), patient/family ability* *to perform PD, infrequent exposure, and physician supports.* The findings from our study highlight the need for nurses working in these sites to be educated and have appropriate resources in order to care for these patients. PD programs will need to continue to provide high quality care, and ensure that patients and families have the competence to do PD.

Preface

This thesis is an original work by Lisa Lillebuen. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Pro00086829: Barriers and Facilitators to Rural Peritoneal Dialysis Care. Alberta Health Services administrative approval was granted April 26, 2019 from Northern Alberta Clinical Trials and Research Centre (NATRAC).

The analysis and manuscript preparation were led by Lisa Lillebuen with supervision provided by Dr. Kara Schick-Makaroff and Dr. Anita Molzahn. The manuscript was created for consideration of publication in the *Canadian Journal of Kidney Health and Disease* (CJKHD). Dr. Kara Schick-Makaroff and Dr. Anita Molzahn both assisted in reviewing the analytic themes and providing manuscript edits.

Dedication

To my husband Jason Lillebuen who has supported me as I completed this work. Thank you for the sacrifices you made for us through the years. Your ongoing support and love have always helped me find the motivation to get through tough times. You always inspire me to be kind and mindful towards others and push me to a better person.

To my daughter Freya who has made sacrifices she won't truly understand until she is older. I hope you will continue to look up to me and know that I will always be there to guide and support all your endeavours in life.

To my family, thank you for being supportive and allowing me to rely on you over the years. You helped me get through this project and I know you'll be there for me through anything.

To my professors and supervisors, Dr. Kara Schick-Makaroff, Dr. Anita Molzahn, and Dr. Stephanie Thompson who provided guidance throughout my Masters journey and encouraged me to pursue a thesis on my interest in peritoneal dialysis care.

To all my friends and colleagues through the years, I've appreciated the support I have received from you all to keep going even when I thought I couldn't. Thanks for still being there for me as I pushed to complete this work. Thank you to my manager who supported me with time off to complete my work. Your support and encouragement mean more than you will ever know.

Acknowledgment

This thesis would not have been completed if it weren't for the help provided by a number of people.

Thank you to Dr. Kara Schick-Makaroff and Dr. Anita Molzahn for helping formulate this project, reviewing the proposal, and providing edits and input into the preparation of this manuscript. Thank you to the both of you for your support and patience throughout this process.

Thank you to Dr. Stephanie Thompson for serving on my committee and for your guidance and feedback on my work.

Thank you to both Dr. Anita Molzahn through the Faculty of Nursing and the Kidney Foundation of Canada who provided a scholarship to help me complete this work.

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Chapter 1

Introduction

At the end of 2017, there were 38,833 Canadians (excluding Quebec) living with end stage kidney disease (ESKD) and 22,495 requiring a renal replacement therapy such as hemodialysis or peritoneal dialysis (Canadian Institute of Health Information [CIHI], 2017).[1] Hemodialysis (HD) and peritoneal dialysis (PD) provided in the patient's home (home dialysis) offer patients greater autonomy and satisfaction with health care than in-facility dialysis (Fadem et al., 2011).

As dialysis numbers continue to grow, more Albertans are choosing PD as their primary dialysis modality. At the end of 2017, 23% of ESKD patients in Alberta chose PD (CIHI, 2018). Home dialysis therapies and especially PD are known to offer decided advantages. Home dialysis therapies have been associated with better patient survival and quality of life (Nesrallah et al., 2012; Pauly et al., 2010). Studies also indicate that home PD and home hemodialysis are potentially more cost-effective relative to in-center hemodialysis (Chui, et al., 2013; Karopadi, Mason, Rettore, & Ronco, 2014; Walker, Marshall, Morton, McFarlane, & Howard, 2014).

PD can be delivered almost anywhere, including in rural and remote locations. Alberta is geographically spread out, and many patients do not live near a center that offers PD. When complications arise, urgent treatment may be needed in a rural emergency department (ED). However, not all rural EDs are willing to provide this treatment. For patients in the northern part of the province, a PD training center can be found in Edmonton and Red Deer. There is a PD nurse on-call every day and an after-hours nephrologist is available who can assist the patient or

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[1] Data from Quebec was not included in these data tables because of significant under-reporting between 2011 and 2017, which may lead to biased results. Note that statistics in this set of data tables differ from previous annual statistics because of the exclusion of Quebec data.

another health care provider with any questions he or she may have. Problems can arise when patients have an issue that cannot be resolved over the phone and they need medical assistance. Given the limited access to diagnostic services, family doctors and other specialists in rural areas, rural EDs constitute an essential safety net for the rural population (The Kidney Foundation of Canada, 2014). Since nurses are key members of health care system, their clinical competency in specialized care for PD patients is crucially important.

According to the College and Association of Registered Nurses of Alberta (2019), competencies are client-centered, futuristic and include new developments in society, health care, nursing knowledge, and nursing practice. The competencies support registered nurses in practicing in today's realities and ensure they are well-equipped with the knowledge and skills to adapt to changes in health care and nursing (College and Association of Registered Nurses of Alberta, 2019) The Canadian Nurses Association (2015) defines competency as "the integrated knowledge, skills, judgment and attributes required of an RN to practice safely and ethically in a designated role and setting (Attributes include, but are not limited to, attitudes, values and beliefs)" (p. 27). The broad scope of the nursing role and its application in rural and remote communities beyond the acute setting have been previously noted and require full integration of nursing scope of practice (Cerasa, 2011). Maintaining an adequately prepared rural nursing workforce is an important issue in rural hospitals.

Dialysis patients are at a higher risk of multiple admissions to hospital than either non–kidney disease patients or patients with chronic kidney disease (Daratha, Short, Corbett, Ring, Alicic, Choka, & Tuttle, 2012). Currently, Alberta Health Services (AHS) has a provincial wide policy listing PD as a restricted activity. The Health Professions Act introduced the concept of restricted activities as the "regulated health services which have been identified as involving a significant degree of risk to the public. They are also activities that demand specific competencies on the part of the person performing them" (Alberta Health & Wellness, 2000, p. 12). Due to its restricted nature, many nurses in rural communities do not feel comfortable or competent performing PD procedures on these patients. While some rural areas have embraced the opportunity to learn PD procedures and have staff willing to assist patients when they present to their ED, other rural areas have staff not willing to do any PD related care even when taking direction over the phone from a PD trained nurse. This means that patients either have to be medically transferred or they must drive to Edmonton or Red Deer to receive PD care. This can delay treatment, which in some cases can be potentially harmful to the patient; for example, prompt initiation of therapy for peritonitis is critical (Kam-Tao et al., 2016). This can also carry significant burden for some patients or their family as they may rely on family or friends for transportation. Hence, it may be beneficial to health policy makers as well as patients to explore the facilitators and barriers to rural treatment of PD emergency care.

Outline of Thesis

My thesis is presented in the format of a paper-based thesis to facilitate submission of a paper for publication. The first chapter presents the general problem and the implications of the study. For the remainder of chapter one, I present a review of the literature, the purpose statement, the research question, and the methods used in this study. In Chapter two, I present the proposed manuscript for submission to the *Canadian Journal of Kidney Health and Disease* (CJKHD), and in chapter three, I discuss the results and the implications for nursing practice in greater detail.

Literature Review

Renal Disease and Peritoneal Dialysis

In 2015, PD made up 20.7% of patients' initial renal replacement therapy in Canada (excluding Quebec) (CIHI, 2016). Currently the Alberta Kidney Care-North Program has 341 patients on PD as of the end of March 2019. This represents 29.8% of all patients requiring renal replacement therapy. Of those patients, 59.8 % reside outside of Edmonton or Red Deer city and 22.3% are over the age of 65 years. This means that these patients are located outside of a major center that has a renal specific medical unit or PD unit to provide treatment in the case of emergent care. Rural patients are more likely to choose a home-based therapy such as PD (Gray, Dent & McDonald, 2012; O'Hare, Johansen & Rodriguez, 2006). Limited access to centre-based dialysis, due to factors such as distance, or lack of openings at a centre, was a consistent reason for choosing home-based PD (Morton, Tong, Howard, Snelling, & Webster, 2010).

Peritoneal dialysis uses the lining of the abdomen and a solution called dialysate to filter and clean the blood. A permanent catheter in the abdomen is required and is used to fill the peritoneal cavity with the dialysate. Removing waste and fluids from the blood is achieved through the processes of osmosis and diffusion. Most of the dialysate solutions contain glucose in varying concentrations to facilitate the process of osmosis and ultrafiltration of fluid. Solutes from the blood are removed by diffusion through the peritoneal membrane into the fluid. The dialysate remains in the patient's body for a period of time (depending on the method) and then is drained out and fresh dialysate is placed back in the peritoneal cavity. This process is called an exchange.

There are two main types of PD: continuous ambulatory PD (CAPD) and automated PD (APD). CAPD is carried out manually during the day with the patient repeating the process of filling and draining four to five times in a 24-hour period. With APD, a machine automates the process of draining and filling and is typically carried out at night while the patient sleeps. PD is typically conducted in the home with the patient completing the treatment independently or with the assistance of family member or informal caregiver (Canadian Agency for Drugs and Technologies in Health, [CADTH], 2017).

Home dialysis utilization varies widely across Canada, even within individual provinces (CIHI, 2013). Optimizing home dialysis utilization requires an understanding of contextual factors that operate at the levels of patient, health-care provider, and health-care system (Mattern et al., 1989). Despite its lower cost, ease of use, and favourable outcomes, (CIHI, 2013; Mehrotra et al.,; U.S. Renal Data System [USRD], 2015) PD makes up only 10-20% of the dialysis modality mix in most developed countries.

Facilitators and Barriers to Home Dialysis

Lee, Manns, Taub, et al. (2002) found that self-care PD costs about $24 000 (US dollar) less each patient-year than full-care hemodialysis, making the argument that promoting PD may be an effective strategy to reduce the cost of ESKD care. Policy makers in many regions around the world are now setting targets to maximize PD use (Dratwa, 2008; Durand & Verger, 2006; Howell, Walker, & Howard, 2019; Liu, Gao, Inglese, Chuengsaman, Pecoits-Filho, & Yu, 2015; Niang, Iyengar, & Luyckx, 2018; Oreopoulos, Coleman, & Doyle, 2007). This increased focus on promoting PD means there is the potential to see an increase in the numbers of patients requiring this modality. On the other hand, a major challenge to the growth of PD, and home dialysis in general, is the fact that the majority of dialysis patients in many regions are elderly and have barriers to self-care (Jager, Korevaar, Dekker, Kredict, & Boeschoten, 2004; Little, Irwin, Marshall, Rayner & Smith, 2001; McLaughlin, Manns, Mortis, Hans, & Taub, 2003; Xue, Everson, Constantini, et al., 2002; Stack, 2002). It is therefore important to look at what specific barriers these patients and healthcare providers may face.

Oliver, Quinn, Richardson, Kiss, Lamping, & Manns (2007) found common barriers were language barriers, history of non-compliance, psychiatric conditions and dementia/poor memory and that physical barriers included decreased strength to lift PD bags, decreased vision, decreased hearing and some degree of immobility present. Thus, support by family members may be required for many patients to perform PD. While previous studies have found that marriage was associated with the increased use of PD, living alone decreased the use of PD (Miskulin et al., 2002; Little, Irwin, Marshall, Rayner, & Smith, 2001). Neither study quantified the impact of family support on PD utilization in a dialysis population, nor did they describe whether patients actually received family-assisted PD. The impact of family support has also not been studied in populations where home care assistance is available (Oliver et al., 2010). Home care assistance has been demonstrated to increase PD eligibility so that its availability may mitigate the impact of family support. It has however been found that even when home care assistance for PD is available, family support was still an important driver of PD eligibility, choice and use among patients with barriers to self-care PD (Oliver et. al., 2010).

The essential next step in expanding home dialysis therapies in Canada is to identify barriers to their wider adoption, and subsequently to identify facilitating factors that can be implemented by way of policy and program changes. Osterlund, Mendelssohn, Clase, Guyatt, and Nesrallah (2014) identified facilitators and barriers to Canadian adults with ESKD selecting home dialysis modalities. They were able to distinguish between factors that favor home dialysis as well as modifiable and non-modifiable factors opposing home dialysis selection. Some of the factors that emerged included: medical, psychological, cognitive and social factors, home physical environment, dialysis program, local hospital or regional factors, healthcare professional-related factors, health system-related factors, and exogenous factors (Osterlund, et al, 2014).

Nesrallah (2013) found that Canadian nephrologists expressed concern related to the lack of availability of home care-assisted PD. Currently home-care assisted PD is only available in a small number of jurisdictions in Canada. Preliminary data is promising (Oliver et al., 2007), with benefits similar to those of nursing home-assisted PD. As a group, nephrologists were “extremely” or “very” supportive of personnel and infrastructure interventions, such as the establishment of local or regional long-term care facilities with the capacity for providing HD and PD; and the provision of funding for formal caregivers to provide full-care HD or PD for patients at home (CADTH , 2017). The potential advantages include lower-costs (including transportation), greater convenience, and improved patient quality of life. (Harris, Lamping, Brown, Constantinovici & North Thames Dialysis Study, 2002). One potential disadvantage is the risk of over-promoting PD in frail, marginally-eligible patients, thereby increasing the risk of hospitalization and technique failure (Mendelssohn, 2002). The net balance of benefits and risks with assisted PD have yet to be established, and more rigorous studies are warranted based on the strong endorsement by Canadian nephrologists (Nesrallah, 2013).

Both PD and conventional home hemodialysis (HHD) are less costly compared with in-center hemodialysis (ICHD). Assisted PD is an option in some jurisdictions in Canada as well as other parts of the world. The delivery of a care model for assisted PD may vary widely. Depending on how it is delivered, the number of patients served and the wage rate of the health care providing assisted PD, costs of delivery may vary (CADTH, 2017). Assisted PD may be economically attractive compared with ICHD, if delivered in a non-continuous fashion (at initiation, or for respite) whereas delivering it continuously was costlier than ICHD and all other home-based modalities, although, if the relative costs from France were used, assisted PD would be cost saving compared with conventional ICHD (CADTH , 2017), especially if delivered in rural and remote areas (Ferguson, et al., 2015).

There is limited literature that deals with non-PD staff proving PD care to patients. A study was done, and it was found that nurse PD assistants in France required little training and in fact only received a half day of training from the PD unit at the initiation of treatment and may then even be required to train other nurse colleagues. In Denmark, nurses received 2.5 hours theoretical training and 2.5 hours clinical training from a PD nurse with the patient in their home (Verger, Duman, Durand, Veniez, Fabre, & Ryckelynck, 2007).

International Society of Peritoneal Dialysis (ISPD) (2016) suggests that overall peritonitis rate should be no more than 0.5 episodes per year at risk. Verger et al. (2007), found it to be low risk to use PD assistants with minimal PD training in that peritonitis rates were not high, varying from 1/25 to 1/36 patient-months at the various centers. In another study, Xu, Zhuo, Yang, and Dong (2012) compared patients having a family assistant to those with a home assistant and found they had similar peritonitis-free and survival times, but a higher risk of mortality. While education was limited and outcomes were still within international standards for peritonitis, the French experience found that whenever possible, regular home visits should also be made by the PD nurses in order to help the private nurses maintain and even further their knowledge and practice of PD exchanges which could further improve peritonitis rates (Verger, et al., 2007). It was found that better results were obtained when the PD patient was assisted by a family member rather than by the private nurse which may have been a result of private nurses training others and less rigorous training for these nurses (Verger, et al., 2007). In all programs, the local

PD team must provide back-up and be available for advice for the PD assistant. CADTH (2017) found that providing training programs for long-term care facility personnel and the availability of a dedicated nephrology dialysis staff facilitated the implementation of dialysis within a facility.

Rural Context

Approximately 20% of Canadians live in rural areas (Statistics Canada, 2011), however rural location has only been considered in a small number of studies of dialysis patient outcomes (O'Hare, Johansen, & Rodriguez, 2006). There are, however, great challenges to providing and accessing rural emergency care in Canada due to the inherent greater distances and limited resources (Fleet, Archambault, Plant & Poitras, 2013). To most rural Albertans, specialized services include anything that falls outside the services they receive from their doctor's office or community health center (Starke et al., 2015). Rural Canadians are more likely to report poorer socioeconomic conditions, lower educational attainment, exhibit less healthy behaviors, receive fewer formal services, and have higher overall mortality rates compared to their urban counterparts (Forbes & Edge, 2009). Since PD patients are more likely to reside in a rural area (Gray, Dent & McDonald, 2012; O'Hare, Johansen & Rodriguez, 2006), it is important that they have access to timely care and are able to receive support from their nearest emergency center. A Rural Health Services Review was ordered by the Alberta Government and the authors found that most rural residents believe that access to specialized services is an ongoing challenge and their location puts them at a disadvantage for receiving these services and treatments (Starke, et al., 2015). Many communities expressed frustration and anger at the apparent disregard for where a patient lived, and the hardships introduced by frequent and long-distance travel for care, especially for more highly specialized services such as dialysis and chemotherapy (Starke et al., 2015).

There is a paucity of research that has been conducted that examines how clinical competency is achieved or maintained in the area of emergency nursing. A few of the potential explanations for poor outcomes in rural PD patients include inadequate non-renal medical services, poor PD support, patient reluctance to change modalities even if PD is failing, insufficient pre-dialysis education, poor PD catheter management, and poor patient selection and training (Rodriguez, 2012). Knowing some of the facilitators and barriers to nurses' ability or willingness to perform PD procedures is important as there is a close relationship between nurses' clinical competency and quality of care (Ghanbari, Hasandoost, Lyili, Khomeiran, & Momeni, 2017). Ongoing education is vital for nurses to maintain clinical competency and ensure that evidence-based care is provided.

Tonelli et al. (2007) found that patients in remote areas were more likely to switch from hemodialysis to PD, and were less likely to suffer PD technique failure leading to conversion from PD to hemodialysis; however, a possible explanation for this finding was that patients chose to remain on PD despite not being an ideal candidate (Tonelli et al., 2007). Tonelli et al., (2007) also found that a distance of >50 km was also associated with an increased risk of death for PD patients compared with distances of <50 km. Bergjan and Schaepe (2016) found that it was important to develop strategies for promoting self-management, however it was not until the patient returned home that they usually began having more questions about PD and felt overwhelmed. A key element to managing rural PD patients was the willingness of remote area health professionals to help the patient in successfully managing their dialysis (Carruthers & Warr, 2004).

Scholars from Australia suggest that people with kidney disease in rural regions have less access to a nephrologist unless they travel to a major city (Gray, Dent, & McDonald, 2011). Many jurisdictions in Canada either do not have programs in place specifically focusing on remote or rural areas, or they do not have the resources to provide support and assistance for patients on PD outside of urban areas (CADTH, 2017). Researchers have shown that support from health care providers is an important aspect of patient success on PD (Campbell et al., 2016; Carruthers & Warr, 2004; Sadala, Bruzos, Pereira & Bucuvic, 2012).

Currently, there is a lack of information about the experience of patients living in remote areas or living in areas considered rural but without ready access to dialysis facilities (CADTH, 2017). Patients in Alberta who choose PD have to leave their home and come to either Edmonton or Red Deer for training. The cost of equipment and delivery of supplies is covered for patients, even in the most remote locations. However, patients can experience a significant delay in receiving supplies due to geographical location, not to mention costs to the program associated with off-service delivery. Zacharias et al. (2011) examined implementation challenges for PD in remote northern Manitoba. Contextual issues such as water quality (not meeting drinking standards, lack of running water, varied water pressure), frozen pipes in the winter and difficulty accessing plumbers, poor road access for home delivery of supplies (some northern communities are only accessible by air for most of the year), crowded housing without enough room for equipment, lack of warm storage for supplies, and lack of emergency medical service (no laboratories or hospital service) were reported (Zacharias et al., 2011). Buob-Corbett and Blundon, (2007) described some facilitators to the success of remote PD including nephrologist support via phone, seven days a week (day and evening), for both patients and caregivers; weekly well-being telephone calls between patients and nurses; yearly home visits;

comprehensive initial training for both caregivers and patients; flexibility and adaptability of the nurses providing dialysis support despite barriers such as difficult transportation, lack of running water to wash hands when providing in-home patient care, or generators as the only source of electricity; and having well-established plans and procedures regarding medical evacuation and emergent care.

Utilizing technology such as telehealth can be one way to provide support and assistance for PD patients living outside urban areas. Telemedicine involves linking patients to health professionals via audio, video, and/or patient monitoring technology (Starke et al., 2015). Starke et al. (2015) found that rural Albertans almost universally agreed that telemedicine services worked well when used, and that better use of technology would cut down on expensive, difficult and time-consuming trips out of town for consultations. It is, however, important to point out that not all problems can be managed over the telephone or by telehealth. For more serious issues, such as peritonitis which remains the most common cause of hospitalization for PD patients (Gadola et al., 2013), patients need to be seen in person by a healthcare provider who can treat them effectively. Many rural Albertans believe that it may be possible to receive information regarding treatment over the phone which takes minutes, compared to the hours it takes to drive back and forth to the city (Starke et al., 2015). Receiving information on how to treat peritonitis over the phone or telehealth may be a way to support patients in their community. Telehealth has been shown to be successful in helping to manage cardiac conditions, mental health conditions, diabetes, and chronic obstructive pulmonary disease (COPD), and a small study by CADTH (2017) indicated that it could be used to successfully manage remote dialysis treatment as well.

Baille and Lankshear (2014) conducted an ethnographic study and one of the themes they found was the uncertainty of managing crises and inevitable deterioration that patients would face. This was related to the threat of contracting peritonitis; They found that many of the participants were unaware how to identify peritonitis. Campbell et al. (2016) found that peritonitis was an ever-present concern for patients on PD and that "patients dreaded the idea of having to go to hospital, felt they were exposed to inferior treatment and possible infection when in hospital, and found the outpatient treatment schedule to be time-consuming and inconvenient" (p. 638).

For more remote rural locations away from the Edmonton to Calgary corridor and in the northern half of the province, transportation is a major barrier to accessing health care services (Starke et. al., 2015). It is typically the most vulnerable members of society who rely on access to health services, yet lack the resources such as transportation. Lack of public transit (bus or taxi), dependence on friends or relatives for rides, poor weather, poor road conditions, and cost of babysitters, fuel and accommodation are all noted as barriers to care (Starke et al., 2015). Another barrier for some patients and communities is the loss of Greyhound bus service. These issues can cause a delay in timely access to care, such as the patient's ability to be assessed at their local site, or in some cases, if needed, transport to a larger centre for care.

Patient Priorities

Health research aims to inform clinical practice and policy, but the absence of data related to patient needs and patient-centered outcomes can reduce the ability of research to inform shared decision-making among patients, their families, and their clinicians (Barry & Edgman-Levitan, 2012; Chewning et al., 2012). Manera et al. (2019) looked at current literature to identify patients' priories in PD care. They found that the top three priorities for patients were PD infection, fatigue, and mortality, and for caregivers, the top three were mortality, PD infection, and fatigue (Manera et al., 2019). PD–related treatments may be associated with varying and uncertain risks of mortality and complications, including infection, pain, and technique failure, which in turn can have severe and direct consequences on the patient's lifestyle, psychosocial wellbeing, overall quality of life, and caregiver burden (Bakewell, Higgins, & Edmunds, 2002). Knowing that patients identify infection as a high priority, it is timely to be looking at barriers that healthcare providers may have to providing this care to them. Morton, Tong, Howard, Snelling, and Webster (2010) synthesized and analyzed the views of patients and their informal carers on decision-making in the treatment of chronic kidney disease. They identified four major themes as being central to treatment choices: confronting mortality (choosing life or death, being a burden, living in limbo), lack of choice (medical decisions, lack of information, constraints on resources), gaining knowledge of options (peer influence, timing of information), and weighing alternatives (maintaining lifestyle, family influences, maintaining the status quo). A few of these themes exemplify why it is important for patients to have support in their home communities.

Across medical specialties, the increasing recognition of the mismatch between the priorities of patients and researchers has prompted concerted efforts to ensure that patient-centered outcomes are identified and integrated into research (Manera et al., 2019). While a few articles are available that address care of the dialysis patient in the ED (Sacchetti, Harris, Patel & Attewell, 1991; Venkat, Kaufmann, & Venkat, 2006), there are no studies that explicitly address barriers and facilitators to PD patients receiving care in a rural ED. Sadala, Bruzos, Pereira, and Bucuvic (2012) suggest that individual aspects of patients' experiences must be considered if health care providers are to facilitate positive health outcomes. Further studies are needed to determine what strategies could be utilized, especially in rural geographical locations to support nurses to assist patients with their PD. This could help keep the patient in their community, reducing costs and burdens on the patient and the healthcare system for hospitalizations in large tertiary center. More studies are needed to determine what options are most satisfactory to the staff receiving the education as well as the financial implications. This is an ideal time to start exploring these barriers and facilitators as health care providers struggle to manage fiscal constraints given the increasing prevalence of patients requiring dialysis. Since limited literature is available on facilitators and barriers of emergency care for rural PD patients in rural EDs, this study aims to explore these factors in order to ultimately address issues to enhance care of rural PD patients.

Purpose Statement

The purpose of this interpretive description study is to identify the barriers and facilitators to nurses caring for PD patients in rural emergency departments in Alberta.

Research Questions

My research question is: What are the barriers and facilitators to nurses caring for PD patients in rural emergency department in Alberta?

Methods

The methodology I chose for this study is the noncategorical qualitative approach of interpretive description developed by Thorne, Reimer Kirkham and MacDonald-Emes. (1997) (Thorne, 2016). This design was developed to deal with a gap in methodology that addressed the development of clinical understanding (Hunt, 2009). According to Thorne (2016), interpretive description is a qualitative approach that allows for an understanding of a phenomenon from a clinician’s perspective. Sandelowski, (2000) describes the term “description” to explain studies whose purpose is itemizing or documenting something – telling what it is that one observed. The term “interpretation” locates our studies of human social phenomena within the nondualistic philosophical tradition (Crotty, 1998). Interpretation capitalizes on the perspective that many of the “realities” we seek to study don’t exist “out there” as objective entities to be discovered but rather are more usefully understood as “socially constructed” through the subjective people who experience them (Mottier, 2005). Using an interpretive descriptive design assisted me to bring forth knowledge that is supported by my own beliefs (Thorne et al., 1997), while at the same time drawing “upon an amazing array of knowledge sources, sorting, and organizing those knowledge options according to a conceptual framework that derives from the philosophical understanding of why we nurse” (Thorne, 2016, p. 29).

Using an interpretive descriptive design, I sought to obtain knowledge for nursing practice, using a purposive sample and proceeding with an inductive analysis of the descriptive data. As a qualitative approach, an interpretive descriptive design seeks a clinical description in nursing that is interpretive by nature and covers “the realm of interpretation and explanation in the context of qualitative credibility criteria” (Thorne et al., 2004, p. 8). The use of interpretive description is a methodology of strength when producing knowledge about a clinical phenomenon that is germane to practice (Hunt, 2009). The recognition of the knowledge that the researcher contributes to the study is unique from other methodologies and was a foundation from which this methodology was designed. A researcher, such as myself, with clinical expertise may begin a study acknowledging that personal clinical knowledge is a basis for further appraisal of the phenomenon.

Population, Sample, and Participants

Inclusion criteria for nurses to participate in the study were: any regulated nurse, including registered nurse (RN), licensed practical nurse (LPN), clinical nurse educator (CNE), or nurse manager who works in rural ED settings in northern Alberta. The chosen locations were based on the current geographical distribution of PD patients of Alberta Kidney Care-North (AKC-N) and are also in Northern Alberta with active treatment facilities, including an ED. Nurse participant were recruited from Whitecourt, Fort McMurray, Peace River, and Fort Saskatchewan. These nurses needed to have experience with nursing a PD patient, or have requested that a patient seek PD treatment at another facility. While data saturation, which is when no new information is obtained from the participants, is not the end goal with interpretive description, data saturation was obtained with recruitment of seven participants.

Data Collection and Recruitment

An information letter outlining the study was sent to managers and CNEs of each chosen site to ask that they send out an email to all their nursing staff about the study. A poster was also designed for the managers and CNE's that could be posted in a visible area on the units for staff to contact me via phone or email.

While it was set up for nurses to call or email me to participate, most participants ended up being the unit manager of the area or the clinical nurse educator (CNE). One staff member did reach out to participate and other one was given time by her manager to participate. Participants were informed of the study purpose, how their information would be safeguarded, and that they could withdraw from the study up to data analysis. Managers at sites were contacted a few times to ask about staff recruitment and were asked to resend the information to their staff.

Interviews length ranged from twenty to thirty-eight minutes. Participants were aware they were being recorded and were again informed of their right to withdraw from the study up to data analysis. Demographic information was collected as part of the interview process (see Appendix 1). Interviews were semi- structured (see Appendix 2) to provide consistency and act as a guide for the interviewer and to assist with providing reliable, comparable qualitative data.

Data Analysis Procedure

Interviews were conducted by the primary investigator and after each interview, field notes were completed to review impressions and to reflect on the interview questions to see if anything needed to be changed or added. Interview questions did not need to be adapted, and each interview progressed in a fluid manner. The benefit of using the semi-structured interview is the ability to allow for flexibility for conversation to vary in topics while still providing a guide to ensure required information is asked (Adams, 2015). Interviews were uploaded to a transcription service called Go Transcript. The transcripts were then cleaned and names and identifying information removed. The first few transcripts were analyzed with the team to assist with initial coding and theme finding.

In order to ensure rigor, various verification strategies were utilized such as concurrent data collection and analysis, constant comparative analysis and iterative analysis (Thorne, Reimer Kirkham & O'Flynn-Magee, 2004). In interpretive description, it is important to locate the findings within the framework of the existing body of knowledge and in locating explanatory factors that might arise from the analysis within that larger perspective (Thorne, Reimer Kirkham & O'Flynn-Magee, 2004). Because there was not a lot of literature on this current topic, the preliminary analytic framework was really more about the process of interpreting current findings in order to make sense of them clinically and to fully understand the participants experience and description. The products of interpretive description ideally ought to have application potential, and to constitute a sort of "tentative truth claim" about what is common within a clinical phenomenon (Thorne, Reimer Kirkham & O'Flynn-Magee, 2004).

Throughout the analytic process, I sought to ensure that the findings would assist with the purpose of informing clinical reasoning and decision making. This required me to ensure that coding and theme finding did not occur too quickly and that I treated the transcripts with an air of questioning and sense making, ensuring to test and challenge my preliminary interpretations and conceptualizations of the problem

Ethical Considerations

Ethical approval from the University of Alberta Health Research Ethics Board, Pro00086829: Barriers and Facilitators to Rural Peritoneal Dialysis Care and Alberta Health Services administrative approval was received April 26, 2019 from NATRAC. I obtained verbal informed consent from each participant and I reviewed a participant letter of information with each informant. A second approval was sought and granted from ethics and NATRAC to add 4 additional sites.

No names were included on the typed transcripts to ensure confidentiality of responses. I used code numbers to track participants. Since the sites have a relatively small concentration of patients in the area, there was potential for patients to be identified by stories of the participants. I protected the identity of nurses and patient by using pseudonyms in this report and did not link sites to participants. It was agreed that only I and my supervisors would have access to the data for this project. Data was shared through a secured online folder in Google Drive.

Another ethical consideration was the fact that I currently work in PD and have had an active role in trying to move PD into many of these sites. This presented a potential for a power differential. In order to address this, I made sure that participants had a good understanding of the purpose of the study and that all information shared is confidential and will not be reported to others nor have an impact on their work/employment. I also made sure participants were told that they had the right to withdraw consent at any time.

There were no known risks to this study. There were not any benefits to participating; however, a potential benefit for participants was to have input into the resources needed to help them in their nursing practice to care for PD patients. In the future, this may also be potentially beneficial to the PD patients who reside in these rural areas, as it may generate some changes to the PD care they receive.

Due to the lack of evidence around non-PD staff providing PD care, this study was warranted to address our research question of what are the barriers and facilitators to providing PD care to rural PD patients in rural EDs? In the next chapter, I present the proposed manuscript for submission to the *Canadian Journal of Kidney Health and Disease* (CJKHD) which includes a report and discussion of our findings from our study. In the final chapter, results and the implications for nursing practice will be discussed in greater detail.

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Chapter Two

Manuscript

Abstract

Background:

Home dialysis offers many advantages to patients but they require support in order to manage a home-based therapy such as peritoneal dialysis (PD). A rural emergency department provides an important safety net for patients requiring medical care, including managing complications of PD such as peritonitis. Patients living in northern Alberta are spread out geographically and can be far from a PD training center, yet anecdotally, many rural sites do not provide care for these patients.

Objective:

Our aim was to identify the barriers and facilitators to nurses caring for PD patients in rural emergency departments in Northern Alberta.

Design:

A qualitative interpretive descriptive approach was used. Individual semi-structured interview were conducted utilizing purposeful sampling to obtain participants. A constant comparative approach was used for data collection and analysis. Transcripts were read individually by each of the three authors and consensus was reached on the categorisation of data into themes. Key categories were compared to identify similarities and were then organised into major themes and subthemes. Quotes were extracted to best represent the nurses' voice.

Setting:

Rural emergency departments across Northern Alberta**.**

Participants:

Six registered nurses and one licensed practical nurse from four rural communities participated in the study. They ranged in experience from 2 to 18 years. Two of the participants were unit managers, two were clinical nurse educators (CNEs), and the other three were staff nurses with one of them in a leadership position.

Measurements:

Semi-structured interviews (18-38 minutes) were conducted over the telephone. The interview guide was developed based on a review of the literature. Interviews were conducted until no new information was obtained.

Methods:

Data were transcribed verbatim. Field notes were recorded. Thematic analysis was conducted to analyze the data. The coding process was both deductive (drawing from the literature) and inductive. A manual approach was used for coding.

Results:

Seven participants were interviewed and there were four main themes and one subtheme that emerged from the analysis: *education (along with the subtheme of resources)* which were seen as both a barrier and facilitator*; patient/family ability to perform PD,* which was seen as a facilitator; *infrequent exposure,* which was seen as a barrier*; and physician supports,* which was seen as a barrier.

Limitations:

The findings may also not completely represent rural Emergency Department nurses' experience as most participants were in a leadership role as opposed to bedside nurses.

Conclusions:

The findings from our study highlight the need for nurses working in these sites to be educated and have appropriate resources in order to care for these patients. PD programs will need to continue to provide high quality care, and ensure that patients and families have the competence to do PD.

What was known before?

There have been no studies that have formally looked at barriers and facilitators for rural ED nurses to provide PD care.

What this adds:

As PD continues to grow, it will be important that health care professionals are prepared to adequately care for PD patients. Staff in rural environments have unique needs due to their generalist role and broad scope of practice. They need to have resources and education to be able to care for patients on PD. Some ways to support these staff include rural sites making CNE supports more robust, use of telehealth and/or other virtual health delivery models, and determining needs of physician group so they readily support nurses and patients. Also highlighted was the role of collaboration needed between a team of people including the PD training center and staff, the patient and family, and rural nurses and physicians.

Abbreviations

Emergency Department (ED), Peritoneal Dialysis (PD), Registered Nurse (RN), Licensed Practical Nurse (LPN), Clinical Nurse Educator (CNE), End Stage Kidney Disease (ESKD), Alberta Kidney Care-North (AKC-N)

Key words:

Emergency Department (ED), Peritoneal Dialysis (PD), rural, nursing, End Stage Kidney Disease (ESKD)

Introduction

Peritoneal Dialysis (PD) can be delivered almost anywhere, including in rural and remote locations. Alberta is geographically diverse, and many patients do not live near a center that offers PD. When complications arise, urgent treatment may be needed in a rural emergency department (ED). However, not all rural EDs have been willing to provide this treatment.

Patients living in non-urban areas have fewer options for maintenance dialysis and are more likely to start with PD (Tonelli, et al., 2007), however despite the importance of PD as an alternative modality in this population, PD units are more likely to be found in urban areas (Wang, et al., 2010). Dialysis patients are at a higher risk of multiple admissions to hospital than either non–kidney disease patients or patients with chronic kidney disease (Daratha, et al., 2012). While some rural areas have embraced the opportunity to learn PD procedures and have staff willing to assist patients when they present to their ED, other rural areas have staff not willing to do any PD related care even when taking direction over the phone from a PD trained nurse. This can delay treatment, which in some cases can be potentially harmful to the patient; for example, prompt initiation of therapy for peritonitis is critical (Kam-Tao et al., 2016). Hence, the objective of this article is to identify facilitators and barriers for rural emergency department nurses in Alberta to provide PD care to patients.

Methods

An interpretive descriptive study was conducted between May to July 2019. We chose interpretive description because this method allows for the generation of knowledge that is relevant to healthcare disciplines (Thorne, Reimer Kirkham, & MacDonald-Emes, 1997). Inclusion criteria were: any regulated nurse, including registered nurse (RN), licensed practical nurse (LPN), clinical nurse educator (CNE), or nurse manager who worked in rural ED settings in northern or central Alberta; and experience with nursing a PD patient or have requested that a patient seek PD treatment at another facility. Homogeneous sampling was done with Four locations with active treatment facilities in northern Alberta and were initially chosen based on the geographical distribution of PD patients of Alberta Kidney Care-North (AKC-N). Four additional sites were sought after some difficulty with recruitment. The study was approved by the University of Alberta Research Ethics Board (Pro00086829). Alberta Health Services (AHS) administrative approval was initially granted April 26, 2019 from Northern Alberta Clinical Trials and Research Centre, and subsequent approval for additional sites was obtained May 2019.

Nurse managers and CNEs were contacted via telephone and email in order to solicit assistance with staff recruitment. Participants were recruited with an information letter sent by email through their nurse managers and CNEs as well as with an information poster displayed in their staff rooms. Verbal consent was obtained prior to the interview.

The participants included two nurse managers, two CNEs, and three staff members. Two sites declined to participate and would not provide access to their staff, one citing lack of PD patients that attend their site. The researchers were also unable to recruit participants from three different sites with only one manager responding back that she believed that the staff were too busy and overwhelmed with site and other organizational priorities.

Because of the geographical locations of the sites, semi-structured interviews (18-38 minutes in duration) were conducted over the telephone. Interviews were audio-recorded and transcribed verbatim. All interviews were conducted by the principal investigator. While data saturation was sought and desired, the focus was on obtaining a deeper understanding of the participant perspective while still recognising that outliers may exist.

Data collection and analysis occurred in a concurrent and iterative fashion. We used a constant comparative approach, meaning that new data were compared to emerging themes from previous interviews to allow for further understanding of concepts and refinement of themes (Creswell, 2013; Thorne, Reimer Kirkham, & MacDonald-Emes, 1997; Thorne, Reimer Kirkham, & O'Flynn-Magee, 2004). To enhance the rigor of results, all transcripts were read individually by each of the three authors and consensus was reached on the categorisation of data into themes. Key categories were compared to identify similarities and were then organised into major themes and subthemes. Quotes were extracted to best represent the nurses' voice. Research team consensus was evident after discussion.

Results

Participants

All participants were female with 2 to 18 years of nursing experience. Two CNEs, two unit managers of EDs, two staff nurses, and one nurse in a clinical leadership role were interviewed. They were from four different sites in Alberta, three from Alberta Health Services North zone and one from AHS Central zone.

There were four main themes that emerged from the analysis: *education (along with the subtheme of resources), patient/family ability to perform PD, infrequent exposure, and physician supports.*

Education

Education was consistently described by participants as both a barrier and a facilitator for providing care in the rural ED. Having education about the treatment was perceived as the main facilitator of nurses' care of patients on PD. Participants had their own ideas about what education was needed or how the education could best be facilitated. "I think education is always the front-line answer to that because when people feel they're given the right information and they feel like they're getting good in-services and stuff, they feel more comfortable." Another noted that "once we knew what we were doing, it was pretty seamless. It was pretty flawless."

While education was seen as a facilitator, lack of education was seen as a barrier. One of the participants thought the barriers were "lack of training of the staff and also lack of resources." A CNE's role is to assist with clinical skill development of nurses, develop written policy and procedures, and help development and implement educational program (Brennan & Olsen, 2018). In most of the sites where nurses were interviewed for this study, it was apparent that there were issues with availability of a CNE. For instance, one participant stated, "I would say her workload (CNE) is so big that she's not always available." Participants described how they have to share the CNE amongst other rural facilities. "We do have an educator at our site. She is only a 0.4 and she's shared between us and another facility." It was also highlighted that nurses at these sites were not being prepared to care for PD patients. There was "no education so [we] scrambled to find it."

Some participants noted that it was difficult to get time off work to attend educational sessions. One stated, "every once in a while, we'll have training days, but if you are working that day, they're not giving you the day off to do it." Another one stated, "I actually, unfortunately, never got to the in-service probably because I was covering someone else to go." A few of the participants stated that PD education should be offered at minimum once a year. The CNEs who were interviewed noted that it's a struggle to provide staff with education sometimes: "It just depends on what's happening in Alberta Health Services, if they've got a lot of education being rolled out to them. They kind of have to pick and choose what they go to… They don't come unless it's really necessary."

Resources.

A sub-theme, resources, was identified. All but one participant discussed the resources that they would find or have found helpful in caring for patients on PD. Most of the participants described their ability to find resources such as PD policies on AHS internal website (Insite) when needed. “I searched Insite, went into the NARP homepage and into their manuals, and I found some PD training information and education.” Currently Alberta Kidney Care has a PD nurse on call daily. Participants really appreciated this resource. We would be “calling the unit and they are fantastically helpful.” Another support was the resourcefulness of the staff at these sites, themselves. All participants discussed how they would go about finding resources if needed and a few of the CNE and managers mentioned the importance of teaching staff to be able to find resources independently. “What we tend to do is show them how to access the information because you’re not going to remember all of this.”

While having resources was a facilitator, not having them was a barrier to being able to care for a PD patient. There was a juxtaposition in that all the participants interviewed were willing to seek the information to provide the care while at the same time they described how not all the staff would be willing to do so. “There is resistance sometimes with doing new things. Not everyone is willing to be that self-initiator/self-learner.” One participant who was an educator found that there was “zero buy-in for ED staff” at her site and that they would have no problem saying “no” to doing PD due to lack of training or comfort level. Other participants discussed the importance of management being supportive to PD and getting educational resources. “We work through the managers.” Another one noted that “it is up to the management and supervisory level to implement [PD education].”

Patient/Family Ability to Perform PD

Patient/family ability to perform PD was described as a facilitator by the participants. The participants all described how the patients or their families were independent with their PD and that they knew best what was needed for them. “It seems to go pretty straightforward…the training that they get, that the patient and family get is very detailed. That prepares them very well.” This was described as being very helpful for the staff to be able to do their job of caring for the patient. “They were just so knowledgeable…I just think that’s great because you are empowering the patient and it makes my job a lot easier.” Another participant noted the families’ involvement in care: “It’s usually a team effort, right, where…if the patient isn’t feeling really well, then the family sometimes takes over, but a bit of a mix.”

Infrequent Exposure

Participants discussed how infrequently PD was seen at their sites. They also noted that patients were typically being seen for issues not related to PD, and that PD care was secondary. One nurse participant said, “I haven’t even heard of a [PD] patient coming through in a long time or any issues of any patients on PD coming through.” Participants describe their own or their colleagues’ lack of comfort. “My degree of comfort is low.” While acknowledging their discomfort, they were all cognizant of the rural context in which they worked. “You have to know so much about so many different topics that you’re the jack of all trades… and it’s overwhelming.” Another participant mentioned how staff would feel comfortable right after education but “if they don’t see it for a while, they [nurses] become uncomfortable pretty quickly because they’re not doing it as frequently to get that comfort level.” All participants mentioned that receiving education or access to resources increased level of comfort with providing PD care.

Physician Support

Lack of physician support at the rural sites was highlighted as a barrier for patients to receive care because some of them did not support offering care to PD patients in the ED. One participant thought that because doctors were locums and not part of the community, they lacked commitment. “They’re not as invested as much as we are in obtaining that knowledge and the in-services, and implementing new programs, and things like that like we are.” Another believed that “it’s not just physician buy-in, but its physicians’ willingness to provide direction to staff.”

While lack of physician support at the sites was listed as a potential barrier, so was the process for consulting nephrologists in the city. “The unfortunate thing is when our physician does then get on the phone and consult, say nephrology on-call through RAAPID [the referral, access, advice, placement, information and destination program], that can take anywhere from an hour or two to get a hold of somebody and get that consult done.” Another participant discussed how it’s typically the nurses who call the PD unit and relay the information to physicians but that in her opinion, some rural physicians are reluctant to listen to nurses’ suggestions. “Depending on the physician, they either will or won’t [call the nephrologist] … Sometimes the physicians, I don’t know for what reason, will not take recommendations or suggestions from the nurses as readily as in bigger centers.”

Discussion

In this qualitative study, we have identified barriers and facilitators for rural emergency department nurses to provide PD care. Themes that emerged included education (with the subtheme of resources), patients’/families’ ability to perform PD, infrequent exposure to PD patients, and lack of physician support. Some of the themes that emerged were identified as both barriers and facilitators. There are no studies that explicitly look at barriers and facilitators to provide PD care, thus our findings advance the field.

There is limited literature that deals with how non-PD staff provide PD care to patients. The studies that were found relate to assisted-PD programs (Bechade, Lobbedez, Ivarsen, & Povlsen, 2015; Franco, Fernandes, Ribeiro, Qureshi, Divino-Filho, & da Gloria Lima, 2013; Lobbedez, Moldovan, Lacame, Hurault de Ligny, El Haggan, & Ryckelynck, 2006; Oliver, Quinn, Richardson, Kiss, Lamping, & Manns, 2007; Povlsen, & Ivarsen, 2005; Xu, Zhuo, Yang, & Dong, 2012). In these reports, training requirements of non-PD staff ranged from 5-20 hours of both theoretical and practical experience (Giuliani, Nayak Karopadi, Prieto-Velasco, Milan Manani, Crepaldi, & Ronco, 2017). It was also found that peritonitis rates regularly reported in assisted PD programs varied between 1/25 to 1/36 patient-months (Brown, Dratwa, & Povlsen, 2007), which is well within the current guideline recommendations (Li, Szeto, Piraino, de Arteaga, Fan, Figueiredo et al., 2016). Interestingly, one study reported a higher probability of being peritonitis-free at 1 year for a family-assisted PD patient when compared with a nurse-assisted PD patient (70 vs 59%) (Verger, Duman, Durand, Veniez, Fabre, & Ryckelynck, 2007), which may highlight the advantage of family support.

While monitoring for infections is important, so is ensuring high quality PD training programs. The International Society of Peritoneal Dialysis (ISPD) has provided a detailed description of the recommended practice of PD training (Bernardini, Price, & Figueiredo, 2006; Figueiredo et al., 2016), which the AKC-N follows. While patients are taught what to do if they develop a cloudy bag [sign of peritonitis] or are having problems with their PD, taking appropriate action can be extremely challenging for nursing and medical staff with no previous dialysis experience (Carruthers & Warr, 2004). Participants discussed the many resources that were provided to them either by the patient or the PD program. Clear step-by-step instructions, guidelines, and having videos were helpful for the participants, especially in managing peritonitis.

Participants identified that PD was seen infrequently. Patients on dialysis present more frequently to the ED than non-renal patients (Czyzewski, Wyzgal, Czyzewska, & Szarpak, 2017; Komenda, et al., 2018; Ronksley et al., 2017), but due to the geographical spread of patients one might surmise that's why PD patients are not seen more regularly. Rural nursing has been characterized as fundamentally different from nursing in urban areas due to factors such as geographic and professional isolation, limited access to resources, social connections in the community, and a varied and often extended scope of practice (Bigbee, 1993; Bushy, 2005; Long & Weinert, 1989; MacLeod, 1998; MacLeod, Martin Misener, Banks, Morton, & Bentham, 2008). Nurses practicing in rural settings regard themselves as "jack of all trades" and require a wide range of skill sets, which can be challenging for clinicians in rural areas to maintain through continuing education (Zibrik, MacLeod, & Zimmer, 2010). These challenges were illuminated by participants in our study. Further, inadequate orientation to rural nursing, combined with a lack of continuing education opportunities addressing emergency and critical care, creates problems for maintenance of competence (Sedgwick & Pijl-Zieber, 2015). Considine and Hood (2000) conducted a study that assessed CNE role in the ED and its impact on nursing. They found that there were increases in the reported adequacy of in-service education, level of clinical support and satisfaction with current level of knowledge in emergency nursing.

A surprising finding was the lack of perceived physician support that the nurses experienced. In our study, some participants reported that some physicians were reluctant to listen to nurses' suggestions. In comparison to their urban counterparts, nurses and physicians in rural settings face more challenging working conditions. In addition to the difficult working conditions common to urban settings, specific challenges to rural areas include limited access to specialized care, geographical distance from specialized centers, poor emergency transport capabilities, and limited training (Pavloff, Farthing, & Duff, 2017). Interestingly, nurses reported having a difficult time getting physicians to communicate directly with the nephrologist. Some studies have identified that back-up from local and regional colleagues is important, and expectations regarding support influence physicians' decisions to practice rurally (Chauhan, Jong, & Buske, 2010; Cameron, Este, & Worthington, 2012; Helland, Westfall, Camargo, Rogers, & Ginde, 2010). Further investment into PD could enhance knowledge and comfort which will provide better care for the people on PD.

Limitations

Our sample size was relatively small and participants were only from one region of the province. Hence, the findings may not be generalizable outside of northern Alberta. The findings may also not be representative because it was difficult to recruit from some sites given reports of infrequent exposure to PD patients, site transitions, or AHS-wide program demands on the nurses’ time. Access to these sites may have illuminated further facilitators or barriers in the province. Participants from the study discussed the importance of management support so perhaps if managers had been more open and supportive of the study, more nurses might have been recruited. Another limitation may have been that majority of participants were either managers or CNEs, and one clinical coordinator so results may not be entirely representative of rural nurses who are typically the ones managing the patients.

Areas for further research may include systematic literature reviews on the types of programs currently available for rural and remote RN continuing education and the development of any tools to measure rural nurse competency. Wilkinson (2013) undertook a review of competency assessment of students and only found four reliable and valid self-reporting tools for RNs and concluded the need for a greater focus on competency development once nurses have completed their formal education. Additionally, further research is required to identify the types of educational supports currently offered to rural nurses. It would be interesting to study rural physicians' perceived barriers and facilitators to providing PD care.

Conclusion

As renal programs strive to increase numbers of patients on PD, it is important to consider the supports that patients require to remain in their home and community. One way to facilitate more PD is to attempt to remove barriers to caring for these patients. The findings from our study highlight the need for nurses working in these sites to be educated and have proper resources in order to care for these patients. PD programs will need to continue to provide high quality care, and ensure that patients and families have the competence to do PD.

Highlighted is the role of collaboration needed between a team of people including the PD training center and staff, the patient and family, and rural nurses and physicians. It has been posited that those organizations with a positive professional practice environment, characterized by healthy and respectful nurse-physician relationships, are better able to recruit and retain the best nurses; and that this, coupled with higher levels of communication, respect, and collaboration between nurses and physicians, contribute to a better environment for patients (Galletta et al., 2013; Nelson, King, & Brodine, 2008). These findings need to be further validated and considered in future dialogues in order to continue to improve the care provided in EDs in rural Alberta.

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Table 1: Participant Demographics

	Gender	Years nursing	Nursing Role	Level of Education
Participant 1	female		Unit manager	BScN
Participant 2	female	18	Other (clinical coordinator)	BScN
Participant 3	female	2	Staff Nurse	LPN
Participant 4	female	17	CNE	BScN
Participant 5	female	13	Unit manager	BScN
Participant 6	female	2	Staff nurse	BScN
Participant 7	female	15	CNE	BScN

Table 2: Participant Quotes

	Facilitators	Barriers
Education	“The patient actually trained me how to do it. I have no idea how to do it.”	“Orientations are a joke. Well our orientations are-it’s a rural center.”
	“That left as vulnerable to- we’re not really trained to do this, so we need to get some education here.”	“We share resources, so workloads are heavy. We often feel we want more education and we want our educator to be present but we’re only one piece of their puzzle.”
	“If you have somebody coming to your site or show up at your site who is from your community who’s a PD patient, then I think, yes your staff should have the training.”	“We could definitely probably use more [education] but we don’t see them very often, honestly.”
	“I think education is always the front-line answer to that because when people feel they’re given the right information and they feel like they’re getting good in-services and stuff they feel more comfortable.”	“The challenge is the education is not mandatory…The ER I got zero buy-in so far from staff…its up to the management and supervisory level to implement.”
		“There needs to be a standardized education plan for it and then how are you going to maintain minimal competence.”
		“It’s not a difficult skill but the more challenging part is knowing the whole process.”
		“Keeping people educated is a challenge, because you educate one group of people, you get them where you’d like them to be or get a solid foundation, and then they’re gone.”
		“I think part of it is the lack of opportunity to maintain competency when they gain it.”
Resources	“It’s pretty straightforward just because they have given us, like I said, the full peritoneal dialysis, peritonitis management and exactly what we have to follow which is really good.”	“We share resources, so workloads are heavy. We often feel we want more education and we want our educator to be present but we’re only one piece of their puzzle.”
	“I am comfortable going out and looking for those resources and	“There is resistance sometimes with doing new things, not everyone is

	self-teaching, but I would have been hesitant because it is something new, right?”	willing to be that self-initiator and self learner.”
Infrequency of PD		“The challenge is one, the frequency of exposure to these patients, and the exposure comes with no warning.” “No, I would have to say this particular lady is the only one that I’ve seen.” “Its challenging to stay current with it because it is so infrequent.”
Patient/family ability to perform PD	“The patient actually trained me how to do it. I have no idea how to do it.” “The family really does all of it.” “She’s very independent with it. I did nothing.” “They’re very well educated before they leave Edmonton.” “It seems to go pretty straightforward…the training that they get, that the patient and family get is very detailed: that prepares them very well.”	
Physician Supports		“Doctors to be honest, doctors are a huge barrier because our doctors are not part of the community.” “It’s not just physician buy-in, but its physician’s willingness to provide direction to the staff.” “The really challenging part is the rural physicians… they have no clue how to manage the patient’s peritoneal dialysis. They don’t, they won’t have anything to do with it.”
		“That physician has to be willing to get that prescription for us whether they’re consulting nephrology or whether they’re comfortable doing that themselves.”

Chapter 3

Discussion

Given that dialysis programs are looking to increase numbers of patients on PD, it is important to consider ways to support patients who choose to undergo PD. When patients live far from a dialysis center and require medical care, they will go to their nearest emergency department. Because health care providers such as nurses in rural areas are generally regarded as generalists, it can be difficult to maintain competence or comfort with a skill or procedure not seen often. I undertook a study to examine barriers and facilitators for rural emergency department nurses to provide PD care. To our knowledge this was the first study that looked at this issue. Four themes and one subtheme were found which can be used to provide strategies and solutions to address the barriers to providing care to these patients. These include: *education (along with the subtheme of resources), patient/family ability to perform PD, infrequent exposure, and physician supports.*

Education and Resources

Education was identified as being very important for PD care to occur. The autonomy, competency, and expertise that is expected of RNs working in rural and remote locations requires educational supports (Pavloff, Farthing & Duff, 2017). Lack of educational supports continues to come up in the literature around rural nursing. In Alberta, 16.4 % of patients live outside of a major center and require care by a rural center (Census of Canada, 2016). There is much literature that looks at the challenges of recruitment and retention of staff in rural areas. Being able to provide supportive education that meets the specific learning needs of staff in rural centers may be one way to improve retention.

Initial nursing education preparation and continuing education opportunities are needed to address competency and safety for rural RNs and patients. Rural nursing continuing education is required in the areas of: comprehensive specialized nursing practice for direct patient care, unanticipated events, non-direct patient care, and advanced specialty courses (Pavloff, Farthing, & Duff, 2017). Kulig et al. (2003) suggest that the responsibilities of Canadian rural nurses have not been adequately supported by relevant educational programs to prepare nurses for the generalist roles inherent in non-urban settings.

Nurses working in rural settings often lack the educational and practice-related support that is available to their urban counterparts and can face a wide range of challenges, including professional and geographic isolation and limited resources (Bushy, 2005). Rural nurses have stated that education providers must be flexible, and to do this they must understand the role of the rural nurse and be able to identify the specific needs of rural nursing practice (Hegney, 1993). While we did not address education needs specifically, having education about PD was highlighted by all participants as being important in order to care for PD patients. PD is a specialty skill that is not taught in nursing schools and as such, nurses are seldom exposed to PD unless these patients need urgent care. Education that is available to rural nurses usually is offered from the perspective of the urban centre and does not take into consideration the rural context.

It is apparent that non-PD staff are able to be adequately trained to provide PD care. In one urban Canadian study, researchers found that in order to provide this service, sufficient nurses needed to be trained from the community-based nursing agency and there was a critical mass of patients available to maintain the community nurses' PD skills (Oliver, et al, 2007). This may be a challenge in a rural setting due to limited numbers of staff available and a lack of homecare resources. Also due to geographic distance, patients may be spread out. Rural sites need to look at how to best provide services to both staff and patients in their communities. Carruthers and Warr (2004) found that the success of PD programs relies on five key elements including: the experience and skill level of the PD nurses, the willingness of remote area health professionals, patient and family participation and involvement in care, the empathy of the wider remote community to help the patient persist in successfully managing their dialysis, and good, caring communication between all people involved.

Rural nurses and physicians have reported dissatisfaction with access to continuing education. Providing training opportunities could improve ED professionals' knowledge, skills, and self-confidence, subsequently reducing work-related stress (Pavloff, Farthing, & Duff, 2017). A study that looked specifically at locum physicians also found that a huge source of dissatisfaction was around access to ongoing education and training (McKevitt, Morgan, & Hudson, 1999). It is important for communities to be prepared to care for people in their community. An environmental scan may be required to assess the needs of medical staff so that they can be prepared to care for these patients, should a need arise. Some ways to support these staff include rural sites making CNE supports more robust, use of telehealth and/or other virtual health delivery models such as short, "need-to-know," focused videos to address the stated knowledge and practice gaps and determining needs of physician group so they readily support nurses and patients.

Another concern that was highlighted is the difficulty in obtaining time away from work to attend continuing education (Jukkala, Henly & Lindeke, 2008). If rural nurses are required to be a "jack of all" trades, then they need to be provided with the supports to be able to obtain the education they need. Educational support can foster clinical competence and improved patient outcomes (Schmalenberg et al., 2008), and the availability of high-quality professional education has been linked to job satisfaction (Levett-Jones, 2005). Making more continuing education opportunities available can improve workplace satisfaction, especially when the education is tailored particularly to the needs of the participants (Baernholdt & Mark, 2009; Jukkala et al., 2008). However, although clinical education may be useful, rural health care organizations may find it difficult to provide the needed education. They may lack nurse experts who are qualified to produce such education, or they may not have sufficient finances to support program development or the attendance of nurses at clinical education offerings (McCoy, 2009). There may be insufficient numbers of nurses to replace those who leave the community to attend educational programs or conferences.

Infrequent Exposure

Participants identified that PD was seen infrequently. The lack of frequency of presentation may also be related to nurses' clinical competence. PD could be considered a low volume high stakes procedure. Wolf and Deleo (2013) found that in their study on ED education needs, participants identified educational needs relating to high risk procedures that are not performed often ("low-volume high-stakes patient situations"), patients who had special devices, and post-operative patients who had new surgical procedures. Participants mention the difficulty with maintaining competence and even with how often education should be provided.

Clinical competence is challenging to maintain in any nursing setting, but the continuing education and proficiency of nurses in the rural setting may be particularly difficult to maintain due to limited resources (Trossman, 2001). Nurse educators in the rural setting not only have faced the challenge of encouraging the integration of evidence-based guidelines into practice but also have been tasked with maintaining an adequate level of competency among nursing staff responsible for performing low-frequency, high-risk procedures (Banks, Gilmartin, & Fink, 2010). Rural nurses require significant autonomy to fulfill a variety of roles included in their scope of practice (such as leader, educator, and advocate) to address patient care. Addressing professional development competency in rural RN practice is challenging in non-urban areas, as continuing education has financial, time, and access implications (Penz,et al., 2007).

Physician Support

Studies looking at relationships between nurses and physicians tend to focus on recruitment and retention strategies (Bragard, Dupuis & Fleet, 2015; Canadian Association of Emergency Physicians, 1997; Grobler, Marais, Mabunda, Marindi, Reuter, & Volmink, 2009). Higher levels of RNs' job satisfaction as well as recruitment and retention have been directly linked to practice environments that encourage professional nurse autonomy, and collaboration between nurses and physicians (Byrne, Keuter, Voell, & Larson, 2000; Rafferty et al., 2001; Rosenstein, 2002). In our study, some participants reported that some physicians were unlikely to listen to nurses' suggestions. Further to this, many of the physicians were locum physicians, and Kolhatkar, Keesey, Bluman, Lynn, and Wilkinson (2017) found that locums may not appreciate the rural culture or value the interprofessional relationships. Qualitative work from Canada, Australia, and the USA has identified many factors associated with increased professional satisfaction and retention for rural and urban primary care physicians, including flexible and innovative work environments, having strong teams with interprofessional support, and access to educational opportunities (Cole, Chen, Ford, Phillips, & Stevens, 2013; Friedberg, Chen, Van Busum, Aunon, Pham, Caloyeras et al., 2014; Hansen, Pit, Honeyman & Barclay, 2013; Phillips, Hustedde, Bjorkman, Prasad, Sola, Wendling et al, 2016; Song, Ryan, Tendulkar, Fisher, Martin, Peters et al., 2017). Although it may appear that RNs working within smaller hospitals or smaller nursing units have higher levels of autonomy and more collaborative relationships with physicians, there is minimal research to support this assumption (Penz & Stewart, 2008).

Some scholars have found that rural physicians are keenly aware that they must be proficient in multiple skills and procedures and that due to lack of access to the patient volume necessary to maintain proficiency, rural physicians experience anxiety around the deterioration of procedural skills over time, and identify these skills as a top learning need (Curran, Keegan, Parsons, Rideout, Tannenbaum, Dumoulin et al., 2007; Curran, Fleet, & Greene, 2012; Jarvis-Selinger, Liman, Stacy, Bluman, Ho, & Abizadeh, 2009). It is interesting then that there is a lack of buy-in to learn or maintain skills around dialysis therapy. The reasons for this are not clear but structurally, physicians have become progressively more subspecialized, diffusing responsibility and challenging the ability to integrate care (Bujak, & Bartholomew, 2011). At the same time Curran, Fleet, and Greene (2012), suggest discrepancies in skill levels among team members, lack of communication among the team, and team leaders who are not always up to date on their skills can affect performance. Effective teamwork and communication skills have been identified as cornerstones of safe, reliable, and high-quality health care (Greiner & Knebel, 2003).

As it was first described as the ‘doctor-nurse game’ in 1967 (Stein, 1968), the challenges in communicating effectively between health professionals persist today (O’Daniel & Rosenstein, 2008). Stein (1968) described the inherent complex and different ways in which nurses and physicians engage one another. These ineffective communication patterns between nurses and physicians have been linked with inadvertent patient outcomes, specifically prolonged patient stays, and patient harm from treatment delays and errors (Ellison, 2015; O’Daniel & Rosenstein, 2008). Bujak and Bartholomew (2011) looked at the factors contributing to ineffective nurse–physician communication including the inherent ways that nurses and physicians communicate (Rosenthal, 2013), their understanding of others’ respective roles (O’Daniel & Rosenstein, 2008), disruptive practice environments (O’Daniel & Rosenstein, 2008; Rosenthal, 2013) and physician dominance. Vaismoradi, Salsali, Esmaeilpour, and Cheraghi, (2011) found that physicians limited interactions to merely informing nurses of patient issues, disregarding their opinions or decisions which left nurses dissatisfied with nurse–physician communication. Insufficient information, due to inadequate knowledge of patients and their conditions, frustrated nurses and physicians as care/treatment plans could not be fully executed (Tjia et al., 2009). At the same time, physicians were dissatisfied when nurses were unprepared with required information when communicating with them (Tjia et al., 2009). Clearly these issues have continued since first being brought to light and they continue to erode the care that patients receive and affect the relationships of nurses and physicians. If changes are to be made, leadership initiatives effecting systematic changes are crucial in supporting nurses to ‘speak up’, and establish a culture of effective interprofessional communication (Crawford, Omery, & Seago, 2012). Also needed is the alignment of education of nurses and physicians in collaborative competencies, inter-professional practice, and interprofessional communication, through interprofessional education from undergraduate to post qualification levels. (Ellison, 2015; Onishi, Komi, &Kanda, 2013).

Limitations

A limitation was our small sample size. We also only obtained data from the northern zone of the province and only one participant from the central zone of Alberta Health Services (AHS). It was difficult to recruit from some sites given reports of infrequent exposure to PD patients, site transitions, or AHS-wide program demands on the nurses’ time. Access to these sites may have illuminated further facilitators or barriers in the province.

Another limitation was in how the participants were contacted for the study. I had to gain access to participants through an email sent out from unit managers and/or the CNE. I think if I would have been able to attend to the sites or recruit directly, it may have increased participation as it eliminates a step that participants would have to take and also allows for a rapport to be established with potential interviewees. It would also make it more personal than information emailed from their manager, who may not have truly understood the purpose of the study or who may have been biased about the study. As most of the participants were either managers or CNEs, results may not be entirely representative of rural nurses who are typically the ones managing the patients.

Future Directions

Areas for further research may include identifying the types of educational supports currently offered in various centres in Canada and in other countries with rural communities. Systematic literature reviews, including grey literature, on the types of programs currently available for rural and remote RN continuing education and the development of any tools to measure rural nurse competency would be useful. In particular, a critical realist review would also be helpful to help further explore current practices. Wilkinson (2013) undertook a review of competency assessment of students and only found four self-reporting tools for RNs that included psychometric evaluations and concluded the need for a greater focus on competency development once nurses have completed their formal education

Rural areas need to be creative with how they offer education to staff. The literature supports tele-learning as an effective means of delivering education that can achieve learning outcomes that are comparable to traditional face-to-face learning methods (Tomlinson et al., 2013). The utility of tele-learning for enabling distance learning opportunities should be considered for providing PD education. Options such as just-in-time training or even offering a yearly session that staff could attend to refresh are some ways education could be offered. The role of a nurse champion, similar to local opinion leader, has been suggested as a potentially important role for helping to influence and sustain best practice in the workplace (White, 2011). These champions could receive PD education and act as a resource for other staff at their site.

Assessing management support for education in rural sites should be considered further. Dingley, Daugherty, Derieg and Persing (2008) found that the degree of leadership support may be an important factor for engagement of staff for educational initiatives. The need for on-site clinical leadership alongside locally relevant and rurally-focused practice resources has been recognized for decades, and investment in this area could better support innovations and nurses, especially new practitioners (MacLeod, 1999). Nurses have indicated several key areas that were important for rural nursing including health assessment, triage, nurse managed care and treatment of common and predictable health problems, Indigenous health, care of older persons, perinatal care, critical care, trauma and emergency care, chronic disease management, palliative care, wound care and mental health and substance use (MacLeod et al., 2008).While dialysis is not explicitly listed, if home dialysis modalities are going to continue to expand, more attention needs to be given to supports needed for non-renal staff to care for these patients.

A surprising finding was the nurses’ perceptions of lack of physician support for PD management. This is another area that warrants further study. It would be interesting to study rural physicians’ perceived barriers and facilitators to providing PD care. Dingley, Daugherty, Derieg and Persing (2008) found an issue of “problematic time” (i.e., the time nurses spent attempting, but failing, to communicate with the correct provider or searching for information to determine an appropriate provider or phone number) was an important system-related finding.

Having access to Referral, Access, Advice, Placement, Information & Destination (RAAPID) is one way that access to specialist care is provided, however work needs to be undertaken to assess the barriers that arise with accessing this service, as some participants described the time factor when using it. RAAPID is a provincial call centre within AHS that facilitates transfers and or consultations with a tertiary care facility or a specialist (physician to physician) as well as coordinating repatriation of patients to their home community (Alberta Health Services, n.d.).

Perhaps identifying the needs of rural providers trying to provide dialysis care to patients in their communities and then having an algorithm handy at the time of a call, would result in more appropriate and timely access to PD care. This could also be a way for physicians to actively engage in the process of care for these patients. More research is needed to assess how this could be utilized to provide care for these patients.

Conclusion

This study adds to the literature as no other studies have formally looked at barriers and facilitators for rural ED nurses to provide PD care. As programs continue to explore ways to increase numbers of patients on PD, it is important to consider the supports that patients require to remain in their home and community. One way to facilitate this is to attempt to remove barriers to caring for these patients. The findings from our study highlight the importance of adequate support and education (as well as resources for education) for non-PD health care providers in order to provide PD care. If PD numbers are to continue to grow, understanding the barriers and facilitators to providing this care is important.

From our results, it seems there are both modifiable barriers and facilitators for rural ED nurses to provide PD care. Education and resources to provide care to PD patients are important facilitators while at the same time, the lack of proper education and resources were barriers for staff to do PD. Participants were able to articulate education needs and were aware of the limitations their rural setting placed on them. In order to support generalist practice, rural and remote nurses agree that there is a need to improve basic nursing education and create relevant, responsive continuing education (MacLeod et al., 2008; MacLeod & Place, 2015). Also highlighted was the importance of collaboration among a team of people including the PD training center and staff, the patient and family, and rural nurses and physicians. Patients and their family's ability to carry out PD was a significant facilitator as they provided needed support to the staff when providing PD care. Continuing to provide good education to patients will remain important for PD training centers.

PD care in rural areas can be possible with foresight, planning, and buy-in of a community. Nurses provide the bulk of healthcare in many rural communities, and are vital in providing patient-centred care. However, they require the necessary supports to help build healthy communities, support informed decision making, and enable equitable access to services (NNPBC, 2018). Physicians are also required in order to provide this care and need to keep communication open and be willing to engage in the processes to remove barriers to providing this care. PD can be managed in a rural setting with foresight, planning, and a willingness of staff to find ways to remove the barriers to PD care.

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Appendices

Appendix 1

Participant Demographics

1. Gender
2. Years of nursing experience
3. Nursing Role
4. Level of Education

	Gender	**Years nursing**	**Nursing Role**	**Level of Education**
Participant 1	female		Unit manager	BScN
Participant 2	female	18	Other (clinical coordinator)	BScN
Participant 3	female	2	Staff Nurse	LPN
Participant 4	female	17	CNE	BScN
Participant 5	female	13	Unit manager	BScN
Participant 6	female	2	Staff nurse	BScN
Participant 7	female	15	CNE	BScN

Appendix 2

Sample Interview Questions

1. Have you ever cared for a patient undergoing peritoneal dialysis?
    a. If yes, how comfortable did you feel in providing this care?
    b. Where did you look for resources to provide this care?
2. What are the facilitators to providing PD support in your community or hospital?
3. What resources do nurses need to provide that support?
4. What are the challenges/barriers to providing PD support?
5. What do you think the barriers and/or facilitators are for patients to have to travel to Edmonton to receive treatment related to PD?
6. Anything else you want to add or tell me?

Appendix 3

Barriers and Facilitators to Rural Peritoneal Dialysis (PD) Care Study
University of Alberta Ethics Number: Pro0008682
Opportunity to share your voice on facilitators and barriers to caring for rural PD patients

You are invited to share your ideas and opinions on care of PD patients in rural emergency departments.

Who: Nurses, educators, & managers who have cared for a PD patient or had to transfer a PD patient to another facility.

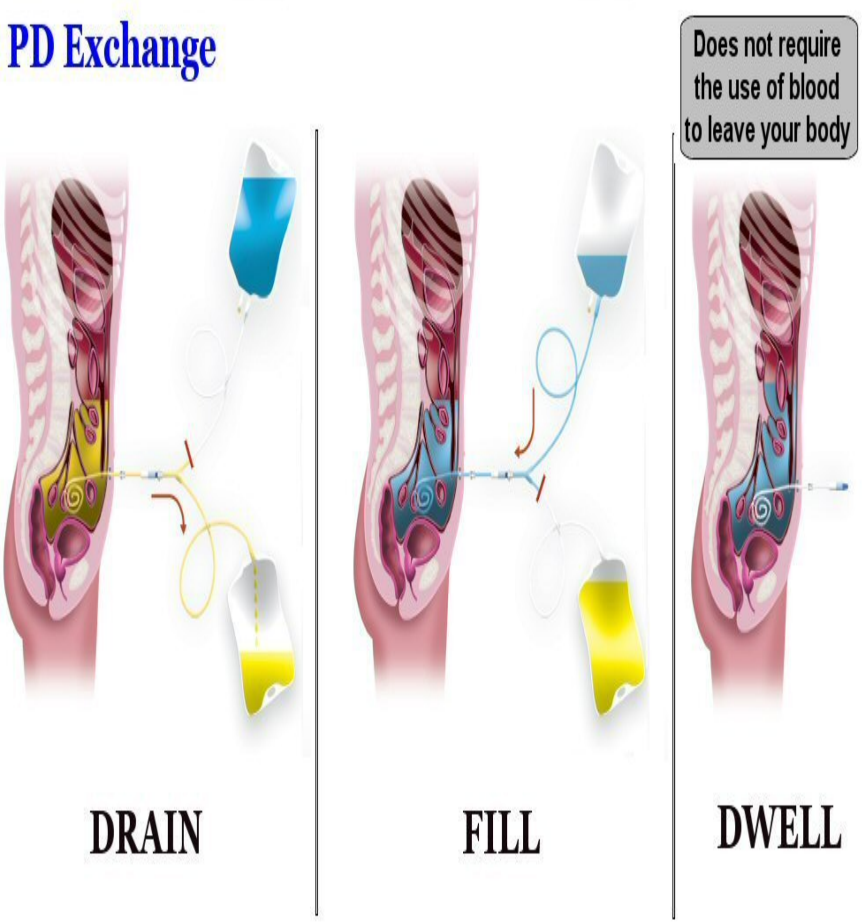
When: Arrange a phone interview with a time and date that works for your busy schedule.

How: Contact Lisa Lillebuen who is a registered nurse conducting interviews to hear about your experience caring for rural PD patients. This work is part of her masters thesis.

Please contact Lisa via email or phone to arrange your interview or to learn more.

Kaye@ualberta.ca
780-903-7405

Risks: No known risks to participation and all information will remain confidential



Appendix 4

INFORMATION LETTER

Study Title: Facilitators and Barriers for Rural Emergency Department Nurses to Provide Peritoneal Dialysis Care.
University of Alberta Ethics Number: Pro0008682

Research Investigator:
Lisa Lillebuen
11160 39A Ave
Edmonton, AB
Kaye@ualberta.ca
780-903-7405

Supervisor:
Kara Schick-Makaroff
5-295 Edmonton Clinic Health Academy
University of Alberta, Edmonton, AB
780-492-9043
kara.schickmakaroff@ualberta.ca

Background

- You are invited to participate in the study on the facilitators and barriers for rural emergency department nurses to provide peritoneal dialysis care. You are being asked to participate in this study because of your work in a rural emergency department and because your insight into facilitators and barriers to providing care to peritoneal dialysis patients.
- Since limited literature is available on facilitators and barriers of emergency care for rural PD patients in rural EDs, we are planning a qualitative study to explore these factors in order to address issues to enhance care of rural PD patients.
- The results of this study will be used for my thesis. It may also be used to support policy and/or education changes related to peritoneal dialysis care for rural patients.

Purpose

- As Alberta is geographically diverse, many patients do not live near a center that offers PD. When complications arise, urgent treatment may be needed in a rural emergency department (ED). However, not all rural EDs are willing to provide this treatment. This means that patients either have to be medically transferred or they must drive to Edmonton or Red Deer to receive PD care. Hence, the purpose of this study is to explore the facilitators and barriers for Northern Alberta rural emergency department nurses to provide peritoneal dialysis care for patients.

Study Procedures

- You will be chosen based on your experience with having cared for a PD patient. If you have never cared for a PD patient but had to request they received treatment at another facility, you are also invited to participate.
- We will conduct one telephone interview with you, using a semi-structured interview guide to collect information relating to facilitators and barriers of providing PD care. The interview will take approximately 60 minutes.
- Your interview will also be listened to by coinvestigators of the study as they will be helping with checking observations about the data and verifying findings.

- I plan to use a digital recorder (no cloud capabilities) in order to conduct the interview. I plan to upload the interview to a secure google drive on the Faculty of Nursing intranet and then delete the file from the recorder.
- If you are interested, once the final results of the study are complete, you will be given the results of the final project. You can also have access to your individual transcript which can be emailed or mailed by post to you home address.

Benefits

- There are no known risks to this study. There may not be any benefits to participating; however, a potential benefit is for you to have a say in what resources could help you in your nursing practice to care for PD patients. This may also be potentially beneficial to the PD patients who reside in your rural area, as it may generate some changes to the PD care they receive.
- There are no costs associated to you for participating in this study.

Risk

- There are no known risks to being in this study, however if we learn anything during the research that may affect your willingness to continue being in the study, we will tell you right away.

Voluntary Participation

- You are under no obligation to participate in this study. The participation is completely voluntary. During the interview, you are not obliged to answer any specific questions even if participating in the study.
- By participating in the interview your consent is implied.
- Even if you agree to be in the study you can change your mind and withdraw at any time without any penalty to you. Should you choose to withdraw from the study, we will delete your interview data from the google drive on the Faculty of Nursing intranet. Deletion of interview data can occur up until analysis of the data. After that date, the data will be anonymized and it will be impossible to remove your data.

Confidentiality & Anonymity

- This research will be used for the writing of my thesis as well as for a research article which I intend to publish. Participants' confidentiality will be maintained in all the presented work through the use of code names and numbers. I will remove any identifying information about the hospital, nurse, or patients.
- The only people who will have access to the data will be myself as well as my co-investigators.
- Data will be kept secured for 5 years and will then be destroyed using confidential shredding services. Electronic files will be deleted after 5 years.
- Participants are able to receive a copy of the finished report which can either be emailed to you or sent to your home address via post mail. Participants can express interest in receiving this report when I ask during our phone interview. If participants change their mind after the phone interview, they will be able to email me to either request copy or ask to not receive one.

Further Information

- If you have any further questions regarding this study, please do not hesitate to contact:
    a. Primary Investigator: Lisa Lillebuen 780-903-7405 kaye@ualberta.ca
    b. Co-investigator: Kara Schick-Makaroff 780-492-9043 kara.schickmakaroff@ualberta.ca
    c. Co-investigator: Anita Molzahn 780-904-7825 anita.molzahn@ualberta.ca
    d. Co-investigator: Stephanie Thompson st11@ualberta.ca
- "The plan for this study has been reviewed by a Research Ethics Board at the University of Alberta. If you have questions about your rights or how research should be conducted, you can call (780) 492-2615. This office is independent of the researchers."

Appendix 5
Email from Unit Managers and CNEs to staff for study recruitment

Study Title: Facilitators and Barriers for Rural Emergency Department Nurses to Provide Peritoneal Dialysis Care.

University of Alberta Ethics Number: Pro0008682

You and your staff are invited to participate in a study on the facilitators and barriers for rural emergency department nurses to provide peritoneal dialysis (PD) care. You are receiving this email on behalf of your manager or CNE as I do not have access to your personal information including Alberta Health Services email. You are being asked to participate in this study because of your work in a rural emergency department and because you may have some insight into facilitators and barriers to providing care to peritoneal dialysis patients.

It is my hope to recruit some nursing staff who work in a rural emergency department who have either cared for a patient requiring PD or have had to transfer a patient to another facility to support the PD care. We will conduct one telephone interview with you, using a semi-structured interview guide to collect information relating to facilitators and barriers of providing PD care. The interview will take approximately 60 minutes. This study is being used for partial fulfillment of my master's thesis.

Please read the attached information letter and please feel free to contact me directly if you have any questions or wish to participate in this study.

Thank you,
Lisa Lillebuen
Primary Investigator
780-903-7405 kaye@ualberta.ca

Kara Schick-Makaroff
Co-investigator
780-492-9043 kara.schickmakaroff@ualberta.ca

Anita Molzahn
Co-investigator
780-904-7825 Anita.molzahn@ualberta.ca

Stephanie Thompson
Co-investigator
st11@ualberta.ca