University of Alberta

A day in the life of a Health Care Aide: Frontline perspectives on when, where, and how information and communication technologies could be helpful

by

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A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE
in
REHABILITATION SCIENCE – OCCUPATIONAL THERAPY

FACULTY OF REHABILITATION MEDICINE

Fall 2012
Edmonton, Alberta

Abstract

Background: The purpose of this focused ethnographic study was to gather a firsthand account of a day on the life of a Health Care Aide (HCA) in rural Alberta to see when, where, and how information and communication technologies (ICTs) could help support their work. *Methods:* Four HCAs working out of a rural home care office were shadowed and interviewed over two weeks. *Findings:* The HCAs in this study demonstrated an admirable commitment to providing care to their clients. They would often put their clients' needs before risks to their own safety. *Conclusion:* Many of the challenges faced by HCAs in their work could be addressed by ICT solutions such as hand-held devices (smart phones, tablets) and their applications ("apps"). The HCAs studied reported being open to and accepting of ICTs to support them in their work as long as the selected device(s) did not interfere with client relationships.

Acknowledgements

I would like to thank my advisor, Dr. Lili Liu for her patience and encouragement throughout my time in the MScRS program and the many opportunities she has afforded me. Thank you as well to Dr. Suzette Brémault-Phillips, Dr. Shaniff Esmail, and Dr. Sharla King for their guidance and reassurance throughout the research and writing process.

The support of the Health Care Aides & Technology (HCA-T) research team was pivotal to this study both in paving the way for my entry into the field and in providing the Phase 1 data to build upon. Special thanks also go to the study participants, especially the Health Care Aides and their clients, who welcomed me willingly into their work lives and homes.

I would never have been able to pursue and complete this goal without the ongoing support, encouragement, and love from my family and my very dear friends. You walked, talked, danced, listened, and laughed with me and gave me the wherewithal to keep going. I am fortunate and truly blessed to be surrounded by so many wonderful people that love me and wish me the best.

I would be remiss if I did not acknowledge the invaluable guidance and mentorship I received in the preparation of this document from my fellow graduate student, Christine Daum (PhD candidate). Words will never be enough to express my gratitude; I promise to pay it forward.

And last, but by far from least, this project is dedicated to my wonderful husband Peter for holding down the fort while I focused on my studies and to my amazing children Brennan, Olivia, and Jared. The role each of you has played in my completion of this project cannot be overstated. I love you all immensely and I hope I have made you proud.

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List of Abbreviations

AHS – Alberta Health Services

CAOT – Canadian Association of Occupational Therapists

CPPF – Canadian Practice Process Framework

CPR – Cardiopulmonary Resuscitation

EHR – Electronic Health Record

EMR – Electronic Medical Record

FOIP – Freedom of Information and Protection of Privacy

FTE – Full-Time Equivalent

GPS – Global Positioning System

HCA/HCAs – Health Care Aide/s

HCA-T Project – Health Care Aide & Technology Project

HWAP – Health Workforce Action Plan

ICT/ICTs – Information and Communication Technology(ies)

ISO – International Standards Organization

LPN – Licensed Practical Nurse

OT – Occupational Therapist

PEO Model – Person Environment Occupation Model

PT – Physiotherapist

RN – Registered Nurse

SCC – Standards Council of Canada

TAM – Technology Acceptance Model

Chapter One: Introduction

There is an impending shortage of health care workers in the Province of Alberta. Information and Communication Technologies (ICTs)[1], particularly those in a mobile format, such as cellphones, smartphones, and tablet devices, are amongst the solutions governments and health care organizations are considering as a means of managing this shortage. For example, it is anticipated that ICTs could possibly help health care workers *work better* (improve efficiency), *do more* (enhance productivity), entice them to *remain in* (increase retention), or *attract* new workers (support recruitment) to the health care field. However, despite the potential that ICTs hold, their acceptance and sustained adoption by health care workers lags behind that of workers in other industries (Myers, 2010; Schaper & Pervan, 2007). The research literature posits numerous explanations for this discrepancy in technology adoption. One explanation common across the health care technology acceptance and adoption literature is that ICTs procured by health care organizations for their workers "do not correspond in any way with their daily lives, habits, or rituals" (van Gemert-Pijnen et al., 2011, para. 3).

[1] "ICT is an extended synonym for information technology (IT), but is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage- and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information." Definition retrieved 11 Dec 2011 from http://en.wikipedia.org/wiki/Information_and_communications_technology.

The purpose of this study is to portray the *daily life, habits and rituals* of one group of health care workers in particular – Health Care Aides (HCAs) – with specific focus on their thoughts about whether ICT use could support efficiency, productivity, or retention. This study is part of an overarching project with a similar purpose: the Health Care Aides and Technology (HCA-T) project. This chapter provides a brief explanation of the motivations behind the overarching project together with a more detailed description of the aspect of the project that I have chosen to undertake.

Background

The Alberta Context – Workforce Statistics. The increased demand for healthcare workers, especially those who provide frontline care, is an issue of growing concern especially as the population ages and the demographic shifts (Chou, Fu, Kroger, & Ru-yan, 2011; Faul et al., 2010; Gagnon, Pollender, Trépanier, Duplàa, & Ly, 2011). While shortages of physicians and nurses garner much of the government and media attention, there is another group of healthcare workers for whom the impact of shortages is also concerning. In Alberta, this group of workers is listed under the Occupational Profile and umbrella job title of Health Care Aide (HCA) (Alberta (OCCinfo©; alis.alberta.ca). HCAs provide 70% of the direct personal care and support to people who are living in their own homes or in facility-based care settings (Health Care Aides Competency Profile, 2001).

Working under the supervision of regulated Licensed Practical Nurses (LPNs), Registered Nurses (RNs), or other Allied Health professionals, HCAs are unregulated care providers who provide personal care such as bathing and dressing assistance for clients who are unable to do so themselves. In Alberta, HCAs are employed by both the public healthcare system (Alberta Health Services-AHS) and private agencies, which are contracted by AHS to provide HCA services to clients' receiving home care services. Some HCAs belong to unions while others do not. Across Canada and around the world, HCAs are also employed under job titles such as: Personal Care Attendant, Personal Support Worker, Home Support Worker, Direct Care Worker, Nursing Attendant, Home Health Aide.

The Health Workforce Action Plan (HWAP) has forecasted Alberta's anticipated health workforce shortages (Government of Alberta, 2007). According to the HWAP, the current shortage of 2000 HCAs in Alberta will balloon to 5,000 by 2016 and 7,000 by 2017 (HWAP 2007; J. Greenblatt, Alberta Health and Wellness, personal communication, March 2012). This situation is not unique to Alberta; strategies for retention of the current HCA workforce, and recruitment in anticipation of future demands, are first and foremost on the minds of governments and healthcare organizations across Canada and worldwide (Bercovitz et al., 2011; Keefe, Knight, Martin-Matthews, & Legare, 2011; Organisation for Economic Co-operation and Development (OECD), 2011; Temple, Dobbs, & Andel, 2009).

The Health Care Aide and Technology (HCA-T) Project: Purpose, Process, and Method.

HCA-T Purpose. In anticipation of the impending shortage of health care providers, the Alberta Government has requested assistance from academia and industry to address one of the key strategic objectives of the Health Workforce Action Plan (2007): to "implement technology in the workplace. ... In order to improve productivity and decrease the workload on health providers"(p. 17).

It is generally accepted that technological solutions are the way of the future for health care provision. A significant proportion of research and development has addressed technologies used for and by the *recipients* of care - the patients or clients (World Health Organization, 2011). The shift in attention towards technologies, specifically ICTs, which support *providers* of care, is a more recent concept. As a result, there is very little in the research literature to guide governments or health care organizations in the evidence-based selection and implementation of ICTs. The majority of the feasibility studies have looked at ICT use by Physicians (Lu, Xiao, Sears, & Jacko, 2005) and RNs (Stevenson, Nilsson, Petersson, & Johansson, 2010). Preliminary evidence suggests that acceptance and adoption of ICTs in healthcare lags behind that of other industries. As mentioned, one of the many explanations for this lag is that ICTs are selected or designed without consideration of the complexity of health care provision and the unique contexts within which it is provided. As a result, the ICTs introduced disrupt, rather than enhance,

client care, the client relationship, and workflow (van Gemert-Pijnen et al., 2011).

HCA-T Process. To ensure that the complexities and context were thoroughly evaluated prior to ICT recommendation and selection for use by HCAs in Alberta, the principal investigators of the HCA-T project brought together an interdisciplinary team of academic experts, research assistants, and community and industry partners from across the province. Guided by theories of technology diffusion and models of technology acceptance, this group undertook a process similar to that outlined by the International Standards Organization (ISO) in their standard ISO 9421- *Ergonomics of human–system interaction, Part 210: Human-centred design for interactive systems* (International Standards Organization, 2010). This standard, which is based firmly in evidence, delineates six principles to guide the design or selection of any interactive technologies (ICTs included) in order to increase the likelihood of acceptance. These principles are as follows: [2]

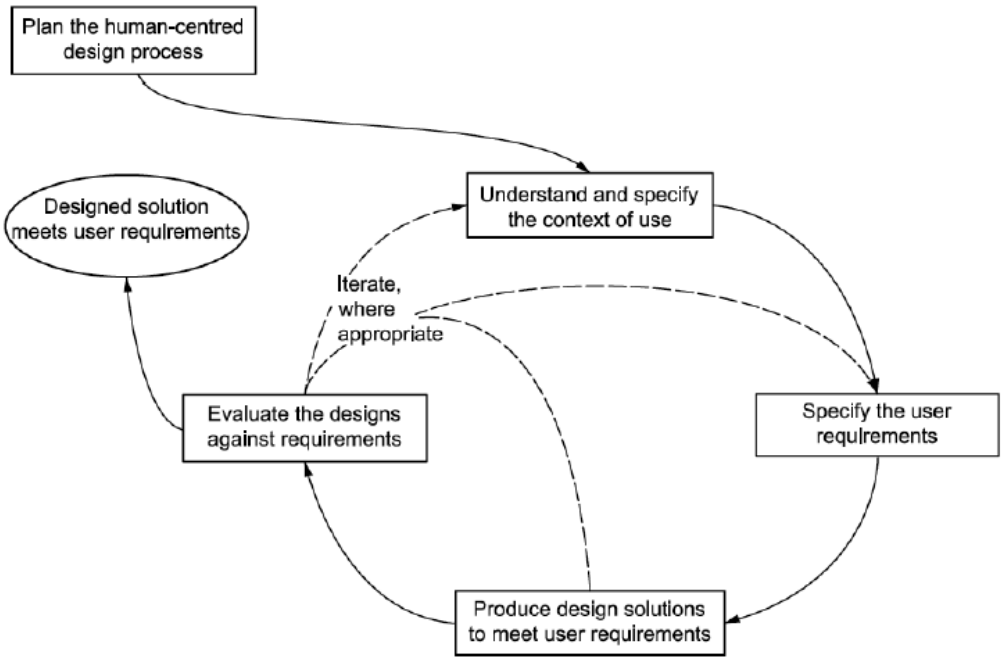
1. The design is based upon an explicit understanding of users[3], tasks, and environment;
2. Users are involved throughout design and development;
3. The design is driven and refined by user-centred evaluation;
4. The process is iterative;

[2] Although intended to guide "from scratch" design, these principles also generalize to the selection of commercially available ICTs as well as the design of applications for use on the selected devices (van Gemert-Pijnen et al., 2011).

[3] Users include anyone who is required to use or is impacted by the technology to be implemented; includes individuals, teams, organizations, funders, etc.

5. The design addresses the whole user experience;
6. The design team includes multidisciplinary skills and perspectives. (p.5)

The principles are reflected in Figure 1 and attention is brought to the step-wise, although not linear, and iterative nature of the process.



Interdependence of human-centred design activities

Figure 1. The Human-Centred Design Process

Following these principles is essential in identifying and developing health care technology solutions that are relevant, effective, and sustainable (Essén & Conrick, 2008; Norris, Stockdale, & Sharma, 2008). It is also well documented that technologies that do not include input from potential end-

users and stakeholders prior to design have greater likelihood of rejection or failed adoption (Barki & Hartwick, 1989; Davis, 1993; Stevenson, Nilsson, Petersson, & Johansson, 2010; van Gemert-Pijnen et al., 2011; Venkatesh & Bala, 2008).

HCA-T Method. The ISO standards specify *what* should be considered when designing technologies, however, they do not specify *how* these principles are to be operationalized. Ethnography has proven to be a valuable method in guiding developers in the creation of devices and technologies that are more likely to be adopted because they address the actual needs of the users as defined by the users (Maguire 2001).

Ethnography, which finds its basis in sociocultural theories, is the "description of people. ... in a collective sense" (Angrosino, 2007, p. 1). The *people*, refers to a group or community connected by commonalities such as location, occupation, race, experience, etc. Although classically known as a method of passive observation of the group, modern ethnography includes the use of multiple and diverse methods for data collection, both qualitative and quantitative (Agar, 1996; Whitehead, 2004). The resultant product, after much inductive reasoning and dialogue with those being studied, allows for the "fullest possible portrait of the group under study" (Angrosino, 2007, p. 15).

As one example of the use of ethnography to inform design, Intel™ Corporation hires cultural anthropologists (specialists in the use of ethnographic methods), to go into people's homes and workplaces. While

they are in those environments, the researchers use surveys, interviews and observation to gather information about people as they go about their day documenting who and what they interact with in their environment. The designers use the data to fuel and inspire real-life innovations for real-life issues (Zafiroglu, 2007).

In addition to its use in ICT design, ethnography is used as a method for operationalizing human-centred design principles in other design disciplines such as architectural, industrial, and organizational design. *Design researchers* (Bayazit, 2004), *participatory designers* (Kensing, Simonsen, & Bødker, 1998), *user-centred designers* (Gulliksen et al., 2003), and *human factors designers* (Niès & Pelayo, 2010) all see the value of obtaining a thorough understanding of their potential end-users and the institutional, cultural, socioeconomic, and physical environments within which they function.

In order to acquire an *explicit understanding* of the end-users (HCAs) and their tasks, as recommended in the ISO standard, the HCA-T project team used focused ethnography. In a focused ethnography approach, the investigation of a certain topic of interest is layered over the study of the selected group or community for the purpose of narrowing the focus of study to answer more specific questions (Richards & Morse, 2007). In the case of the HCA-T project, the group under study was HCAs working in the Province of Alberta and the specific topic of interest was the use of technologies to support them in their work.

Study Objectives

Enhancing the 'portrait': Part I - Situating within the overarching HCA-T project. The first phase of data gathering in the HCA-T project included surveys, interviews, and focus groups held with HCAs across the province. The data provided information about what HCAs found satisfying and challenging about their jobs, as well as their thoughts and attitudes regarding the potential role ICTs could play in the safe and efficient completion of their daily work duties (Figure 2).

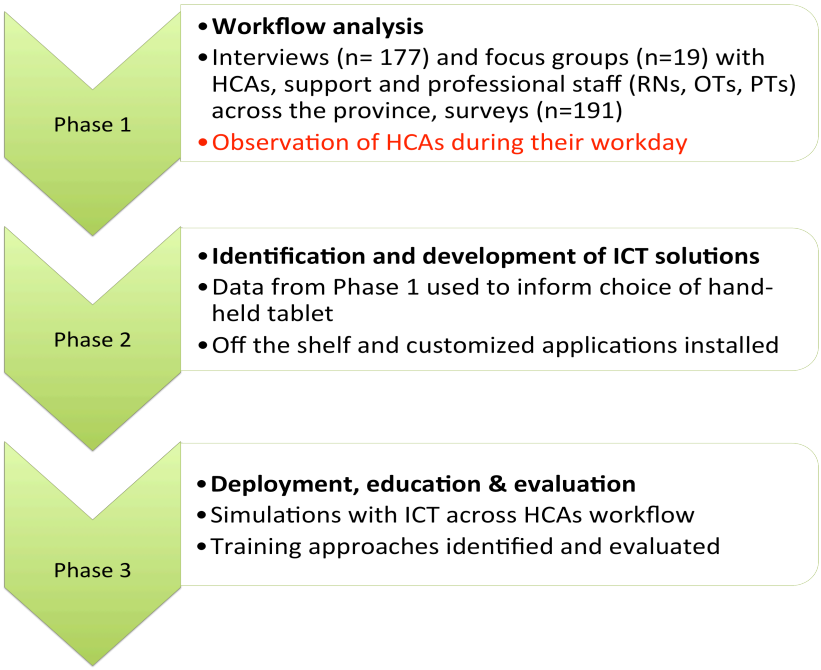


Figure 2. The Phases of the HCA-T project

According to the human-design principles, the only aspect left to complete the HCA portrait, was the exploration of the environment in which they work. Therefore, the purpose of this study was to enhance this portrait

of understanding by employing one last technique of ethnographic data collection: observation of the group of interest. Participant observation allows researchers to capture the contextually specific and tacit details of the environment that the group of interest functions. Participant observation also gives access to "ascertain whether what people say they do and what they do in reality tally" (Mulhall, 2003, p. 308). As Whitehead (2005) states:

> While one can interview cultural members outside of [their] contexts and secure somewhat [emic] answers … the strongest means to achieving the greatest validity regarding the system is through fieldwork and the opportunity for repetitive, iterative, and situational observations and interviews that such fieldwork allows. (p. 5)

A comment written by one of the HCA-T survey respondents echoes this statement: "*I feel it is hard for someone to know how the job is unless they have walked in the shoes"* (HCA-T survey respondent, Central Alberta). It was this statement, and others like it, which motivated this study.

Enhancing the 'portrait': Part II - Through the eyes of an occupational therapist. Occupational therapy is the "art and science of enabling engagement in everyday living through occupation" (Townsend & Polatajko, 2007, p. 372). Although the recipients of occupational therapy services are typically people who have experienced a disruption in their occupational performance due to a health issue, occupational therapy clients

can also be groups or organizations who want to determine the needs of their users (Townsend & Polatajko, 2007, p. 97). Not entirely unlike architects or information systems designers, occupational therapists also design, build, and prescribe for their clients. They do so only after thorough assessment and evaluation of the whole person (an integration of mind, body, and spirit), the tasks and occupations which they need to accomplish (self-care, productivity, or leisure), and the environments within which the occupations take place (physical, cultural, institutional, social, and economic).

The knowledge and expertise that an occupational therapist can bring to the ethnographically informed, human-centred design process includes the important skill of occupational analysis which is defined as the ability to "identify, classify, and interpret the personal and environmental factors that influence occupation" (Townsend & Polatajko, 2007, p. 128). In addition, occupational enablement skills of consultation, collaboration, and advocacy complement the strategies and techniques used for data collection and analysis in the ethnographic approach.

The research questions. The questions guiding this research project were: *"What does 'a day in the life' of an HCA look like and what are their experiences of and with their clients, colleagues and workplace?"* As well, keeping consistent with the method of focused ethnography used by the overall project team, the question of *"When, where, and how do HCAs see technology being helpful in their work?"* was also examined.

The research questions were based on the following assumptions:

a. Acceptance of technologies in the workplace is facilitated by gaining as accurate a picture as possible of the workers' situation prior to technology recommendation, design, or development, and;
b. An accurate picture is augmented when enablement skills of occupational analysis, consultation, collaboration and advocacy are utilized.

Importance of this knowledge

This immersion within a group of HCAs to learn more about what they do and how and where they do it, served three purposes. First, it acted as a strategy to verify, confirm, or triangulate the findings of the broader HCA-T project; "provid[ing] a yardstick against which to measure the completeness of data gathered in other ways" (Becker & Geer, 1957, p. 28). Second, details of the more subtle and nuanced contextual aspects of the daily work life and workflow of HCAs were gathered. The third and final purpose was to gather data relating to HCAs' perceptions of ICT use at work.

When ethnography is used for the purpose of informing design, the vast quantity of data and details collected from the various sources are most useful for the designers if they are compiled and consolidated somehow. Sometimes the data are compiled and represented as a "persona" (Blomkvist, 2002, p. 1). A persona is a "fictional description of a single individual. ... [which] represents patterns of users' behaviour, goals and motives. It also contains made-up personal details, in order to make the persona more

'tangible and alive' for the development team" (Blomkvist, 2002, p. 1). The personas created by the ethnographer(s) are the representation of the knowledge acquired through observation. Each persona is used by designers as a reference point and reminder of who and what they are designing for.

The data gathered and analyzed in this study was used to create vignettes. A vignette is defined as a "brief evocative description, account, or episode" (New Oxford American Dictionary, 2005). The term *vignette* is preferred over *persona* because it incorporates a description of the setting and not just the individual. The vignettes are representative of the categories and themes that arose during the period of observation and reflect a compilation of findings from this study, the broader HCA-T project, and the literature. Designers, health care organizations, or government decision-makers could use these vignettes to gain an understanding of what it is like to be an HCA in Alberta. The vignettes could be used as guides in the selection of solutions, ICT or otherwise, which address the challenges but also maintain or enhance the rewards in an HCA's daily work.

The following chapter presents a review of the literature and sets the stage for what has already been discovered about what it is like to be an HCA including the challenges and rewards HCAs experience in their work. Chapter Two also provides examples of ICT use by HCAs concluding with examples of health care provider involvement in design of ICTs.

Chapter Two: Literature Review

With the intent of finding articles pertaining to members of the health care workforce who have similar duties and responsibilities to those of HCAs in Alberta, articles were selected for review if they referred to people who "provide personal assistance and support services for elderly, disabled, acute or chronically ill people who require short-term assistance or ongoing support ... to be as independent as possible in the community, hospitals or continuing care facilities" (OCCinfo@alis.alberta.ca). The literature relating to this particular group of health care workers was acquired from databases using search terms such as *Nursing Assistant or Aide*, *Direct Care Worker*, *Personal Care Worker*, and *Home Support Worker,* among others.

The terms *health care*, *home care*, *technology*, *mobile health*, *information and communication technology(ies), ICT, and ICTs* were also used in various combinations to obtain a broad scope of literature relevant to this study. Articles were manually screened and were selected if they referred to ICTs in mobile formats (i.e., cellular telephones, smartphones, personal digital assistants, laptop computers, tablet-style devices). Examples of ICT use by HCAs, mobile or non-mobile, were also included together with relevant secondary references.

Search terms of *user participation*, *user involvement*, *technology acceptance*, *technology adoption* together with *health care* were used to gather the broad base of both academic and grey literature relating the

implementation, acceptance, and adoption of mobile ICTs by the health care workforce and their impact on measures of productivity and job satisfaction.

What we know about the end-user: Experiences of HCAs in the field

The increasing demand for HCAs has spurred research into the rewards and challenges that HCAs encounter in their workday, with particular focus on how these rewards and challenges relate to and influence recruitment, retention, and staff turnover. For this review, studies that clearly stated their methods for data collection, through either quantitative or qualitative means, were included.

In a survey of 3,468 workers involved in direct care provision across the continuum of care in several states of the United States, Kemper et al. (2008) found that the HCAs polled desired higher wages and better working relationships with their colleagues (including communication, supervision, appreciation and respect).

After surveying 823 HCAs who worked in homecare in New York City, Sherman et al. (2008) found that factors such as the state of a client's house, exposure risks (dust, mold, pet dander, smoke), abusive client and family behaviors, and dangers of travelling showed significant *negative* correlation to job satisfaction and retention. Union membership and older age were significantly correlated to job satisfaction and retention. Interestingly, client caseload and travel time showed no statistical significance in predicting job satisfaction or retention. The researchers concluded that addressing

workplace safety practices could have a greater impact on job satisfaction than reducing HCA workloads.

Mittal, Rosen, and Leana (2009) used qualitative methods to reveal themes associated with staff turnover and retention of direct care workers in Pennsylvania. They found that lack of respect from colleagues, insufficient supervision, competing demands outside of work, difficulty of the work itself (both physical and emotional), and more lucrative job opportunities were associated with turnover. Themes associated with retention were the rewards of being in a job that was perceived to be a spiritual calling, the bonds and relationships developed with clients, being an advocate for clients, and flexibility in days and hours of work.

Faul et al. (2010), in a survey of 116 HCAs, found that the rewards of the HCA job, similar to those reported by the HCAs in the Mittal et al. study, gave HCAs an intrinsic satisfaction that superseded low wages as a predictor of retention. In contrast, a mixed-method survey of 131 HCAs in Maine found that although HCAs valued helping others and were invigorated and fulfilled by providing care to their clients, low wages, absence of benefit plans, and lack of recognition from other health care colleagues caused them to search for alternate employment (Ashley, Butler, & Fishwick, 2010).

Morris (2009) administered a comprehensive survey to 650 HCAs twice in a two-year period. As with the preceding studies, monetary issues such as wages, sufficient and predictable work hours, and reimbursement for travel

expenses were strongly correlated to retention of HCAs working in home care.

Lastly, with an interest in knowing what made HCAs choose their vocation in the first place, a group of researchers based out of the University of British Columbia interviewed 57 HCAs employed in the Canadian provinces of British Columbia, Ontario, and Nova Scotia (Sims-Gould, Byrne, Craven, Martin-Matthews, & Keefe, 2010). Financial considerations (predictable wages, access to benefits, funding for training/certification), previous exposure to care provision (informal or formal), and a love of people were the main reasons the interviewees cited for becoming HCAs.

Examples of ICT use by HCAs

Although very few of the challenges mentioned in the study findings above have obvious ICT solutions, it is still presumed that ICTs can support health care providers, including HCAs, in the provision of efficient, timely, and effective health care service. Efficiencies and improvements in workflow can, in turn, have an impact on job satisfaction as well as quality of care provided. The Canadian Home Care Association has highlighted ICT solutions as being "essential to serving Canadians and effectively addressing their health and social care needs of today and tomorrow [but] to date there is limited application of technology to support frontline home care clinicians – nurses, home support/personal support staff, therapists – in direct care provision" (Canadian Home Care Association, 2008, p. 17).

As mentioned, ICT solutions provided in a mobile, hand-held format was the focus of the literature search. Initial findings from pilot and case studies suggest that mobile ICTs can support health care workers, especially those who provide care in clients' homes in either urban or rural areas, as well as in developing countries where traditional, land-line communications infrastructure may be limited (Effken & Abbott, 2009; Lu, Xiao, Sears, & Jacko, 2009; Norris, Stockdale, & Sharma, 2008; World Health Organization, 2011). To date, rigorous evidence to support the use of ICTs by HCAs or any other health care providers is limited (Black et al., 2011; Lapointe, Mignerat, & Vedel, 2011; van Gemert-Pijnen et al., 2011). As HCAs make up the largest proportion of front line service providers in continuing care, there is a need to examine whether ICTs could address at least some of the challenges HCAs face in their workday and potentially bring about improvements in workload, efficiencies, and job satisfaction.

Electronic Medical Records (EMRs). Although not the only example of ICT use by health care providers, Electronic Medical Records (EMRs; also referred to as Electronic Health Records and Electronic Patient Records) are the most frequently cited in the literature. Electronic Medical Records are an electronic version of paper record documentation contributed to by members of the health team and held within a health care organization (Garets & Davis, 2006). EMRs promise both convenient, real-time access to client health history and timely documentation of client care events which, when mobile interfaces are used, can be accessed at the point of care. The

primary concern with EMR use is that the efficiencies they promise are often not realized until well after the first year (Munyisia, Yu, & Hailey, 2011; Tapper, Quinn, Kerry, & Grant-Brown, 2012). Also, several studies have found that EMRs interfere with the client-provider relationship (Alsos, Das, & Svanæs, 2012; Buckner & Gregory, 2011; Kossman & Scheidenhelm, 2008; Loh, Flicker, & Horner, 2009).

Most of the research addressing the benefits or drawbacks of EMRs and the interfaces used to retrieve and record client information or access clinical protocols focuses on EMR use by Physicians and Registered Nurses (Alsos, Das, & Svanæs, 2012; Kossman & Scheidenhelm, 2008; Lu, Xiao, Sears, & Jacko, 2009; Stevenson, Nilsson, Petersson, & Johansson, 2010; Tapper, Quinn, Kerry, & Grant-Brown, 2012; Vedel et al., 2012). However, there are some examples where other members of the health care team utilize EMRs. Three studies in particular indicated use of EMRs by the level of worker equivalent to that of an HCA.

Engström et al. (2009) administered 'Satisfaction with Work Questionnaires' prior to and five months after the implementation of a mobile device-accessed EMR for use by staff providing home care in a Swedish Municipality. The questionnaire results were compared to those of a group that was still using standard paper methods for accessing client care plans, and recording both task completion and variances in the client's condition. The researchers found a statistically significant difference between how the HCAs using the mobile EMRs rated the "position in the

group" statement on the questionnaire (p. 57), suggesting a greater sense of status and value on their team when they were able to access care plans and documentation checklists on mobile devices.

In Texas, Cherry, Ford, and Peterson (2011) conducted semi-structured interviews with staff, residents, and families at 10 different assisted living and long-term care sites. The selected sites had been using kiosk-accessed EMRs for at least one year. Although all participants voiced concerns about the logistical and functional shortcomings of the EMR used at each site (e.g., technology glitches, initial and ongoing educational needs, technology learning and acceptance curves), there was overall consensus that EMRs improved communication between staff and leveled the care provider hierarchy within the facilities such that HCAs perceived an improvement in the recognition of their role on the health care team.

Munyisia, Yu, and Hailey (2011) observed the time spent in documentation by HCAs 2 months prior to and 3, 6, and 12 months after implementation of a proprietary, desktop-accessed electronic documentation system. Reductions in documentation time were still not realized even at the 12-month mark. The researchers suggested this was the result of the complicated, multi-step interface and recommended that modifications to the documentation system and the interface occur only after designers took the time to gain "an in-depth understanding of nursing staff's information needs and documentation workflow" (p. 791).

Other types of ICTs. The literature also contains examples of ICTs being utilized by health care providers for the storing and forwarding of photographs or radiographs (Choudhri & Radvany, 2011; Duyck et al., 2008), videoconferencing (Jarvis-Selinger, Chan, Payne, Plohman, & Ho, 2008), and telecommunications (phone, email, instant messaging) (Krishna, Boren, & Balas, 2009). Applications such as those listed above offer improved access to specialist services (especially for rural clients and care providers) and more timely and detailed conveyance of information between colleagues and supervisors. As with EMRs, examples of these types of technologies being deployed to HCAs are limited; only one example was found.

Litzinger, Rossman, Demuth, and Roberts (2007) evaluated the efficacy and cost-effectiveness of HCAs who were trained to use real-time videoconferencing and take still photographs of clients' wounds. In the case of still photography, the pictures were forwarded to wound care specialists for consultation and to track wound healing. This saved considerable time and travel-associated costs for the wound care specialists, made the HCAs feel more involved in their clients' care, and gave the clients' peace of mind knowing that their wounds could be monitored frequently and conveniently.

The aforementioned findings from the literature suggest that even though the challenges that HCAs face in their day do not have obvious ICT solutions, some of their needs can be met through the implementation of ICTs. However, the benefits are not necessarily found in the realm of improved work efficiency or increased productivity.

Examples of the human-centred design process

The studies reviewed in the preceding section evaluated devices and software developed for general commercial use. What follows are findings of a literature search of the human-centred design-process, a process adopted by this study and the HCA-T project, and recommended for use when introducing ICTs into the workforce.

Despite the vast quantities of research on the value and need for user involvement in design, technologies for health care are still being developed without a full understanding of the requirements of the users or the context of their work (van Gemert-Pijnen et al., 2011). This frustration was noted by Stevenson, Nilsson, Petersson, and Johansson (2010) after conducting a review of the literature into nurses' experiences with EMRs. They concluded,

> Current systems are not designed to meet the needs of clinical practice. … There is an urgent need for nurses to be directly involved in software design to ensure that the essence and complexity of nursing is not lost in the system. (p. 63)

This determination of the users' needs is an essential factor in user acceptance. "If the innovation is relevant to the performance of the intended user's work and if it improves task performance, it will be adopted more easily" (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004, p. 597).

The search of the literature did not retrieve any examples of HCAs being involved in ICT design prior to implementation. However, the search did reveal a few examples where health care providers (i.e. physicians and

nurses) were consulted to guide ICT selection, design, and implementation. These examples demonstrate the value of the human-centred design process in achieving acceptance and adoption of ICTs by members of the health care workforce.

Human-centred design involving physicians. After initial frustrations trying to communicate their needs directly to the designers of a Computerized Physician Order Entry (CPOE) system, the administrators of a hospital in France requested assistance from specialists in human-centred design. These human factors specialists spent time observing and interviewing the physicians to determine their needs and preferences for how the system should work. This information was then compiled and conveyed to software designers, who were able to create a more intuitive and useful interface (Niès & Pelayo, 2010).

Wong, Turner, and Yee (2008) outlined their use of interviews, focus groups and observations of physicians in a hospital in Tasmania, Australia. Their goal was to design an electronic clinical handover system (like an EMR) for use by physicians to document the status of each client at the start and end of each shift. They were struck by the marked difference between what the physicians said they did and what they actually did at each shift change. In the interviews and focus groups, the physicians described the shift handover as a structured and systematic process when, in actuality, there were many unpredictable influences in the process that would not have not been accounted for in the system design if the designers had just gone with

what the physicians had verbally reported. As a result of direct observation, the designers had greater insight into the impact of the environmental distractions, which cannot be predicted but must be anticipated.

Human-centred design involving nurses. Hong, Kim, Lee, and Kim (2009) interviewed and observed nurses working in end-of-life care home and hospice care in a rural province of Korea. An EMR was already implemented by the hospital in which the nurses were based, but there was no interface that they could use when out on off-site visits. They were expected to document their assessment and progress findings on paper forms and then re-enter their notes into the EMR at the end of each day. After implementation of the mobile EMR interface, they had a 50% reduction in documentation time compared to pre-device implementation. They had more time in their shifts to provide emotional support to their clients, which was more gratifying for both the nurses and their clients.

Dy et al. (2011) met with administrators, nurses and clinicians to identify key needs to be incorporated into the design of web-based symptom-management tool for clients with cancer living at home. After meeting with the health care team, the designers created *user stories* (similar to the vignettes created as a result of this study) that highlighted some of the typical symptom management problems clients would encounter throughout their disease process. The user stories guided the designers in the development of the web-based system for use by both clients and their health care providers.

Gaps in the literature

Although the challenges that HCAs face have been explored, the possibility of ICT solutions to these challenges has not. Some HCAs have been required to use ICTs in their work, but it is not apparent that their opinions were sought or their needs were addressed. So many of the HCAs polled or interviewed in the various studies reported that what they value most about their jobs was the relationship they developed with their clients; this would be an important aspect of their job satisfaction to respect and preserve when considering the selection or design of ICTs.

Having reviewed the literature regarding the use of ICT by health care providers in general and HCAs more specifically, the following chapter outlines the method utilized to gather evidence absent from the literature. As stated, ethnography is the method best suited to gather data which will offer the most realistic picture of what it is like to be an HCA and whether HCAs see value in the use of ICTs in their work.

Chapter Three: Method

A research process starts by determining what one wants to learn (the research purpose) which in turn guides what question(s) is asked. The research question(s) subsequently leads to the selection of the research approach that is best suited to provide answers to the question (Richards & Morse, 2007). The selected research method has "procedures, tools and techniques… for gathering evidence" which are known as *methods*. The methods are justified and guided by the "assumptions, principles… [of] a particular approach to inquiry" (Schwandt, 2001 in Carter & Little, 2007, p. 1317). *Methodology* is "- the description, the explanation, and the justification - of methods, and not the methods themselves" (Kaplan, 1964 in Carter & Little, 2007, p. 1317). It is important to have an understanding of the assumptions and principles behind an approach because they serve to justify why it is the best suited to answer the research question(s) (Carter & Little, 2007).

This chapter starts with the description of the methodology (assumptions and principles) of focused ethnography with the intent to justify its selection as the method for this study. A description of the "procedures, tools, and techniques for gathering evidence" will follow in the Methods section.

Methodology

Focused Ethnography. Focused ethnography was selected as the method to provide answers to the research questions guiding this study: first, to describe a day in the life of HCAs providing care in a rural Alberta community; second to explore when where, and how HCAs see technology helping (or hindering) their work. To reiterate, in focused ethnography, a researcher strives to attain a detailed understanding of the groups' culture – their experiences, behaviours, values, beliefs, and social relationships – while also focusing on a distinct issue or topic relevant to that group (Richards & Morse, 2007). As a result of this focus, not all techniques of data collection are used and time frames for data collection are much shorter (occurring over weeks or months) compared to that of traditional ethnography (occurring over years) (Robinson-Wolf, 2012).

Assumptions and principles of ethnography. The main assumption of ethnography is that any human group, which is situated together or has common experiences, will develop a *culture* (Spradley, 1980). In addition, as not all aspects of a group's culture are recognizable to its members (*insiders*), the best way to learn about a group and their way of life is to gain entry as an *outsider* and learn from them (Spradley, 1979). The goal of the outsider is to become so familiar with the group such that he or she can depict the findings from the groups' perspective, or *emic* perspective. At the same time, a layer of interpretation and understanding is contributed from the researcher's

perspective, or *etic* perspective, so that the findings become more analytic rather than purely descriptive.

Ethnography is not undertaken with a predetermined outcome in mind. Rather, insights into and knowledge of the groups' way of life are co-constructed between the researcher and the members of the group, and they are presented in a way that provides a holistic view that is "intelligible and comprehensible to others" (Mayan, 2009, p. 38).

Lastly, it is understood that the research findings are representative, not only of that particular group at that particular time, but also of that particular researcher's values and beliefs, which both affect and are affected by the group and the research setting (Mayan, 2009).

The role of the researcher in ethnography.

The researcher role in observation. Participant observation is thought of as the cornerstone technique of ethnographic data collection (Agar, 1996; Angrosino, 2007; Spradley, 1980). Observation is defined as "the act of perceiving the activities and interrelationships of people in the field setting through the five sense of the researcher" (Angrosino, 2007, p. 37).

The role of the researcher in observation is either unknown or known to the participants and varies on a spectrum of passive to active involvement. Gold (1958, in Munhall, 2003) refers to the covert researcher as being either a *complete observer* (passive involvement) or *complete participant* (active

involvement). He classifies the overt roles as *observer as participant* (passive involvement) and *participant as observer* (active involvement). The overt roles are more congruent with ethnography (and more acceptable to ethics review boards).

When an ethnographer undertakes participant observation, he or she is doing so from a belief that the best way to come to know the culture of the group is by being with them where they are, "participating in activities, asking questions, … watching ceremonies, taking field notes, … interviewing informants, and hundreds of other things" (Spradley, 1980, p. 3). They do this because the culture exists and "must be explained in terms of their relationship to the context in which they occur" Genzuk, 2003, p. 3).

In this study, I took on the role of observer as participant and undertook "intermittent observation alongside interviewing" (Gold, 1958 in Munhall, 2003, p. 308). Because I was observing one HCA at a time, the more accurate term to describe what I did in my participant observer role is *shadowing*. Quinlan (2008) explains that shadowing "entails a researcher closely following a subject over a period of time to investigate what people actually do in the course of their everyday lives" (p. 1482). The terms observation and shadowing are used interchangeably throughout this document.

The researcher role in data collection, analysis, and representation. There was a point in the history of ethnography where despite going "native," a researcher was directed to go into the research

setting shielded; gathering data and presenting findings that were not *contaminated* or *confounded* by the *bias* of his or her personal experiences or opinions (Hamersley and Atkinson, 1995). This objective stance was problematic as Agar (1996) highlighted: "the ethnographer … eats with the group, works with them, relaxes with them and hopefully comes to understand them. Meanwhile, he or she personally struggles with the interference from his or her own ways of thinking, feeling, and acting" (p. 58). This attempt at keeping the body, mind and spirit of the researcher at bay is seen as neglecting the role of the researcher as an instrument of the research process and a partner in the construction of meaning from the data (Hammersley & Atkinson, 1995; Sandelowski, 2002). These "author-evacuated" (Mayan, 2009, p. 136) descriptions serve only to provide "deceptively tidy accounts of research" (Ellingson, 2006, p. 298).

On the other hand, Richards and Morse (2007) caution that an overly subjective stance can be equally risky, resulting in presumptuous, indulgent, or self-serving accounts of the research findings. In present day ethnography, a more subjective stance is encouraged as long as it is acknowledged. This acknowledgement occurs through reflexivity.

Reflexivity as a vital component in ethnography. Reflexivity according to Mayan (2009) is "the process of being highly attentive to how and why you make decisions and interpretations along the research way, critically examining your personal-researcher role and how this interfaces with all – even the most minute – aspects of the research" (p. 137). It is what

allows data analysis in ethnography to go to the next level, beyond the sterile and tidy accounts. Interpretation can occur because the "interpreters," the researcher and the researched, are presented and described to the reader and the reader can recognize and follow the paths of reasoning that were taken to construct the meaning of the data.

The following is my examination of the role that I assumed at the start of the study as well as my opinions about the health care system and the HCA shortage - my "putting it on the table" so to speak. It provides clarification of my position in the data generation, analysis, and representation of the findings.

My position in this study. I came into the setting as both an outsider and an insider. As an occupational therapist working within the Provincial Health Authority (Alberta Health Services or AHS), I was not a stranger to the role of an HCA on the health care team. I had worked with publicly employed HCAs in long-term care and HCAs employed by private agencies in home care. This familiarity with the institutional aspects of their environment helped me to gain entry and develop quick rapport with all of the members of the home care team. As a result, we were able to proceed quickly and get to the heart and root of their experiences without them having to explain their role to me.

I was an outsider because I was from an urban centre. My unfamiliarity with health care provision in the rural context was obvious and

I quickly became known as "the city girl." I was certainly more attuned to the benefits and challenges that this social and physical environment presented.

When working in home care in the 1990's, home care clients were waiting weeks before an HCA was available to provide care. There was a shortage because HCAs were leaving for better paying jobs in the fast-food industry. Since then, I have felt very strongly that the shortage of HCAs is the reason for the bottleneck in the health care system. From my perspective, HCAs were key to preventing the injuries and falls that result in emergency room visits and acute care admissions. When I was asked to join the HCA-T project team, I was relieved that the government was also seeing the value of HCAs. I was also reassured that the government was supporting the idea of asking the end-users what they need *prior* to ICT implementation.

To summarize my role in this study: I was a participant observer who came to the study setting with insider knowledge and the perspective of an outsider. The outsider perspective helped me to see what the study participants may or may not have been able to see for themselves. I subjectively analyzed the data such that the findings have a layer of influence and interpretation that is reflective of my past knowledge and beliefs.

I shift now to present the details of where (setting), with whom (sample and sampling), when, and how (data collection, management, and analysis) this study was undertaken.

Methods

Setting. The study took place out of a Home Care office that serves the residents of a rural county in the Province of Alberta, Canada. The catchment area for this Home Care office spans over 5400 square kilometres. The county has a population of ~4000 people who reside in ~1400 private dwellings. The Home Care office is situated in a wing of the local Community Health Centre together with the Public Health office. The Community Health Centre is located in the most-populated town in the county, a town of almost 2000 residents. In addition to the Home Care and Public Health office, the Community Health Centre houses an emergency department, a small acute care unit, and a long-term care unit. The Health Centre, which is operated by Alberta Health Services, is the third largest employer in the county. Within the town, there is a private long-term care facility for persons requiring assistance or supervision 24 hours per day, as well as a Lodge for persons who require meal provision and minimal daily or weekly assistance with care. The main town in the county is within a 45-60 minute drive of two urban centres.

The Home Care office employs a part-time, out-of-scope[4] Area Supervisor, three full-time Registered Nurses (RNs), four part-time HCAs, two casual HCAs, and a Clerk-Receptionist who also works for the Public

[4] Employees in management positions are typically out-of-scope which means they do not belong to a union. Clinical and Support staff are unionized and the team members at this site belong to one of four unions – United Nurses of Alberta, Health Sciences Association, Alberta Union of Provincial Employees – Auxiliary Nursing, and Alberta Union of Provincial Employees – General Support Services.

Health Office. The Region Manager oversees the staff in six other Community Health Centres in four surrounding counties. There is an Occupational Therapist (OT) available for consultation two times per month. A full-time Physical Therapist (PT) provides coverage for acute and long-term care as well as ambulatory (outpatient) care and home care.

Access to this setting was gained through correspondence with the Region Manager who, in turn, directed me to the Area Supervisor. They were perplexed about why I was interested in their site because the home care team was "working well together" and it was "not a busy office." A more detailed explanation of why their site was selected follows in the Sampling Approach section below. Despite their initial hesitancy, they were welcoming and assisted greatly in forwarding study information packages to the team members, scheduling days for me to be with each of the HCAs, and preparing the team and their clients for my arrival.

Sample and Sampling.

Sampling Approach. The location of study, and thus the study participants, was purposively selected for several reasons. First, it was one of the purposively selected sites for the main HCA-T project;[5] a focus group had been held there but no individual interviews. As well, the HCA-T researchers who conducted the focus group indicated that the four HCAs had a wide range of experience as HCAs in home care (from one to 30 years) and

[5] It was selected as a rural site located in a specific health zone where the HCAs were employed by the provincial health authority and not a private agency.

were open and receptive to more in-depth study. The Area Supervisor was correct, it was "not a busy office," so the team members were able to give more of their time to the study and my presence would not disrupt their workflow or interfere with their client care priorities.

Inclusion Criteria. Although the primary focus of the study was to observe and interview HCAs as they went about their workday, it was also important to gain the insights of their colleagues with whom they collaborate and communicate each day. As a result, all members of the home care team were considered eligible for inclusion. Finally, because I would be entering into client's private residences with the HCAs, clients were potential study participants. Clients residing in the Lodge were excluded because the time to explain the study purpose and have them sign the consent forms would have put the HCA assigned to the Lodge behind schedule.

Recruitment and informed consent. On my arrival, I hosted a meeting where I presented the purpose of my study, how it fit with the HCA-T project, and the risks and benefits of participation. I fielded any questions they had about the study. Appreciating that the members of the team might have felt they had no choice except to participate because their supervisor was present (Munhall, 2003), they were reminded by their supervisor, and myself, that participation was entirely voluntary with no consequence if they declined. Informed consent was received from each of the recruited participants (see Appendices B & D).

Either the Supervisor or the HCA contacted the clients (except the Lodge clients) the day prior to their scheduled visit. A brief description of study purpose was given and verbal permission was sought to have me accompany the HCA on the home visit. Once in the client's home, I reviewed the study purpose and gave the client a chance to ask questions prior to signing the consent form (see Appendix C).

Study participants. All four of the permanently employed HCAs were agreeable to have me accompany them on their daily home visits (HCA1-4). Their pertinent demographics as well as their participant codes and pseudonyms are listed in Table 1. The casual HCAs were not booked for shifts during my visit. The Region Manager (Manager1), Area Supervisor (Manager 2), Occupational Therapist (OT), all 3 of the RNs (RN1-3), and Receptionist (Clerk) agreed to participate in interviews.

Fourteen clients agreed to have me be present in their home during the HCA visit. None of their identifying information was recorded and I did not observe them while they were receiving assistance with their bath or personal hygiene.

Table 1

Health Care Aide demographics

Participant Code & Pseudonym	Age	Years of experience in profession	Years of experience in home care	Full-time equivalent (FTE)	No. of Hours of observation
HCA 1 -Jane	>60	>30	>30	.95	15
HCA 2 -Gina	>65	10	1	.45	14
HCA 3 -Ella	>65	6	3	.80	12
HCA 4 -Lynn	>60	>30	30	.80	5

Sample size and justification. In total, 4 HCAs, 7 team members, and 14 clients were recruited. The number of HCAs shadowed, although small, is considered adequate for two main reasons. First, it is congruent with the focused scope of this study (the research question and the breadth of data already collected in Phase 1 of the HCA-T project). As well, the HCAs were articulate and expressive in their interviews providing a substantial amount of useable data. Two had rich historical knowledge because of their 60 combined years of home care experience and the other two had rich comparative knowledge because of their years of experience working both "on the floor" (in long-term care facility) and as care aides in the local group home for adults with special needs. One of the HCAs in particular had been actively involved in the successful movement to unionize HCAs in the 1990s. She had an in-depth historical knowledge of the evolution of the role and scope of practice of HCAs over the past three decades. As she was still involved with the union at the provincial level, she was cognizant of the challenges faced by HCAs in both urban and rural settings. She was also aware of the discrepancies between those employed by the AHS and those employed by private agencies. Her knowledge in all of these areas would be a valuable contribution to the understanding of what it is like to be an HCA in Alberta. Morse (2000) refers to this type of data as "shadowed data" (p.4) (not to be confused with data collected from shadowing/observations), when participants within one setting are able to provide expanded and alternate views as reference points.

Ethical Considerations. Ethics approval was received from the Health Research Ethics Board (see Appendix A) and Operational Approval was received from the Region Manager. Information letters regarding to purpose of the study were distributed to all members of the home care team prior to my arrival.

Participant and client names were removed from the transcripts and alphanumeric codes and/or pseudonyms were used in all reporting or presentation of this data. As well, due to the small size of the rural community where the study took place ("everyone knows everyone"), the exact name and location of the county is not named. The only remaining identifier, rural, is used due to the aspects of rural healthcare provision that make it unique and clearly distinguishable from care provided in an urban setting.

Data Collection.

Time frame. Data collection occurred in February 2012 over a two and a half week period. I was onsite with the Home Care team for 10 working days during that time period (the staff in this office do not work on weekends). Such a short timeframe is not consistent with traditional ethnography, but it is considered acceptable especially "if one needs specific information from a group, where relationships are good from the beginning" (Agar, 1996, p. 244). In this case, the HCA-T researchers who had hosted the focus group prior to my arrival had garnered much respect and paved the

way for my smooth entry into the field. The seed of ICTs as a possible solution to workload and workforce issues had been planted and the Home Care Team was primed to speak to this topic frankly. Given these factors, it was thought that a "rapid" ethnography was appropriate (Green & Thorogood, 2009, p. 163).

Data sources. Several data sources were used. Details of how data was generated with each set of participants (HCAs, team members, clients) follows after Table 2.

Table 2

Data sources

Item	Content	Purpose	Used for
Observation Notebook	Brief notes, diagrams of and notes about physical spaces; notes and quotes from informal conversations with clients; memos; reflexive notes	Reminders and cues for inclusion in field notes; some notes were coded	HCAs, team members, clients
Data tracking sheets	Items for structured observation	Tracking of certain measureable items (i.e. time spent travelling or documenting client care); cues for inclusion in field notes	HCAs
Interview guides	Brief notes written during interviews	For reference during interviews and to accompany transcripts	HCAs and team members
Interview Transcripts	Transcribed audio recordings from unstructured and semi structured interviews	For coding and more in-depth analysis	HCAs and team members

Table 2

Data sources

Item	Content	Purpose	Used for
Field notes	Chronological summary of the days occurrences; some reflexive notes were recorded here	For reference; coding;	HCAs, team members, clients
Research Diary	Daily summative thoughts, memos, ideas and decisions about the next day's data collection	For use in confirming *quality* of methods undertaken (together with other sources)	Self
Photo Diary	Daily photos of scenery in the surrounding area	Environmental context (physical)	Self
Artifacts	Maps, county promotional materials, local newspapers, web pages	Environmental context (economic, institutional, cultural, social)	Self
Personal Diary	Ponderings, musings and general thoughts about how the day went, how I influenced the direction/quality of data collection and analysis.	Reflexivity	Self

Data generation with HCAs. The participant observation of the HCAs consisted of shadowing and interviewing each of them on one or two of their daily shifts (anywhere from 5-8 hours/day). I accompanied the HCAs on a variety of home visits including visits to clients who resided in the local area and those whose homes were at the outskirts of the catchment area (the furthest being 77 km away). Interviews, both informal and semi-structured, typically occurred while driving from visit to visit or during coffee or lunch

breaks. The questions asked were directed at gathering information to verify and expand on the findings from the broader HCA-T project (i.e. retention and recruitment strategies) and to hone in on their thoughts and feelings about the potential use of ICTs (see Appendix E). This targeted questioning is in keeping with focused ethnography (Robinson-Wolf, 2012).

In addition to interviews and informal observation, I planned to complete structured observation and measurement of tasks such as time spent communicating with colleagues, time spent in documentation, number and type of safety hazards encountered on a data tracking sheet (see Appendix F). It soon became apparent though that these types of data were not going to be as fruitful or useful as first thought. As a result, the observations became less structured and my attention shifted to observing the qualities of the HCAs interactions with their clients and colleagues. This shift in *plans* is accepted as part of the non-linear and iterative process of data collection in qualitative inquiry (Munhall, 2003) and is seen as responsive data making (Richards & Morse, 2007).

During all of the visits and interviews, notes were kept in my observation notebook and more detailed field notes were written up at the end of each day. Interviews were digitally recorded and transcribed verbatim.

HCA 1 (Jane) was also recruited as a participant for the HCA-T project device simulation. Two members of the HCA-T project team joined me, bringing three of the tablet devices which had both custom-designed and

commercially available applications (apps) chosen specifically to address the needs/challenges identified by HCAs across the province. The simulation (one of 17 which occurred across the province) took place on the seventh day of my data collection and included a one-on-one teaching component, a device trial component, a follow-up interview with HCA 1, and a focus group with the members of the home care team who were available at the end of the simulation day (HCA 2 -Lynn was in attendance at the focus group). Notes on the simulation were recorded in my observation notebook with more detailed field notes written up at the end of the day and forwarded to the project team for inclusion in their analysis. The HCA-T project team provided access to the interview and focus group transcripts and the data from the simulation were used to support and triangulate with my own data and findings.

Data generation with clients. Informal conversations with clients and their family member(s) were typically struck after discussing the purpose of the study. Clients and family members were keen to share their thoughts about the impending shortage of HCAs and had many ideas about what the government should do about it. They were unanimous in their acknowledgement of the vital role HCAs play in supporting them and others to live safely in their homes. Notes were recorded in my observation notebook and more detailed field notes were written up at the end of each day.

Data generation with team members. Interviews with the other

team members were arranged at their convenience, usually first thing in the morning or at the end of the day. Interviews initially followed a semi-structured format (see Appendix G), but questioning shifted to gather data that would help expand my understanding of the overall situation. Interviews were digitally recorded, transcribed verbatim, and notes were taken. As mentioned above, the team members were also invited to attend the device simulation focus group.

Researcher notes. Four separate electronic documents were kept and added to each day. The first was *Field Notes,* where the notes recorded in my observation notebook or on the tracking sheets and interview guides were written out in full and expanded detail. My *Research Diary* was where I summarized my thoughts on the day, wrote memos, and recorded ideas for focusing the next day's data collection. The document titled *Photo Journal* was a compilation of photos taken (mostly of scenery as I did not have ethics approval to take photos of the participants or clients). The final document, my *Personal Journal,* was where I reflected on whether I heeded the words of advice and wisdom given to me by my committee members prior to my departure. My personal journal was also where I reflected on my feelings, thoughts, and experiences during the data collection and analysis phases. In hindsight I see that reflexive statements were recorded in all four documents as well as in my observation notebook.

Data Management. Interviews with the HCAs and their colleagues were recorded digitally and audio files were uploaded to a secure website operated by a transcription service (Transcript Divas). Once the transcribed files were returned (within three days) they were reviewed for accuracy and personal identifiers were removed or replaced with participant codes. All electronic files (audio, original and modified transcriptions) have been saved for reference if required.

Hard copies of the corrected transcripts were printed, sorted according to participant code, and filed in binders. Data tracking sheets and interview guides were filed together with the corresponding transcripts. My field notes and research diary were coded within the electronic document and were printed out together with the photo and personal journals for audit purposes.

Data Analysis. It had been my intention to use qualitative data analysis software to assist with coding and preparing data for analysis, however, technical difficulties prevented this from happening. Knowing that the prime rule of data analysis is that data collection and data analysis should occur concurrently so that data collection can be iterative (Richards & Morse, 2007), I switched to manual analysis. I started with my field notes, research diary, and the interview data that I had transcribed myself and continued on as each set of transcripts were returned. I followed the recommended process for data analysis as suggested by Angrosino (2007).

Descriptive Analysis – analyzing content and searching for patterns. I began by reading and rereading my *notes* (Angrosino's term for all of the data sources – field notes, transcripts, research diary, artifacts, etc). Having been part of the HCA-T research team for several months prior to my fieldwork, I had some preconceived codes in mind both from the HCA-T data (and being that part of the reason for my study was to verify the data collected in the HCA-T project, it seemed appropriate) and from the literature. I also remained open to the data and considered all new ideas and meanings that could come from it. In ethnography, coding of content is not conducted word-by-word or line-by-line but rather by statement or paragraph or what Morse (2008) refers to as "chunks of text" (p. 727).

Once I had received, reviewed and coded the majority of my notes, I moved on to categorical classification. I started by writing the codes on small sticky notes and laid them out on a table clustering them into common groupings. As the groupings formed, I came up with a category to classify them and wrote the selected category term on a larger sticky note. As I laid out the categories with the codes surrounding them, I started to notice relationships between various categories and the codes that branched from them. When I observed a relationship, I repositioned the categories to be beside one another whenever possible. With much reflection, consideration, and rereading of transcripts, relationships became clearer. With the shifting of the sticky notes, it became apparent that there were several categories that were so inter-related they became newly labeled, higher-level

categories[6] (subsequently shifting the remaining categories to sub-categories), which Angrisono calls *patterns*.

The words and phrases that made up the codes, subcategories, and categories, were transferred onto a sheet of paper and the sheets were taped together to demonstrate the proximity of the relationships – this became what I called my "concept map." Depiction of findings in visual format is well suited to ethnography (Agar, 1996; Morse & Field, 1995, Wolcott, 2009). It was only after I created the full map and after much consideration that the predominant *theme* for the main research question became clear. The theme revealed itself from between the categorical relationships – it was my "a-ha" moment (Fetterman, 1989 in Robinson-Wolf, 2012, p. 317). By theme I mean an overarching, all-encompassing concept that appeared to have contributions from each of the other categories and sub-categories. In this case the commonality showed through in a conflict evoking, dilemma-causing way, not quite the delicate "meaningful essence that runs through the data" idea of *theme* proposed by Morse (2008, p. 727) (more on this in Chapter Four).

This initial concept map was presented to the members of my committee on my return from fieldwork and they reported that the sub-categories and categories, although not identical, resonated with them and their understanding of the HCA-T findings to that point. I have since used

[6] I had been referring to the new categories as themes inadvertently and relabeled them as categories once I had read an editorial written by Janice Morse (2008) titled, "Confusing categories and themes."

concept mapping software to create more visually pleasing versions which evolved in their representation right up until this document was ready for submission.

Rigor. Issues of validity, reliability and generalizability are terms associated with ensuring the rigor of quantitative methods. Extensive discussion has occurred about whether these criteria can be or should be applied to qualitative research. Acknowledging that the concept of rigor in qualitative methods must be addressed, numerous "parallel terms" and descriptions of how to address rigor have been suggested (Finlay, 2004; Morse, Beres, Spiers, Mayan & Olson, 2002). To ensure that no details were overlooked and the trustworthiness of my data would not come into doubt, I employed the criteria recommended by Lincoln and Guba (1985) as summarized by Finlay (2006, p. 321). Based in naturalistic inquiry, Lincoln and Guba's criteria are congruent with the methodology that guides ethnography (Robinson-Wolf, 2012).

a. Credibility (internal validity) - "the degree to which the findings make sense." Participant checks are the main way recommended to achieve this criterion; they are a means of confirming whether the data are recognizable to the participants. To meet this requirement, two documents summarizing the preliminary findings were created prior to my departure from the field site. The first (see Appendix H) outlined the tasks in an HCA's daily workflow, listed the challenges they encountered, and highlighted the *pros* and *cons* of possible ICT

solutions that they identified in their interviews with me. The second document (see Appendix I) summarized the HCAs' responses to the semi-structured interview questions and compared them to what was found in the interviews, focus groups, and surveys conducted around the province as well as to the literature. Copies of the two documents were left for the participants to review and they were requested to ensure nothing was missed or misrepresented. Their response was positive and the participants voiced their gratitude for the comprehensiveness of the document.

Prolonged engagement in the field, persistent observation, and triangulation are the final three recommendations to achieve the criterion of credibility. The extent to which these were addressed has already been described in various subsections of the *Data Collection* section.

b. Transferability (external validity) - the provision of a "detailed portrait of the setting in which the research is conducted" so that the reviewers of the study can determine the relevance of the findings for their purposes. Details of the study participants and the research setting have been provided in various subsections of the *Data Collection* section. The stories and vignettes also provide essences of the participants and setting for the reader.

c. Dependability (reliability) – the production of an audit trail made readily available for "external scrutiny." All documents relating to

research procedures have been retained. A colleague has audited the documents to ensure that the procedures undertaken, including any changes, have been adequately reported in this thesis.

d. Confirmability (objectivity) – the determination of the quality of the study. The best way to demonstrate the quality of a study is to be as thorough as possible in describing the research methodology and methods. I have tried my best to do just that in this chapter.

Attending to these criteria act as the "quality control" of the study (Agar, 1996, p. 14), providing the foundation for potential readers to use in determining whether I *got it right*. The ultimate goal of paying such close attention to rigor is to ensure my findings can be considered "beyond question, beyond challenge, and provide pragmatic scientific evidence that must be integrated into our developing knowledge base" (Morse et al. 2002).

Chapters Four and Five present the descriptive and interpretive findings of this study and are evidence that can be integrated into the "developing knowledge base" of the HCA culture and where they stand in terms of ICT acceptance.

Chapter Four: Description and Analysis

Given the quantity of data collected from the various of sources, it is a challenge to determine the best way to present the findings in a way that achieves the study purpose while staying true to the theoretical foundations of ethnography.

Ethnographies are typically recounted in one of three different styles: realist, confessional, or impressionistic (van Maanen in Creswell, 1998). The realist style presents an objectively rendered portrait of the group of study. The confessional approach describes the researcher's *experiences with*, rather than *experiences of*, the group of study. The impressionistic style combines aspects of both the realist and confessional styles and the resulting account is a "compelling and persuasive story" (Creswell, 1998, p. 182). This use of stories, in literary fashion, is encouraged as a means of evoking, in the reader, a sense of familiarity with the group – it is a technique referred to as *verisimilitude* (Adler & Adler, 1994; Angrosino, 2007). Verisimilitude "is a style of writing that draws the reader into the world that has been studied so as to evoke a mood of recognition," it is used to achieve a description that is "coherent, plausible, and recognizable by readers from their own experiences or from others things they have read or heard about" (Angrosino, 2007, p. 60).

I have chosen to present the findings using an impressionistic style following a three-step process outlined by Wolcott (1994, 2009). His

recommended steps provide a framework for an increasingly refined representation of the data.

The first step Wolcott recommends is to start with a detailed description of the group of study, "inviting the reader to look - through your eyes – at what you have seen. ... Presenting a straightforward description… no footnotes or intrusive analysis – just the facts, carefully presented and interestingly related" (Wolcott, 2009, p. 29). In the second step, analysis, the ethnographer is directed to identify, depict, and further describe the patterns that emerged in the categorical analysis, displaying findings through "tables, charts, diagrams, and figures" (Wolcott, 1994, p. 31). Finally, in the final step of interpretation, the researcher is called on to make inferences from the data, connecting both to the literature and personal experience (Wolcott, 1994 & 2009). This step-wise progression towards the interpretation of the primary, overarching themes is consistent with the focused nature of this study and its research questions.

The following two figures (Figures 3 & 4) serve as both a summary of the data analysis and an outline of the order in which the findings will be described and discussed in this chapter and the next. Recalling that I brought to the study setting my knowledge and the skill of occupational analysis, the sub-categories in the Description column of Figure 3 are presented in a way that reflects the "identification, classification, and interpretation of the personal and environmental factors that influence occupation" (Townsend & Polatajko, 2007, p. 128). Figure 4 follows the order of when, where and how

the HCAs, their colleagues and clients identified that ICTs could be useful including the advantages (pros) and disadvantages (cons) they anticipated.

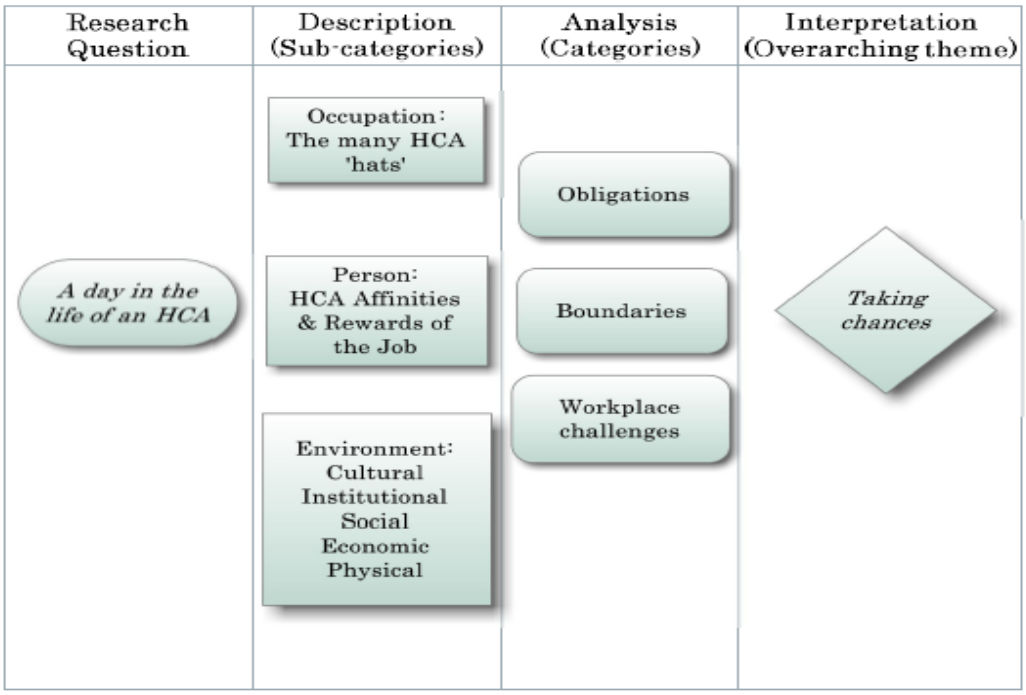


Figure 3. A day in the life of an HCA in rural Alberta

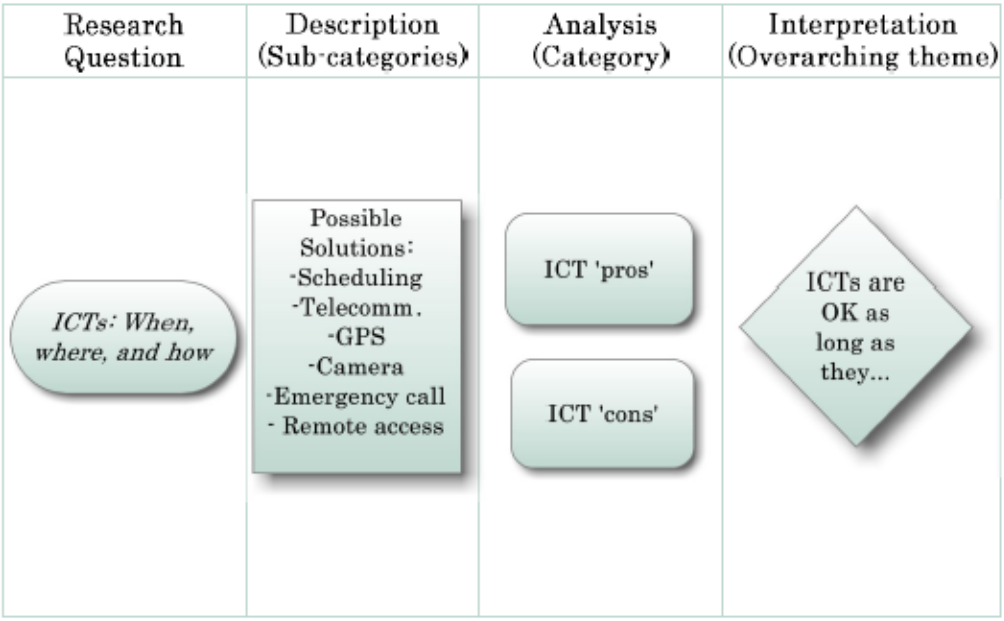


Figure 4. When, where, and how could ICTs be useful?

The first two of Wolcott's steps in the representation of ethnographic research findings, description and analysis, will be addressed in this chapter. In Part 1, brief stories and quotes will be interspersed with the concept maps of the sub-categories to provide a detailed description of what it is like to be an HCA. Similar strategies will be employed in Part 2 to depict and summarize the thoughts of the HCAs, their clients, and team members about the role ICTs could take in their work. The two main themes, *Taking chances: Balancing motivators and consequences* and *ICTs are OK as long as they…* , including how they stemmed from the categorical analysis, will be discussed in Chapter Five. Vignettes, written to elicit verisimilitude will be included throughout.

Recalling the last principle of ethnography listed in the preceding chapter, the following representations of this research study are a construction of meaning between and influenced by both the participants and myself (e.g. our knowledge, values, beliefs that we brought to the study). They are a reflection of what I have come to know as the culture of this particular group of HCAs who provide home care in rural Alberta.

Part 1: A day in the life of an HCA in rural Alberta

I will begin by describing the occupation of the group of study. Law et al. (1996) define occupation as "groups of self-directed, functional tasks and activities in which a person engages… to meet intrinsic needs for self-maintenance, expression, and fulfillment" (p. 16); occupations are typically

classified into the tasks and activities of self-care, leisure, or productivity. In this case, the occupation to be analyzed includes the functional tasks and activities of frontline health care provision engaged in by HCAs to fulfill their need for productivity. I will next move on to describe the attributes and skills of the HCAs I shadowed as well as the things that motivate them to continue in the HCA occupation. Finally, I will conclude with a description of the various aspects of the environment and how they influence the HCAs' performance of their work. Vignettes (in text boxes) and portions of text from interview transcripts (italicized) are included to give clarity and substance to these findings.

What do HCAs do? The many HCA "hats" (Occupation). The Occupational Profile of HCAs in Alberta (OCCinfo©;alis.alberta.ca) outlines the various duties that fall within the HCA scope of practice. Support and assistance for personal care activities such as bathing and dressing comprise the bulk of the duties. As well, under certain circumstances, it is within the HCA scope of practice to complete specified delegated health care tasks such as simple wound care, the donning and doffing of stockings or orthotic devices, and medication reminder or assistance programs. Their supervisors outline the tasks they are to complete with each client in care plans and they are to complete only those tasks listed. Their daily schedules are typically determined for them by their supervisors and they are expected to document the completion of tasks listed on the care plan and report any variances in the client's condition or situation to their supervisor immediately. HCAs are

often referred to as the 'eyes and ears' of the healthcare team because they see clients more frequently than the healthcare professionals that supervise them and are often more attune to subtle changes in a clients health or home situation. A list of the tasks and activities in the process of having an HCA see a client at this particular site can be found in Appendix H.

Although clients are referred to home care primarily because they require HCA assistance for personal care, within the first day of my study, it became clear that the HCAs I was shadowing did more than just assist with bathing or don stockings for their clients. As a result, I became more attentive to the various additional duties they performed and roles they assumed. Each different duty or role that I observed or that the HCAs reported doing was coded, and a sub-category entitled *The many HCA "hats"* (Figure 5) was used to represent the breadth of the HCA role.

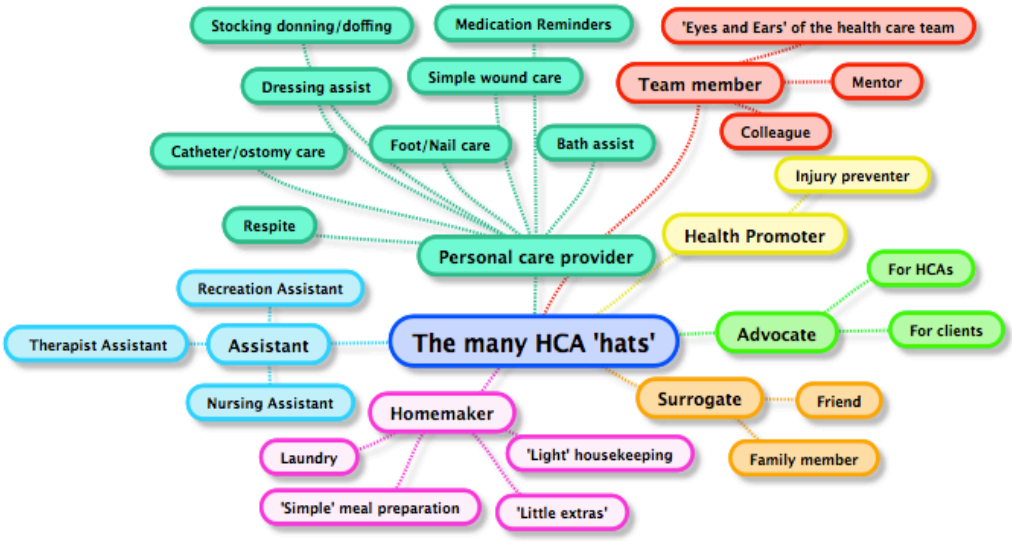


Figure 5 The many HCA "hats"

Ella and Jane

We met in the parking lot of the health centre at 7:30am; the first client to be seen today likes to be out of the tub before 8am and it takes 25 minutes to drive there. The client usually gets himself into the tub because he likes to soak for a while before Ella gets there to clean his back and feet and help him get dressed. Ella tells me that she and Jane were at the client's home yesterday delivering and installing a battery-operated bath lift. It was a solution they came up with in consultation with the OT after an incident the week prior when the client couldn't get out of the tub. Although reportedly in good health with no back problems, the AHS 'zero lift policy' meant that Ella couldn't help him out despite him telling her all he needed was her arm to pull up on. She called the office to explain the dilemma and they told her to call an ambulance. The client and his wife didn't want such a fuss and instead called on their son and a neighbour for help. This incident, combined with the fact that Ella stood her ground about no lifting, made the client open to and accepting of the bath lift – Ella doesn't think he would have accepted it otherwise. She was grateful for Jane's help; she frequently relies on Jane's 30 years of experience to help guide her in this job which she has been at for only six.

Some of these additional tasks/duties were recognized and appreciated by the HCAs' colleagues (e.g. eyes and ears of the health care team, therapist assistant, laundry), and others were recognized by the HCAs as the key reasons for remaining in their jobs (e.g. doing the little extras, health promotion/injury prevention). The HCAs' supervisor took issue with the prospect that they might adopt the role of surrogate friend or family member, stating it was inappropriate to step outside the bounds of the home care mandate and the client-care provider relationship. Nevertheless, the HCAs saw becoming friends with clients as a natural outcome of personal

care provision over months and years, especially if they had known a client beforehand.

> *They always tell you you're not supposed to get involved with your clients and all that kind of stuff, but there's no way when you go - I've been going out to her place for five years – that you can't have a tender spot in your heart for them. ... I think, if you don't care you've taken the whole reasoning out of it; take the care out of homecare, there's nothing left right?* (Jane)

Gina, who had been reprimanded for taking a client to a doctor's appointment in the city on her day off, echoed Jane's sentiments and defended her decision stating, *"my caring is 24 hours, it doesn't turn off just because I'm not at work!"*

What does it take to be an HCA? HCA Attributes and Rewards of the Job (Person). One of the clients told me after I explained the purpose of the study, *"Not everyone is cut out for this job, you know."* This client worked as an LPN in the county for 30 years, back when LPNs provided the hands-on care that HCAs provide now. We can see from the stories and quotes above that one attribute the HCAs shared was their caring nature. As well, many of the HCAs I have encountered in my career are earnest, hardworking individuals who take their responsibilities seriously. However, they are providing the majority of the frontline care in home and facility-based care, often without the proper resources (staffing, equipment) with which to meet the high expectations of productivity. What was it, I wondered, that appealed to these women to become and continue as HCAs despite the challenges and frustrations? The sub-category of *HCA Attributes* (Figure 6) included the

intrinsic traits and skills that the HCAs identified as being essential to performing their job well. *Rewards of the Job* (Figure 7) were the extrinsic aspects of the work that the HCAs said made the job fulfilling.

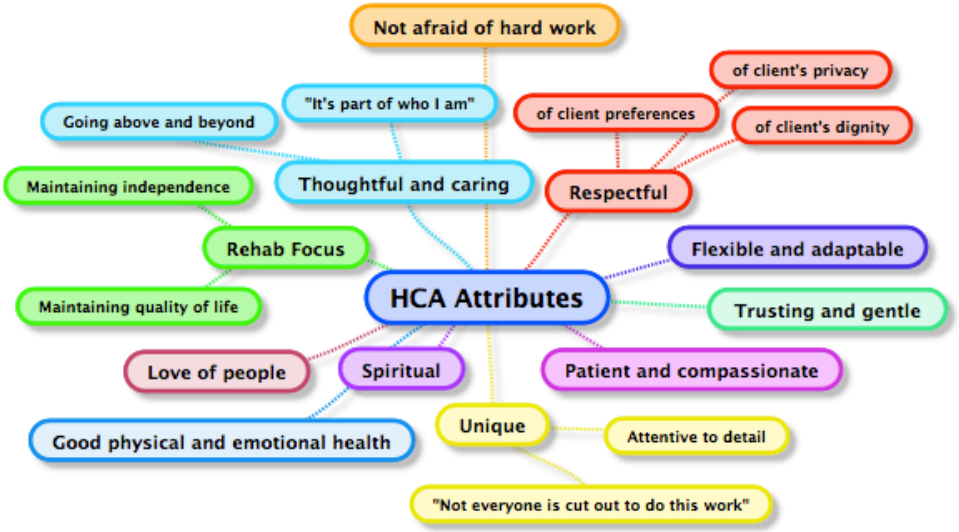


Figure 6. HCA Attributes

Figure 7. Rewards of the Job

Gina and her client, the retired LPN

We entered the client's home to provide a bath assist. Gina had warned me yesterday that the client is a bit of a hoarder and that I should not be surprised by or make any comments about the clutter in her home. There were stacks of papers around the kitchen and, in the living room, there were stacks of VHS tapes and DVDs circling her recliner. Otherwise, the kitchen floor was clean and there was a clear path for her to maneuver her walker from the entryway through the kitchen and into her bedroom and bathroom.

As Gina bathed her, I overheard them discussing the role HCAs play in helping people stay in their homes. After the bath, Gina left the client to dress herself. She helped the client from the house to her car and cleaned off the snow and ice while the car warmed up. The client was on her way to the local fast food restaurant for her daily coffee date with her friends. The client told me – "it's not for the coffee, it's for the company. … If one of us doesn't show up, we will call. It's not like we're snooping on each other, we just check up to make sure everything is OK." Gina and I joke; it's like Lifeline without the monitoring fee!

As we watched the client pull out of the parking lot we marveled at the irony - she is afraid of falling in the bathtub but not of falling outside on the ice! Gina mentioned that she always helps this client out to the car in order to prevent her from falling. She sees the value in helping the client maintain her social connections. She also knows that if she worked in the city she would not have the luxury of being able to provide the "little extras."

The HCAs also reported staying in the job because of what they got out of it,

> *It's not only that we give support to the people. I get something back from it. It's richness because most of the clients where I go, they have life experience and they share it with you and that's a plus to me. ... I love the relationships with my clients… it gives me a good feeling myself to talk with them and see how they are doing… you don't get that with other jobs.* (Gina)

> *I really enjoy it. Sometimes it just makes my day. I mean some of them are so positive. And you really feel like you are helping them.* (Lynn)

> *I have met so many interesting people…and they have such a wealth of knowledge… I've been lucky to know them; I probably would never have crossed their path had I not been in this profession.* (Jane)

These rewarding aspects of their work often counteracted the frustrations or challenges they encountered during their day.

What are the contexts that influence what HCAs do and how they do it? (Environment). Law et al. (1996) propose that there are several aspects of the environment that influence how a person performs his or her occupations. The cultural, institutional, socio-economic, social, and physical features of the environment in which the HCAs worked and their clients lived were both supportive ("enabling") and restrictive ("constraining") of their duties (Law et al. 1996, p. 17).

Cultural Environment - Team relations. Although the premise of the study was to describe the culture of the HCAs that were shadowed, it was also evident that they functioned within and were influenced by the culture of the home care team itself. Manifestations of the team culture clustered around the sub-category of *Team relations*. (Figure 8).

Figure 8. Team Relations

Evidence of the team's culture is exemplified in the story of Ella and Jane. Ella followed the chain of command by calling first for direction when her client was stuck in the tub. Ella and Jane were aware of the limits on their scope of practice and consulted with the OT to come up with a solution. The OT respected and trusted Jane's familiarity with the equipment and authorized her to lend the lift to the client. In the OT's own words,

> *Bathroom equipment-wise, they're fantastic, if I don't have time to go out and set-up, then I consult with them… I know the [client] already and I say, "Take this out and try it out and see if it works."… We have some very experienced [HCAs] … I trust their judgment.* (the OT)

Historically, the relationships between the HCAs and the rest of the health care team were not always collaborative and cooperative. It took time for the RNs, LPNs, and HCAs to sort out scope of practice issues and negotiate their respective roles in health care provision. One of the RNs described the time when HCAs (then called Nursing Assistants) were first hired to work in the long-term care wing of the hospital.

> *We were very reluctant when they came… because we just didn't trust them and their level of education… we kind of wanted to keep going the way we were going. ... So it was a kind of learning curve for us, a kind of 'letting go of the reins'… because we did a lot of the hands on care even then. (RN3)*

Gina noted a difference in how she was treated as an HCA 'on the floor' (referring to the long-term care unit) compared to how she is treated by her colleagues in home care where she has worked for the past year.

> *I can really only talk now from my experience here in the hospital. [There] it feels like we're on a totem pole on the bottom… whatever dirty work comes on it was pushed onto us in the hospital. In home care, it*

> *seems like we are even with the nurses because they treat you properly and if you have a question, they answer you… so I think in home care, we are even, equal, if you want to put it that way.* (Gina)
>
> *Well I think we're pretty vital to the staff, to the RNs. We're their eyes and ears.* (Ella)

***Institutional Environment* - Rules and regulations.** Agar (1996) states that "ethnographers must go beyond a focus on local communities [and]… situate them within the larger political economy, as people are part of states and of a turbulent world" (p. 11). The *state* that the HCAs were a part of was the relatively new provincial health authority, AHS, which was in turn part of the *turbulent world* of the Alberta Government. Strong opinions (and suspicions) were held by all members of the team (and their clients) about each of these institutions, none of which were particularly positive. AHS had rolled out several province-wide policy initiatives, which, according to the participants, constrained how the team members carried out their duties. Although the *Rules and Regulations* (Figure 9) were intended to improve client and employee safety, the participants saw them as burdensome and challenging to attain, especially in the rural home care setting as illustrated in the vignette that follows.

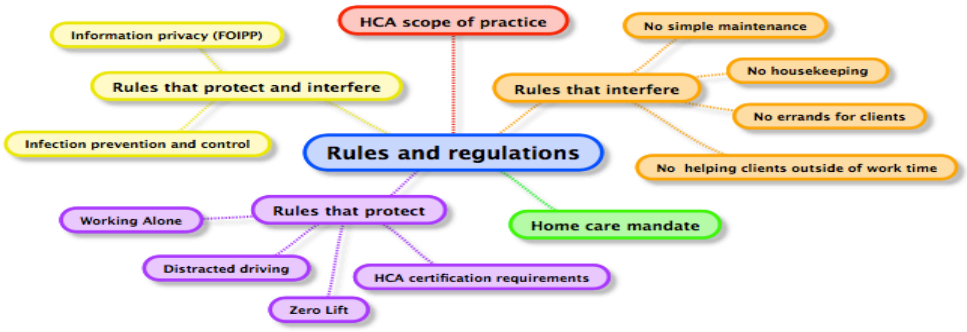


Figure 9. Rules and Regulations

Jane's soapbox issue #1 – Too many rules

"I stay as an HCA not because of the government, but in spite of them. In spite of them, because a lot of times they've brought in rules and regulations that are not in support of what we need to do. ... People are always telling us, 'We can't do this, we can't do that.' There are too many rules and regulations instead of letting the healthcare person that's in the home look at the situation and decide what [is] needed."

This response was triggered by a discussion we had about Jane putting a client's hair up in curlers after bathing her. Jane knows that having this task on her client's care plan has been allowed only as an exception because the extent of her client's disability and the distance she lives from the closest town. This upsets her for two reasons. Firstly, she thinks it's a rule created by "city folk" who have no concept of the challenges rural residents with healthcare needs face: *"I wouldn't be able to curl her hair – why? What does it matter? It's still personal care, it gives her a better quality of life and she can't get out to the hairdresser. It's OK to say that in [the city] where you might be able to phone up somebody who has a mobile hair salon and come out to the house, but what hairdresser is going to drive out here? They're not."* Secondly, Jane is infuriated by the fact that she would get paid more to set her client's hair if she was a hairdresser: *"I'm not a hairdresser but I'm sure cheaper than one."*

Jane's list of *rules that interfered* with her job continued. She can no longer help with simple home maintenance such as changing a light bulb because she would not receive Worker's Compensation coverage if she injured herself while doing so. Also, she can no longer provide nail care (other than simple nail filing) for her clients. Jane is trained in basic nail and foot care and has provided service to her homebound clients for over 20 years. Nail care was never within the HCA scope of practice but, historically, exceptions were made for rural areas; the new AHS policy no longer allows for such exceptions.

Socio-economic Environment –Remuneration. Although this group of HCAs had better wages and benefits than some of their counterparts employed by private agencies, they still noted several disparities (Figure 10). They were most upset by not receiving reimbursement for use of their vehicles for work like the RNs did. As well, a full-time work shift for HCAs is 45 minutes less each day compared to that of their RN, OT, or PT counterparts (7.00 hours per day versus 7.75) – this adds up to 195 hours (~10%) per year that they are not able to accrue toward their years of pensionable service.

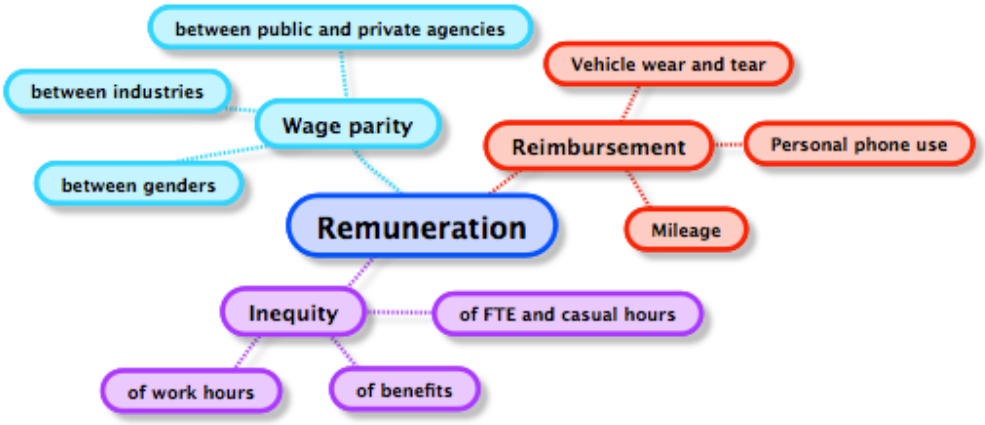


Figure 10. Remuneration

Gina and Ella also admitted, altruistic reasons for choosing to be an HCA aside, they really needed to work for the paycheque. Although both were over the age of 65, neither was financially stable enough to stop working.

[I work] for financial reasons because its only me and I've got to make sure that I've got a – so I don't lay any extra burden on my kids or anything – that I can make it. (Ella)

Jane's soapbox issue #2 – Not enough pay

Jane isn't so sure that the government truly appreciates the crucial role that HCAs play in keeping health care spending at bay by supporting people in their homes and keeping them out of hospitals and emergency rooms. If they did know, she says, they would insist that HCAs got paid more. She told the story of how her 19 year-old grandson got his Class 1 driver's license and now makes $7 more per hour driving a truck than she does after 31 years as an HCA. *"So if we're going to compete with that then you better have some money out there on the table or else who is going to go into the job?"*

She also recounted a discussion she had with her niece who, while on semester break from her LPN training, was working as a waitress at a restaurant. When Jane suggested to her niece that she should take a casual HCA position her niece declined claiming that she could make more money from tips. This infuriates Jane: *"We are looking after people's most valuable possessions - the elderly, the sick who need us, people [who are dying] – and we're asked to do it at a wage that most people don't begin at."*

Social Environment – The rural life (and the rural-urban disconnect)

Notwithstanding the HCAs' concerns about fair wages and equal benefits, they would not work in the city for any amount of money. Rural life was their way of life, despite the challenges it presented. The primary challenge they noted was confidentiality. The Freedom of Information and Protection of Privacy (FOIP) regulations exemplified, in their minds, the disconnect between the big city rules and the small town reality of *everyone knows everyone* (Figure 11). It was not possible to protect privacy when one lives in a small town.

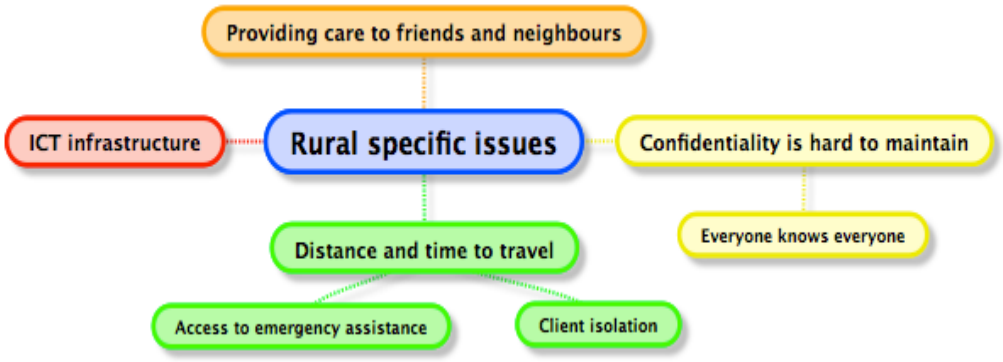


Figure 11. Rural Specific Issues

As Ella stated,

> *Here's the confidentiality thing here, this sometimes can be a little bit of a problem here in this rural area. You know you're not supposed to mention the name of another client in front of a client or anything like that. So one of our clients that's close to one of our clients said they see your van parked out front. 'Oh gosh, how's [Jim] doing?' That's what happens. 'Oh, I see you're at [Jim's] house. Is he still on home care?'* (Ella)

Providing care to friends and neighbours was another challenge the home care team faced. It was inevitable for the HCAs who, if they were not born in the area, had resided there for decades. Lynn, whose husband was well known in the county, admitted that she knew all but one of her clients beforehand.

> *And sometimes I sort of wonder how they feel. Not so much about how I feel, but how they feel about me. And they've all been really receptive which is nice. Because I thought there were some times when it could have been awkward.* (Lynn)

Access to assistance in case of an emergency was also problematic for the HCAs.

> *In a hospital, if I go into a room and there's a crisis I pull the help button on the wall and then I have a whole staff, medical staff that comes to my aid, a crash cart or whatever. They're all there for me. …If I run into a crisis in a home there isn't anyone else; [if] they have a heart attack while [they are] in the tub, I literally have to get them out onto the floor. I have to be able to do CPR until an ambulance comes - you know and I know that's going to be an hour and a half before the ambulance arrives there.* (Jane)

They were trained in Cardiopulmonary Resuscitation (CPR) and were prepared to have to administer it if required, but the thought of being so isolated was worrisome to them. Complicating matters even further was whether their cell phone would have connectivity if an incident happened on their way to or from a client's home.

Physical Environment -Roads and homes as workplace. The physical environment was where the differences between home care and facility-based care were the most pronounced for the participants (Figure 12). The HCAs recounted story after harrowing story of close encounters they had on their way to and from home visits. Freak snowstorms; fog so thick they could not tell which way was north; gravel roads with shoulders of unpredictable integrity; driving into, and needing to be winched out of, ditches; close encounters with semi-trailer trucks and wildlife; and flooded, impassible roadways were just some of the examples they recounted. Admittedly these occurrences were the exception not the rule, but the HCAs were apprehensive nonetheless. As mentioned previously, they were afraid of something happening and not having cell service to call 911 or if they had cell service, they worried about how long it would take for help to arrive. They

were prepared though: four wheel drive vehicles, winter tires,[7] and warm clothes and boots in the trunk were a must, as was water and provisions in case they were stranded for a prolonged period.

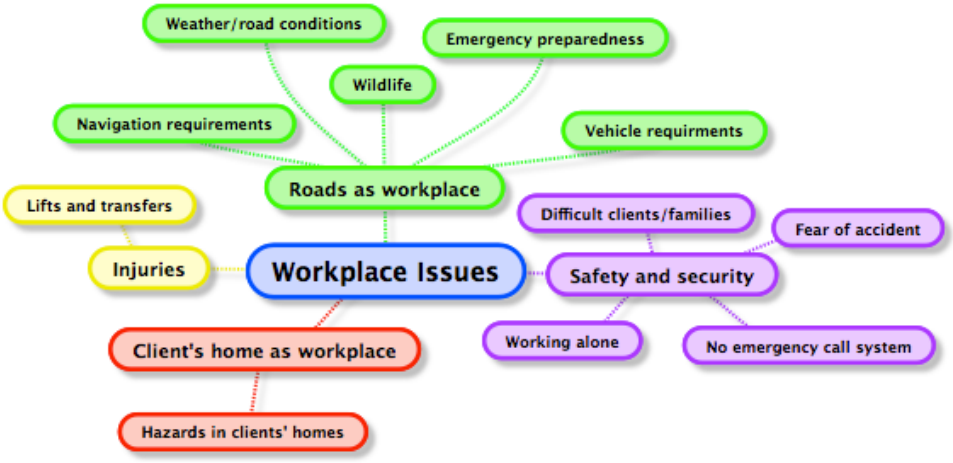


Figure 12. Workplace issues

Frequently, the state of the client's home was also problematic for the HCAs, as in the story of Gina and the retired LPN. Jane also had a story.

> Jane: *Now, I'll warn you before we get out there – their place is so cluttered you can hardly believe it; you wonder why people live like that. But they're the kindest, heartiest people in the world, they're wonderful people and they've probably lived like this their whole life. He was born and raised out here.*
> *It's like it's full of clutter, it's like, 'God, she should not be in this house with a wheelchair because she can hardly take it anywhere.' But that's one of the things you have to learn when you work in home care. When you're going into people's house that's their home and we have no right to criticize or to expect them to change their house to meet our standards.*
> *Angela: Have you ever been to a house that's so bad that maybe you think you're at risk?*
> *Jane: Yes, and there have been houses that we've reported and actually they've been condemned because there is a point where you have say,*

[7] The HCAs do not receive a subsidy or reimbursement for these preventative measures. The RNs receive $130/month if they are required to use their vehicle for work purposes.

> *'Hey, you know, this is not safe.' Whereas I can see her place is cluttered, but she washes her hands when she cooks and she's a great cook, and from the wheelchair she's making bread and she's doing all this stuff and she can hardly move.*

The HCAs respected their clients right to live as they wished and would decline to provide service in the home in only the direst of situations (lack of running water, electricity, or heating; abusive family members) and would always do their best to advocate for alternative solutions (i.e. having family members bring clients in to bathe in the hospital bathtub).

This commitment to and respect of their clients will be discussed in more detail in Chapter Five as the categorical findings of "obligations," "blurred boundaries," and "workplace challenges" provide the basis for an understanding of how the overarching theme of "taking chances" emerged from my interpretation of the data.

For Part 2, however, both the sub-categorical and categorical findings will be described in the following section. Again, figures, vignettes, and quotes will be used to enrich the description.

Part 2: When, where, and how could ICTs be useful?

ICTs to solve the HCA workforce shortage: "Really? Are you kidding?"

When I introduced my study to the home care team on my arrival, they were polite but also perplexed – ICTs to solve the HCA shortage? Really? What about just paying them more, what about letting them work a 7.75 hour day like the rest of their health care colleagues? What about giving them equal benefits? What about having all HCAs hired through AHS rather than private agencies? Those would be the most logical first steps to address the shortage – wouldn't they? Why fuss around with ICTs, they wondered, when most HCAs in the province are

in their mid-40's or older and are long past ever being capable of learning how to use ICTs with ease or efficiency?

The nurses here are speaking from experience; they finally got their EMR up and running after several failed attempts as a result of technological glitches (namely, inconsistent connectivity). They are skeptical and apprehensive because, although ICTs are the way of the future, right now, ICTs are the curse of their present.

As the Region Manager summarized,

> *So they think 'great, that sounds good,' and then they go out there and nothing will work. ... It's a bit of a steep learning curve to learn the computer anyway, and then when it wouldn't work, it's just… 'Forget this!'… The whole process just breaks down when the technology doesn't work. Give us another ten years and this will all be a bad memory, and everything will be user friendly and everything will work. ... But you know, right now they are struggling.*

So, although the home care team appreciated the attention paid to them through their participation in the HCA-T project, they were reluctant to get their hopes up that a workable solution would be available any time soon. The *ICT 'cons': What about…* category (Figure 13) was based on experiences still very fresh in their minds, and although the HCAs were not involved in the EMR roll out, they saw first-hand the frustrations their colleagues faced.

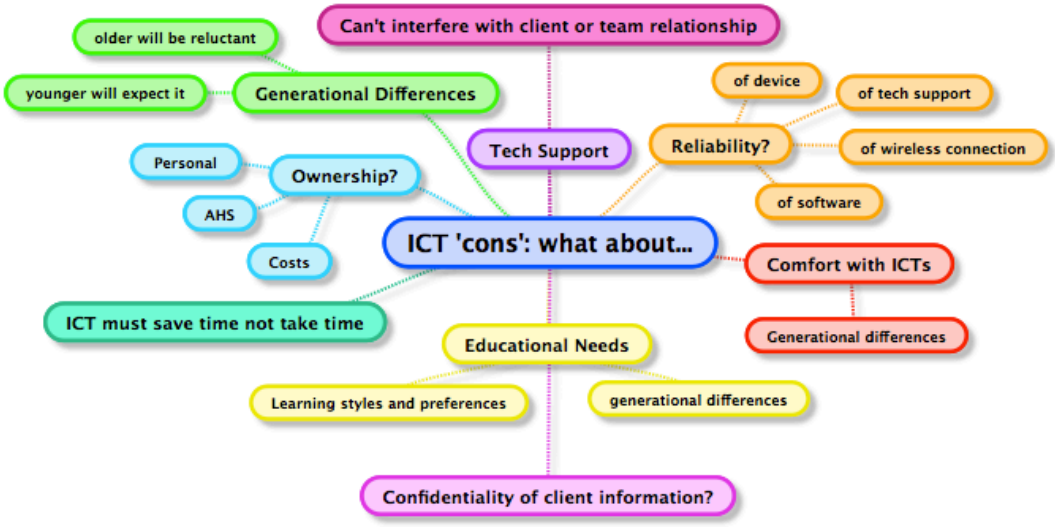


Figure 13. ICT 'cons': What about…

Nonetheless, the ICT device and applications proposed by the HCA-T team based on the findings from the Phase 1 interviews, focus groups, and surveys (Figure 14) were emphasized and discussed with the members of the home care team whenever they identified a challenge that could possibly be addressed by the device. During these discussions, greater willingness to consider, and even become excited by possible ICT solutions to their daily challenges was observed. The excitement became particularly pronounced once the actual tablet was presented at the simulation day. The HCAs and their team members were impressed that there was a device available for them to trial and that it had so many relevant features. They immediately saw the potential, reflected in comments such as, "I sure wish I had the tablet today, I would have…". Examples the team gave included an HCA wishing she

could have taken a picture of the unexpected edema in a client's legs and the clerk wishing she could have sent out an alert to an HCA requesting that she take the early morning visit for a colleague who called in sick.

Figure 14. Features of the HCA-T tablet device

The feedback from the HCAs and their colleagues regarding perceived benefits of the device/applications were compiled into the *ICT 'pros'* concept map (Figure 15).

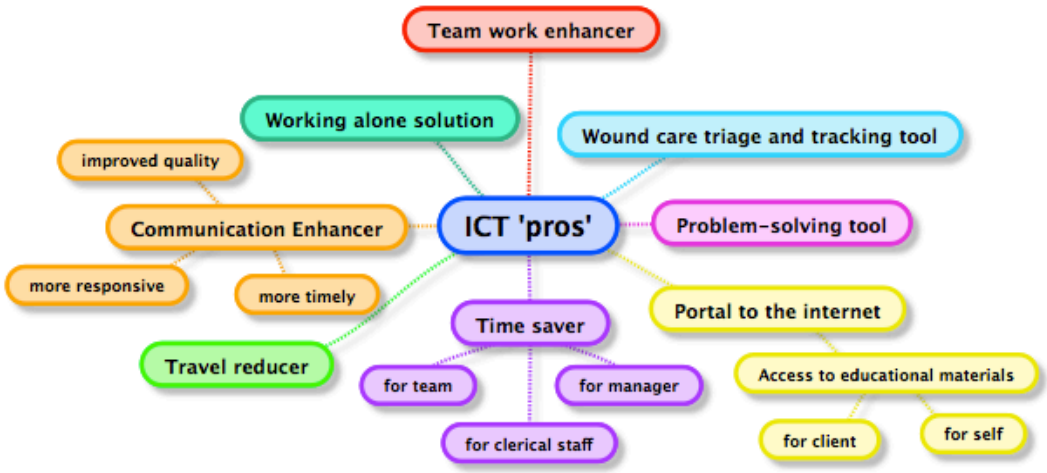


Figure 15. ICT 'pros

"If I could get more time with my clients"

Although Lynn is on the verge of retirement, she is keen to consider how her indirect and non-client care activities[8] could be streamlined. This is not because she is particularly eager to use technology at work, but because it would mean she could spend more time with her clients. *"I found the paperwork, you know 20-30 years ago there wasn't a lot of it. ... But now you have to – it seems like write everything down that you the minutes you take to do it, which I find is a little bit off putting. ... It's time-consuming. I could be out doing something."* I told her about the scheduling application that the computer science students had developed (based on the preliminary feedback from the participants in the HCA-T project). If it could also track her mileage, her time spent with each client, as well as have electronic forms where she could document her client progress notes – would that be helpful? *"Something as simple as that probably would, yeah, really help."*

"Even if I could just take a photo"

Two of the RNs told me they had clients, who by their own choice were sending pictures of their wounds via email. The benefits were significant: it saved time for both the RN and the client and it was an efficient means to monitor healing and wound care protocols.

So when asked to imagine a world where the confidentiality and connectivity hurdles were set aside and they could pick the most useful, highest impact ICT– the ability to take and send a photo instantly was what they dreamed of. Particularly in rural Alberta where a photo of a wound, a rash, or a swollen limb wasn't just worth a thousand words – it could also save a nurse (with a 120 client caseload) a two hour, 180km round trip drive as well (or at least get the client on the road to the hospital emergency room sooner).

Even if you had an iPhone you could send a photo back to the office… [and ask the nurse], 'what do you think I should do?'… I think it would be a wonderful thing because especially in a situation like this where you're an hour away from the office. And if you are there and there's something that you could do, something minimal that you can do…to stop another person driving all the way out there. (Jane)

[8] Indirect client care includes those activities associated with a particular client but not performed with the client such as travelling to the client's home, documenting the client's progress, consulting with other care providers about the client, etc. Non-client care activities include workload/activity tracking, compulsory education, team meetings, etc.

The HCAs were particularly interested in the emergency call system that I had brought with me. They knew that every day they travelled to their clients' homes they were at risk - not just on the roads but in their client's homes as well. Anything could happen and were they prepared if it did? Well, they all carried cell phones now (their own personal phones, not employer supplied phones) but my trips with them out to the far reaches of the catchment area demonstrated the unreliability of the cellular infrastructure. The most recent 'Working Alone' policy stated that they were to call the office when they were going on visits so the clerk knew where they were planning on being for the day. As an extra measure, Jane also called each client as she was leaving so they knew when to expect her and directed them to call the office if she did not arrive as planned. Not everyone followed the Working Alone plan, however.

> *There's one person who never calls the office to let me know her plans for the day and she never seems to have her phone on either. It's hard when a client calls to cancel or ask for a switch of time, we can't get ahold of her... So I have to go and look at the board and see possibly where she could be. And then I'll call the client and say 'Is so and so there?' or 'If they are coming, could you get them to phone the office?' And that's a lot of time wasted.... If I had the capacity to track where they were at or send an alert to them so that I didn't have to disturb them while they on a home visit that would be really awesome.* (Clerk)

Moving from Description to Interpretation

Wolcott (1994) suggests that the new researcher be cautious and thoughtful when progressing to the final step of representation of findings, avoiding what Morse et al. (2002) refer to as "cognitive leaps" (p. 13) from

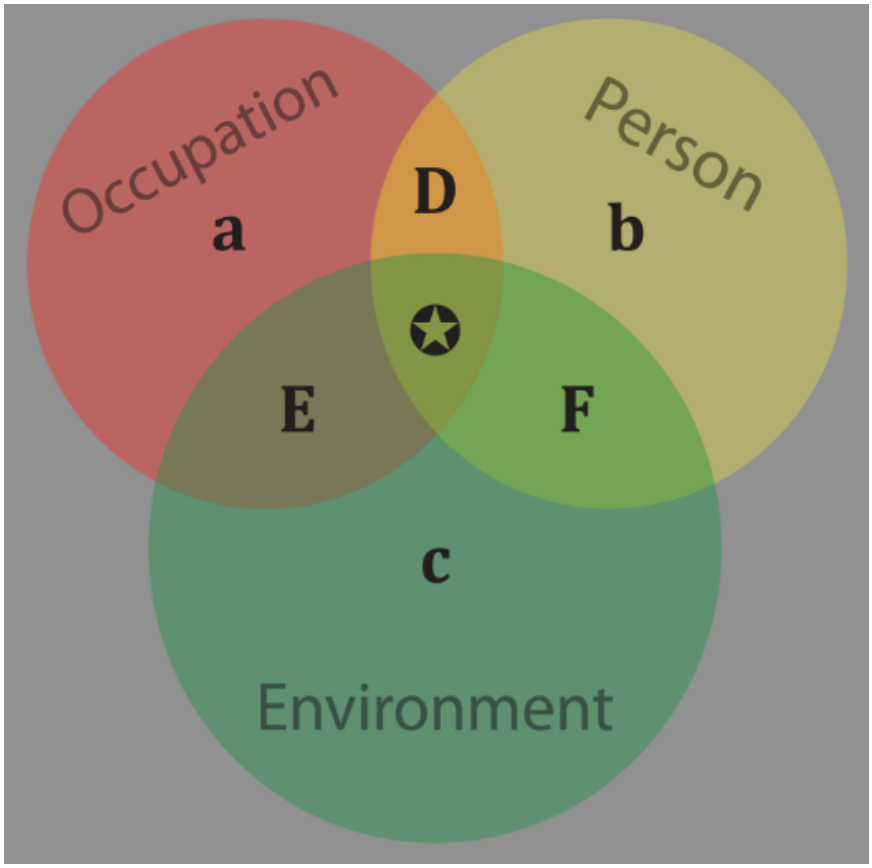
raw data to conclusions. Such leaps from one point to the other can be avoided by properly preparing the ground for the reader to traverse by means of "careful descriptive efforts and cautious analysis" (Wolcott, 1994, p. 36). The description and analysis are like stepping-stones that the researcher lays out to guide the reader through the researcher's thought process. The detailed descriptions provided in this chapter are intended as the foundation for the interpretations that follow in Chapter Five.

Chapter Five: Interpretation and Discussion

Wolcott sees interpretation as the researcher's "efforts at sense making, a human activity that includes intuition, past experience, emotion. … It invites the reflection, the pondering of data in terms of what people make of them" (Wolcott, 2009, p. 33). In my efforts at sense-making, I continued to employ a model familiar to me from my practice of occupational therapy - the Person-Environment-Occupation (PEO) Model of Occupational Performance (Law et al., 1996). Although originally intended as a framework to guide OTs towards a more holistic, transactional understanding of the ways in which their clients perform occupations, I found it useful to explain how the sub-categories and categories and the final overarching theme evolved from the data.

In Chapter Three, I suggested "a theme revealed itself from between the categorical relationships." It was not until I started to map out where the categories (patterns) and theme for "a day in the life" were coming from that I realized they emerged as an overlap between the sub-categories. Once I had classified the sub-categories as being related to factors of occupation, person, or environment, I began to see that the influence of one factor was occasionally causing a dilemma when it intersected with another. It was at these intersection points that the categories and theme arose. Constructing a Venn diagram in a manner similar to the one conceived by Law et al. (1996)

in the depiction of their PEO Model, I envisioned these overlapping influences in Figure 16.



Sub-categories

a. Occupation - The many HCA "hats"
b. Person - HCA Attributes and Rewards of the Job
c. Environment - Cultural, Social, Economic, Institutional, Physical

Categories

D. Obligations: To client, to colleagues, and… self?
E. Workplace challenges: The job duties versus the environment
F. Boundaries: Respecting, maintaining, blurring

Overarching Theme

✪ Taking chances: Weighing motivators and consequences

Figure 16. A day in the life of an HCA: Sub-categories, categories, and overarching theme

For example, the obligation that the HCAs feel towards their clients stems from who they are (person) and the job they have to do (occupation). Having a sense of obligation to a client is not in itself a conflict or a dilemma, but the data indicated that it became so when the obligation to the client overrode an HCA's obligation to her own safety or well-being.

Each of these overlaps (D, E, F, & ✪) will be addressed separately, drawing again from new and previously told stories, direct quotes from the data, and concluding with links to the literature in order to place "the findings … within the larger body of scholarly research" (Cresswell, 1998, p. 183).

Obligations: To client, to colleagues, and… self?

As mentioned in the example above, the category of obligations arose at the overlap between the attributes of a HCA and the personal rewards HCAs receive from completing the various duties/roles for their clients. As an example of this overlap: the thoughtful, compassionate, and hardworking HCA has been assigned, by her supervisor, the responsibility of meeting the personal care needs of a client and acting as the "eyes and ears" for her colleagues. The HCA is respectful of her client's dignity and preferences and the client appreciates and acknowledges this kindness. When her client's needs (and a few little extras) are met, the HCA has fulfilled her responsibility and leaves with a sense of accomplishment and gratification.

Hints of the HCAs commitment and dedication to their clients and their duties were heard through many of the stories relayed in Chapter Four. But the passion behind this sense of the obligation to client above all else is made clear in Ella's comments below:

> *Usually another thing is that we accommodate, we always try to accommodate our clients. [Supervisor] lots of times will say it's no big deal if they don't get a bath if we're short-staffed or something, but I really feel, and Jane really feels, that 'no, darn it, they need their bath,' so we can accommodate it. So we were looking at the board and I said 'well I'll take [Client]' and Gina said she'd take [Client] and there was somebody else to worry about; oh, [client] because two clients and out to [location] is about all you can fit in for a seven hour day rate… So [Supervisor] would have said 'we'll cancel [Client].' Well, no, let's not. Let's try to accommodate her… [Client] is a big lady and there's no way that her husband can help her at all. I think she needs that bath.*

The HCAs are required to advocate on behalf of their clients; their supervisor and colleagues do not understand their sense of obligation.

> *Some people – and not only the home health aides, but some nurses – think that they are indestructible and it's really not worth it, you know, I mean, to risk getting stuck, or risk having an accident or something, because you think you can make it. ... But you know they're not going to die from not having a bath.* (RN 3)

But from the HCA's perspective, it is not just the bath that a client is missing when a home visit is cancelled. The bath is just the approved care plan activity that gets them into a client's house so that they can fulfill other, and in their minds more vital, roles such as companionship, injury prevention, or observation of their client's health status. They are highly aware of their clients' social and physical isolation, as they are often the only other person their clients see in a week.

> *I can't think of anybody who goes in except us, you know, the RNs and the HCAs. And she just doesn't go out. They are so lonely… you know this person really needs a little bit of conversation.* (Lynn)

> *Yes. I usually do an hour with them because a lot of times, like I'll sit down, … I'll sit down and have a cup of coffee with them, or just a visit with them because she's so isolated that that 15 minutes talking to her... I might be the only woman she sees this week… My actual time [to complete her bath] is probably 45 minutes even when I curl up her hair, but I do take the extra 15 minutes usually and sit down and talk to her because they both like the company, and especially when the roads are bad. Like she's got out more this year than she did last year; the roads were so horrendous last year she literally never left that house for over a month… and so when I couldn't get out I felt horrible; [if] she doesn't even see me.* (Jane)

> *I really appreciate her coming here so that I can see something other than these four walls.* (Gina's respite client)

The weight of this obligation adds pressure to their already hectic and challenge-filled day but, in turn, being needed and valued is what makes this occupation meaningful and fulfilling to the HCAs and keeps them in their job.

Workplace challenges and risks: Duties of the job versus the environment

The challenges that the various environmental influences present to the HCAs in the performance of their occupation have been itemized and detailed in Chapter Four. The dilemmas arose when the HCAs were forced to choose between their responsibility to a client and the external demands of the environment.

As recounted in *Jane's soapbox Issue #1*, Jane knew she was not supposed to replace the burnt out light bulb in her client's bedroom, but she chose to do so anyway. She rationalized that her client's husband faced far

greater risk and consequence of injury than she would, and she needed the light to be able to don the client's stockings. In Jane's mind, following the rules (imposed by the institutional environment) would have caused more harm than good. The guilt she would feel if the client's husband got hurt was worse than the guilt she would feel doing the task she was not supposed to do. Although confident that she could defend her choice if reprimanded, she was apprehensive of getting in trouble nonetheless; she did not wish to be defiant. Rather, she wished that the rules could be rewritten so that she could assist the couple without consequence.

The challenges that the physical environment presented, specifically weather, also forced the HCAs to make choices: "*should I stay or should I go*?"

> *So anyway, you can leave town and it will be decent, and then get out here and, oh my gosh, I shouldn't have left… now what am I going to do? And then sometimes, like one day I hit a really bad fog bank… [and] now I'm closer to their place than I am to... the office. Do I take the chance that I'm going to drive through it, or do I stop and turn around and go back - so that sort of decision. And I continued to go and it was foggy out there; I just drove slower so then your travel time takes you longer*. (Jane)

We can see from Jane's quote that she chose to carry on to her client's home. The thought of her client missing her bath (and as discussed previously, it was not "just a bath") weighed heavy on her mind so she "took the chance." Her fellow HCAs told similar stories with similar end results; choosing to carry on with the home visit or complete an unapproved task rather than playing it safe.

Boundaries: Respecting, maintaining, blurring

The category of boundaries arose at the overlap of the person and the environment. In many instances, the overlaps between the attributes of the HCAs and the environmental influences were complementary and contributed to the rewards that the HCAs received from their work. They had a supportive cultural environment with a team that acknowledged the value of their role and granted them autonomy and flexibility in scheduling. As well, the ever-changing institutional and organizational requirements and the unpredictable, less-than-ideal physical environments they worked in meant there was *"never a dull moment"* (Ella). Some of the institutional rules and regulations helped them to set limits with their clients, and their adherence to these policies was obvious (e.g. zero-lift policy, use of personal protective equipment, respecting a client's right to live at risk, refusal of gifts, etc.). However, there was one rule within the culture of health care that was problematic – the maintenance of "professional distance." Stepping over the line from being a caregiver to being a friend crossed a boundary they struggled to maintain, and their colleagues were concerned.

> *I keep that distance; it's a professional distance… [the HCAs] don't know where to draw the line as far as being a professional and a friend… and it's harder when you're living in your community. ... I've been involved when people get into trouble, and so you see what happens when people don't draw the line.* (RN 3)

But the HCAs disagreed that boundaries or distance could be set or maintained given their unique circumstances. As they saw it, they provided personal care for their clients more frequently than anyone else on the team.

The expectation that they should establish and promote an atmosphere of comfort, respect, and trust with their clients while remaining bounded by an appropriate caregiver-recipient distance seemed impossible, especially when the complexity of prior acquaintance was factored in. The HCAs disputed whether it was even possible to delineate where an "appropriate" boundary should lie. Even if they did not know their client beforehand, after months or years of providing regular care in the comforting, trusting atmosphere they had worked hard to establish, friendships inevitably formed. This brings to mind Jane's statement cited in Chapter Four – *"there's no way you can't have a tender spot in our heart for them."* As RN3 astutely noted, despite her concern about the HCAs "*getting into trouble"* by becoming so involved, "*it's really the relationship that they establish with their clients that keeps them working."* She was bringing attention to the fact that it was not just the clients' needs being fulfilled through these relationships.

To complicate matters, as they developed closer bonds with their clients, the HCAs noticed that the client's family members were either absent or unaware of the client's current situation (sometimes better or sometimes worse than how the HCAs saw it). As a result, they felt compelled to fill in for absent family members by running errands (like Gina did when she took her client to the doctor) or advocating on behalf of a client when they perceived that family members did not have the client's best interests in mind.

> *She's trying to stay [at home] as long as she can. She could go [to the Lodge] and I think she's been asked a few times. They've had vacancies*

> *and she's just refused. I mean her family has really been after her to go in, but I really don't see any need for her to go at the moment.* (Lynn)

But what the HCAs saw as advocacy, their colleagues saw as a risky blurring of boundaries and cautioned them regularly.

> *You can't be the be all and end all to all your clients… you can't. You're not their only resource in the community; you can't be, you know, and you can't think that you are*. (RN3)

Taking chances in spite of risks

From within the vortex of obligations, challenging workplace conditions, and boundaries that became blurred, the theme of "Taking Chances: Balancing motivators and consequences" emerged. The title for the theme was inspired by Jane's description of her decision-making process when confronted with the blinding fog on her way to a home visit. But there were also other examples the HCAs cited when they had stopped to think about something they were doing, weighed the consequences, and made a decision – usually in favour of the client rather than themselves. They chose to take a chance, in spite of risk.

Figure 17 illustrated the motivators for, as well as the consequences of taking chances, and the two stories that follow are written to evoke an understanding of what it was that motivated the HCAs to take these chances.

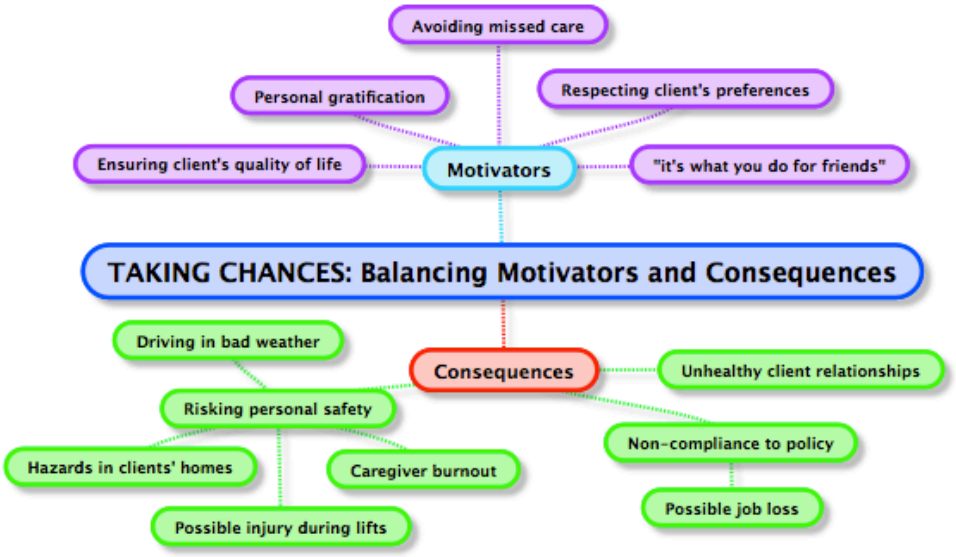


Figure 17. Taking Chances: Balancing Motivators and Consequences

Why they "take the chance": One reason

The clients served by this home care office reside at the furthermost reaches of the catchment area. Currently, the furthest client resides 77 km from the office. The clients who live at a distance have typically lived on the land either since they were born or since they were married. As a result, they feel very strongly about continuing to live on the home farm and hold a wish – as Jane put it – *"to die with their boots on."*

The distance at which they reside, the terrain surrounding their residence, and the limitations that put them in need of home care services, all contribute to the isolation these clients experience, especially in the winter months. The HCAs report that they are often the only person whom (outside of their client's family) the client sees in a week. In the case of clients who reside at such distance, a visit cancelled due to weather conditions or staffing shortages means that a client will miss their weekly bath or a caregiver will miss their weekly respite visit. Although neither of these is considered medically necessary or urgent, this "missed care" weighs heavily on the mind of the HCA for several reasons. She knows that because her schedule is predetermined that she can't just "try again tomorrow" like her nursing colleagues can. She imagines how she would feel if she couldn't have a bath or envisions a calamity if the caregiver attempts to provide the bath instead. Also, because the likelihood of providing care to friends and neighbours is greater in rural areas, the HCAs are often acutely aware of the circumstances that provoked the client or caregiver to seek assistance from home care in the first place. These reasons, in addition to their inherently caring nature, fuel the HCA's determination to carry on with the home visit regardless of the risks she encounters getting there, being there, or getting back.

Why they "take the chance": Another reason

The first item on Gina's list of challenges she faces in her work was providing care in tight and cluttered spaces. There is one client in particular whose bathroom layout and equipment is problematic for Gina, given her past back injuries. However, the client prefers the bath lift because she likes to soak in the tub. Gina is faced with the dilemma of requesting that the client use alternate equipment or refusing to have this client on her caseload. Gina knows that Lynn has experienced the same frustrations because she raised it at their team meeting a few months back, and it led to a discussion about the client needing to move to a different level of care. The client, who said she would be *"six-feet under"* if it were not for the support she received from the HCAs, lives with her husband who stated that the only way his wife would go to a nursing home was *"over my dead body; that's my promise to her because she's afraid of going to a home."* Given her strong desire to remain at home, the client conceded to having a grab bar installed so that she could assist more with her transfer into and out of the tub. At the time, the bar sufficed, but because her condition is degenerative, the HCAs are struggling once again and are providing more lifting assistance than they are allowed. Lynn, who has known this couple since they moved into the area 20 years ago, is torn. *"You feel as though you want to do more for her. And the reason sometimes I think I don't want to do more is because I'm sort of hoping the less we sort of do, you know, the more she'll think about well…'maybe I do need extra help.'"* Gina has decided she will not report her concerns and will carry on respecting the client's wishes and preferences. She too has known the couple since they came and predicts that it will in fact be the husband's dead body that triggers the crisis of the client's move to a nursing home; *"he doesn't look well to me, I can see that something is wrong*." In the meantime she will pray that she does not hurt herself; she loves her job and wants to keep working as long as she can. *"And anyhow,"* she says, *"I've got God on my side."*

Although the potential consequences were significant, what motivated the HCAs to carry on overrode any concerns about a possible incident. To see if this pattern of behaviour was common amongst HCAs or other healthcare workers elsewhere in the world, I turned to the literature.

What does the literature say?

About Obligations? McClemment, Lobchuk, Chochinov, and Dean (2010) found a similar commitment to clients in their phenomenological study of HCAs providing facility-based palliative care to older adults in Manitoba. Twelve HCAs were interviewed in order to capture their "experience of the ethical" (p. 204). The participants also felt an obligation to provide quality care, which was both attentive to their clients' comfort and respectful of their wishes. If for any reason they were unable to fulfill this obligation to their client (staffing/workload, lack of resources, interfering family members, ineffectual team relations), they would experience "moral distress" (p. 207) and frustration. Viewing the findings through a framework of relational ethics, the researchers described what the HCAs were experiencing as a "broken covenant." When the HCAs were not able to uphold what they perceived to be their responsibilities in the caregiver-client relationship, they viewed it as a failure to meet their commitment. Within the culture of the facility-based setting where the hierarchy of care providers was more traditional, the HCAs felt powerless and devalued and did not feel able to advocate on behalf of their clients, as Ella had done to ensure her client did not miss her bath.

About Workplace Challenges and Risks? Sherman et al.'s study (2008), reviewed in Chapter Two, revealed that the challenges reported by

the HCAs polled in New York City relating to the physical environment such as the condition of the client's home and dangers of travelling were similar to those facing the HCAs in this study. However, the HCAs in New York were more likely to leave their job because of these workplace conditions, whereas the HCAs in this study were considerably more accepting of them. Taylor and Donnelly (2006), in their grounded theory study of home health care workers in Northern Ireland (n=99), found a similar acceptance of sub-standard workplace conditions. In their findings they noted that, "home care workers seemed remarkably tolerant regarding their work environment" and "staff were understandably reluctant to refuse to provide home care service on the grounds of risks to the home care staff" (p. 251). Several possible explanations for this acceptance and tolerance were found in the literature.

Gong, Baron, Stock, and Ayala (2009) conducted focus groups and interviews with HCAs prior to the development and deployment of a workplace health and safety program in California. Workers reported that they felt uncomfortable asking their clients to rearrange furniture or equipment in order to improve safety and prevent injuries. They were afraid that their clients would complain and they might lose their job.

Hutchings, Lundigren, Mathews, Lynch, and Goosney (2010) conducted surveys and focus groups with workers who provided health and social care in people's homes in Newfoundland and Labrador before and after implementation of a workplace risk awareness and mitigation program. Those participants, who had longer careers in home care, admitted they had

become "hardened to risk" (p. 30) and apathetic about taking precautions especially after years of relatively incident-free service provision. Prior to being required to complete risk assessments for each of the clients on their caseload they had not perceived the hazards they encountered as risks. As far as they were concerned dealing with hazards was just "a part of their job" (p. 29).

Teams of researchers in Sweden and Germany combined to recruit 117 HCAs working with older adults in facility-based care (Richter, Åström, & Isaksson, 2012). They had the HCAs complete a standardized inventory designed to measure and classify personality characteristics. The results were matched to normative data collected from samples of the general population of each country. The HCAs in the study were found to score higher in the character dimensions of self-directedness and cooperativeness and lower in the temperament dimensions of novelty seeking and harm avoidance (p. 97). Based on these results, the researchers inferred that the HCAs were more likely to have "a more optimistic attitude in situations that might worry most people and confidence in social situations and in the face of danger and uncertainty compared to the general population of individuals" (Richter, Åström, & Isaksson, 2012, p. 98).

The HCAs in this study were hesitant to request that their clients alter their homes to make them safe (recall what Jane said; "We have no right to criticize or to expect them to change their house to meet our standards"). They were aware of the risks that the physical environment presented and,

for the most part, took precautions. Although they knew the dangers they faced going to, being in, and leaving from their clients homes and were apprehensive about these dangers, they took it all in stride – far better than a person not in their line of work would have. [9]

About Boundaries? The literature on boundaries is prolific and complex. For the purpose of this interpretation and discussion, I have chosen two articles that best represent the dilemma that the HCAs and their team members are faced with when talking about boundaries.

In her article "Fired up or burned out," Anewalt (2009) highlights the risks of blurring boundaries in client-care provider relationships. First, she explains that boundaries "protect the space between the professional's power and the client's vulnerability" (p. 592). Some of the "little extras" that Jane and Gina reported doing for their clients are on Anewalt's list of "personal behaviours that constitute inappropriate clinical relationships" (p. 593). Anewalt argues that doing such favours, although kind and considerate, actually place clients in a position of vulnerability because they become even more reliant on and indebted to the care provider. She does concur that the provision of care in people's homes, especially in rural areas, introduces additional complexities as care providers are required to

[9] I became hyper vigilant to the risk of *encounters with wildlife* after needing to slam on my brakes in order to avoid hitting two deer that crossed the highway after dusk one evening. When I told the staff the next day, they began recounting several stories where their vehicles were actually damaged. One client's husband teased me about exaggerating how close a call it actually was – "If you don't got a tuft of fur stuck in your headlamp then that ain't close!!"

negotiate “dual relationships” (p. 594) when friends and neighbours become clients.

Alternately, Piercy (2000) interviewed 16 HCAs working in home care, 10 clients, and 15 family caregivers from both urban and rural areas in the Midwestern United States. The purpose of her study was to “describe the types of relationships that form between older home care clients and their aides” (p. 365). Contrary to Anewalt, who suggests that the impact of power differential is mitigated by the setting of appropriate boundaries, Piercy found that it is actually when the boundaries are removed (or not set in the first place) that “close relationships, particularly friendships, are formed between client and aide [and] status and power differentials are reduced” and subsequently, “clients are satisfied with the work performed, and aides feel valued as persons” (p. 383).

These two perspectives are so markedly different that it is not surprising that a dilemma exists. The HCAs’ supervisor and colleagues endorse the former perspective while the HCAs themselves stand firmly in the camp of the latter. Anewalt cites evidence that boundary blurring puts care providers at risk for “compassion fatigue and burnout” (p. 595), and that doing favours, running errands, or having contact outside of the workday compounds the stress of the already emotionally demanding responsibility of caregiving. However, Piercy and others have found that the formation of close client relationships, which the crossing of boundaries allows,

contributes to job satisfaction and thus worker retention (Ashley et al. 2010; Coogle, 2007; Faul et al., 2010; McGarry, 2009; Mittal et al., 2009).

Before moving on to what the literature says about taking chances and reflecting back to Figure 17, the HCAs were taking chances for one or any combination of the following reasons:

- They felt morally obligated to provide all required care according to their clients' wishes;
- They were desensitized to the risks/consequences of the hazards they encountered;
- It was their inherent nature/character (they were not the worrying type);
- Their clients had become like friends or family;

About Taking Chances? To better address the question of what motivates HCAs to take chances despite risks and consequences, I searched for literature relating to health workers taking chances in their provision of client care. My search was not particularly fruitful. There was plenty of evidence highlighting the considerable risks health care workers encounter and deal with on a daily basis, especially in home care service provision (Fong et al., 2009; Kendra, 1996; Sherman, et al., 2008; Taylor & Donnelly, 2006). In response to these findings, researchers' recommended that employers implement workplace safety programs immediately (Brennan, 2010; Hutchings et al. 2011; Stevenson, 2008) and in fact many had (Ontario Safety Association for Community & Healthcare, 2003; UNISON, 2007). But

there was very little in the literature that addressed the concept of workers putting the needs of their clients ahead of their own personal safety.

However, in the findings presented by Hutchings et al. (2011), I did notice some interesting results suggesting that workers set aside their concerns about unsafe work situations. For instance, of the home care workers who completed the evaluation survey after the workplace risk awareness program implementation, 62% still reported having concerns working alone on home visits, 79% reported feeling unsafe when on remote home visits, 51% still entered a client's home even when they felt it was unsafe, but interestingly only 20% feared for their personal safety. This simultaneous awareness yet discounting of the dangers was a trait shared by the HCAs I shadowed.

Sulzbach-Hoke (1996) reviewed the literature and found numerous studies that reported inconsistent adherence by health care workers to the precautions for preventing exposure to infectious diseases. When one of the study's findings cited "perceptions that barrier precautions hinder the ability to perform procedures successfully" (p. 30) as the reason for noncompliance, the author turned to theories of risk taking to help her answer the question, "Why do health care workers take these risks when the consequences are so great?" Sulzbach-Hoke (1996) cited Denscombe (1993), who compiled several different theories of risk-taking into one overarching theory based in social psychology.

Denscombe (1993) proposed that people make decisions about risk based on their perceptions of the level of risk and their attitudes towards taking or avoiding risks. An individual's perception of risk will be influenced by how frequently he or she experiences the risk, one's sense of invulnerability, and the probability of the risk occurring. Attitude toward the risk is influenced by an individual's tolerance for the outcome of taking or avoiding a risk, the rewards they anticipate, the control they have in the decision to take the risk or not, and the inner need that will be satisfied if they take the risk.

As for frequency of exposure to the risk, the HCAs were on the roads and in clients' homes every day. Although they each had several stories to tell about when things went wrong, they calculated the likelihood of something happening again and, ultimately, they determined that the probability was low. They considered "what is the worst that can happen?" as they weighed the motivators and possible consequences. Recalling the two "taking chances" stories, one can almost imagine Jane and Gina running these factors through in their minds as each made their decision: Jane deciding whether to carry on in the fog and Gina deciding whether to tell her supervisor that her knees and back hurt when she helped her client in and out of the bathtub. In each case, the HCAs concluded, *my client needs me and getting hurt, stranded, or reprimanded is a chance I'm willing to take.*

And what about ICTs?

ICT solutions for HCAs who take chances. Two obvious ICT solutions come to mind. One could mitigate the risks associated with travelling and the other could reduce the guilt an HCA feels if a home visit has to be cancelled.

Firstly, the technology described in Figure 14 as an "emergency call system" is actually a commercially available product developed for use as a simple telephone and satellite tracking system for young children and older adults. The device connects to orbiting satellites and can offer broader coverage in rural areas when compared to cellular networks. In the case of an incident on the road or in a client's home, the HCA could press a button on the device and immediately connect to an emergency call centre. The call centre would arrange for the dispatch of the required service (ambulance, fire). This solution would address the HCAs' concerns about not having access to a call bell system like facility-based HCAs and not having cellular connectivity at some remote locations. The device would also make it possible to track the location of an individual, saving the time, effort, and worry of their colleagues back at the office.

The second solution would employ real-time video-conferencing. If each HCA, RN, OT, client had access to a smart phone or tablet that allowed for voice/video over internet protocol, the HCAs could still visit with their clients remotely, if for whatever reason they were unable to visit in-person. Clients could also use the device to connect with friends and family members,

thereby reducing both their social isolation and the HCAs concern about their social isolation, which clearly was a factor compelling HCAs to carry on with home visits.

Other ICT solutions. Referring back to Figure 13. *ICT 'cons': what about…,* the home care team had numerous apprehensions about ICT use, mostly because they had just been through a negative experience. Their concerns were valid and the literature is replete with examples of health care workers expressing similar apprehensions and skepticism (Munyisia et al., 2011; Stevenson, 2010; Tapper et al. 2012; van Gemert-Pijnen et al., 2011).

Once the ICT solutions had been presented (Figure 14), the team opened up to the potential (Figure 15). Keeping in mind that they had been led astray by the promise of technologies that "sounded good," and were all too familiar with the "glitches," they tempered their enthusiasm with an "as long as" disclaimer (Figure 18).

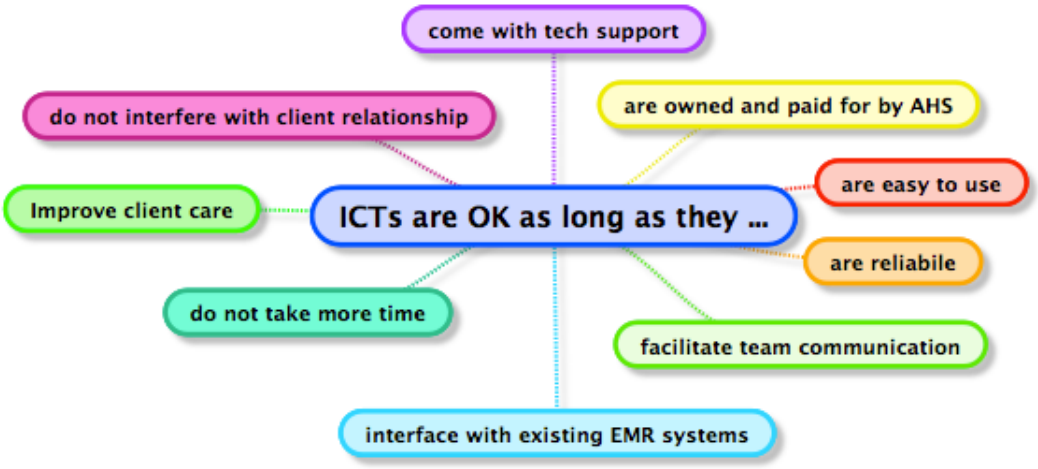


Figure 18. ICTs are OK as long as they…

The provisos that ranked highest in priority for the team were that ICTs must be easy of use and must not interfere with client relationships. ICTs interfering with the client relationship was a concern held by health care providers worldwide when faced with the deployment of new technologies in the workplace (Buckner & Gregory, 2011; Loh, Flicker, & Horner, 2009). Ease of use has also been addressed extensively in the technology adoption literature and is an important factor in predicting technology acceptance in the workplace (Davis, 1989; Venkatesh & Bala, 2008).

ICTs and the client relationship. The team members' beliefs that ICT would interfere with the client relationship were so entrenched that they left their cell phones in the car when on a home visit. They were concerned that if someone tried to contact them that it would disturb the flow of the visit and the client would be offended. This not only removed one of the key components of their Working Alone safety plan, but also made it challenging for the clerk to inform them of changes in their schedule.

Alsos, Das, and Svanæs (2012) found that ICTs used to access and document client information did interfere with physician-client relationship establishment since the physicians were looking down at the device rather than at the client. The device was, in effect, "stealing" the physician's attention, disrupting the regular flow of the client interview (the client stopped speaking and waited for the physician to resume eye contact) and

causing them to miss key non-verbal cues (p. 14). The degree of attention theft varied depending on the ease of use of the device interface and the physician's familiarity and comfort with the interface. Alsos, et al. concluded that when smaller, hand-held devices were used by technology-savvy physicians, the impact of attention theft was reduced.

Regarding clients' perceptions of ICT usage by their care providers, clients, in general, were more apprehensive if they were asked about device usage sight unseen (Loh, Flicker, & Horner, 2009). However, if care providers explained the purpose for using ICTs in client care, clients could see that indirect care efficiencies achieved through device usage freed up time for their nurse to provide direct care (Lee, 2007).

ICTs and ease of use. Investigations into technology acceptance and adoption have been considerable. One factor found to play a role in the prediction of technology adoption is whether the intended end-user perceives that the technology would be easy to use (Davis, 1989; Venkatesh & Davis, 2000; Venketash & Bala, 2008). The original Technology Acceptance Model (TAM) confirmed that the constructs of perceived ease of use and perceived usefulness of technology contributed to an individual's decision to use and consequently their actual use of a new technology (Davis, 1989). Interested in knowing which factors influenced the above-listed constructs, researchers hypothesized and tested a variety of determining factors. In a culmination of this research Venketash and Bala (2008) developed and validated the Technology Acceptance Model 3 (TAM3). In this updated

model they identified and verified several determinants that influence, both directly and indirectly, an individual's perception of technology usefulness and ease of use.

As "easy to use" was one of the primary concerns raised by the participants in this research study, the factors that determine ease of use will be discussed here.

Perceived ease of use is defined as "the degree to which a person believes that using IT will be free of effort" (Davis, 1989 in Venketash & Bala, 2008, p.277). Comfort and familiarity with technology (computer self-efficacy, computer anxiety, computer playfulness), availability of "tech" and management support (perceptions of external control), and similarity of the technology to that already used at home or work (objective usability) are examples of the moderating factors that determine whether a person will perceive a new technology as easy to use. Although the standardized questions Venkatesh and Bala recommend using to measure each of these factors were not asked of the HCAs in this study, enough information was garnered from their descriptions of their current use of ICTs to get a sense of whether the HCAs would perceive the proposed device as easy to use.

For instance, all but one of the HCAs regarded themselves as being comfortable with ICTs. They all used cellular phones and two were considering upgrading to smart phones. Each reported using a computer at home for access to email and the internet (some more frequently than others). Three had experimented with smart phones or tablet devices owned

by their friends. They admitted to relying on friends or family members for "tech" support at home and their RN colleagues for support at work. There was one computer at the office for the HCAs to share (the other team members each had their own), and because vying for it at the start and end of each day was challenging, they used it only for completion of the organization-wide annual compulsory education modules. Due to their infrequent use, they required assistance to login and negotiate the various webpages.

Given this, one might conclude that the HCAs may not find ICTs easy to use. The RNs certainly thought that the HCAs would refuse to accept or adapt. Even the HCAs, despite the keenness they expressed towards the proposed device, believed that they would struggle with the introduction of any new technology into the workplace. Each of the HCAs anticipated requiring more intensive hands-on training than the RNs who had been using ICTs on a daily basis at work or their younger colleagues (the two casual HCAs) who had been born and raised in the "computer age." This awareness that they, as older workers, would require additional training time and support to use ICTs for work is confirmed in the research literature (Mantzana, Themistocleous, & Morabuto, 2010, Melkas, 2010).

However, during the simulation with the device, Jane was able to see

how easy and intuitive the device was to use.[10] After one hour of one-on-one, hands-on training, she was able to make her way through the steps of the simulation (mock client visits with scenarios) requiring only minimal direction or assistance. She did acknowledge that she might need reminders for infrequently used applications (e.g. video-conferencing) but felt that those reminders could take the form of a reference manual or cue cards rather than in-person retraining. She saw the usefulness of the device in supporting her work and concluded it would likely enhance rather than detract from client care.

This concludes the two chapters of Findings. The next and final chapter summarizes the study purpose, method, and findings, discusses the study limitations, and proposes suggestions for further research.

[10] Venkatesh and Bala confirm that user participation in pre-implementation phases of technology deployment such as that undertaken in the human-centred design process also contribute to the determinants of both perceived ease of use and perceived usefulness because the device and the applications are selected/designed with the needs and skills of the end-users in mind.

Chapter Six: Conclusion

Summary of purpose, method, findings, and implications

The purpose of this study was to shed light on the daily work experiences of a group of HCAs in Alberta with the intent that the findings could be used to guide the selection of ICTs to support, not hinder, HCAs and their work. It is evident from the literature that the investment in and deployment of ICTs in the workplace is not always a result of having acquired an understanding of the workflow and challenges faced by providers of health care. Thus, organizations "invest in new technologies and cross [their] fingers" (Meklas 2010, p. 89) hoping, rather than knowing, that the selected technologies will work as promised and will meet the needs of the workers within the constraints and supports of the work environment. Organizations are often faced with a sense of urgency, typically in response to workforce shortages, and, as a result, act hastily when selecting and deploying ICTs in the workplace. When workers, as the intended end-users, are not engaged in technology planning and selection, the likelihood of acceptance can be considerably compromised. ICT acceptance is even more challenging to attain in the health care setting, when worker apprehension of ICTs interfering with client relationships is a significant factor. As a result, a thoughtful and intentional approach to involving end-users in ICT design, development, and deployment is encouraged.

The HCA-T project team selected the qualitative method of focused ethnography as the means of putting human-centred design principles into

practice. The guiding principles of the human-centred design approach recommend that multidisciplinary teams work together iteratively to gain an explicit understanding of the end-users and the environments in which they perform their duties. Ethnography employs numerous data collection strategies and techniques in order to gain an explicit understanding of the group of study. For this study, as a component of the HCA-T project, I employed the technique of participant observation, collecting data from and with a group of HCAs, *in situ,* where they worked. This access to firsthand, in-the-moment data from the HCAs and their colleagues helped me to garner more subtle and nuanced perspectives of:

- the duties the HCAs performed,
- the roles that they assumed,
- what frustrated them in their work,
- what fueled and propelled them to keep going,
- what excited and worried them about ICTs, and
- what was "off limits" and must not be compromised by ICT use.

Through the lens of occupational therapy, the data collected were compiled and represented in concept maps and vignettes in order to portray a day in the life of an HCA in rural Alberta including the HCAs' perspectives on ICT use in their work. The vignettes highlighted the challenges and rewards that HCAs face on a daily basis. Designers, healthcare organizations, or government decision-makers can use these vignettes as "personas" to help

them gain a clearer understanding of what it is like to be an HCA in Alberta. Once they have this awareness, they can select solutions, ICT or otherwise, to address or support the job challenges HCAs face while also maintaining or enhancing the job rewards. Extensive research in technology acceptance demonstrates that solutions, which are selected to address the needs of end-users as identified and defined by end-users, are more likely to be accepted and adopted. In this case, the ICT device/applications recommended by the HCA-T team have increased likelihood of being accepted by HCAs across the province because they address challenges identified by HCAs and acknowledge "their daily lives, habits, or rituals" (van Gemert-Pijnen et al., 2011, para. 3).

Study limitations

In reference to the last principle of ethnography listed in Chapter Three, the findings of this research study were a construction of meaning between and influenced by both the HCAs and myself. These findings represent what I came to know as the culture of this particular group of HCAs who provide home care in rural Alberta. Such specificity does limit the generalizability of these findings to HCAs who work in other settings in the province or elsewhere. However, with qualitative inquiry, the intent is not to produce generalizable findings (as is the intent of quantitative inquiry). Instead, the intent is to provide sufficient description of the research setting and the study participants so that a reader can determine the

"transferability" or relevance of the findings to their understanding of "similar scenarios, topics, or problems" (Mayan 2009, p. 106). Such descriptions have been provided throughout this document.

Several limitations regarding the applicability of the findings beyond this specific group of HCAs are inherent in this study. The primary limitation being that the group of HCAs shadowed was different from other HCAs in Alberta. The HCAs were all over 60 years of age, Caucasian, proficient in English language, unionized, and employed by the provincial health authority (AHS). As a result, the experiences described may be different from the experiences of HCAs from around the province, many of which are either foreign workers or recent immigrants whose first language is not English. As well, the experiences described are likely not the same as the experiences of HCAs who are employed by private agencies/facilities. In private settings, HCA wages and benefits are often lower and the HCAs are not always unionized. The fight for wage and benefit parity with their HCA peers employed in AHS positions is an ongoing battle.[11]

As well, because the challenges the HCAs voiced are unique to care that is provided within the client's home, the findings may not be applicable to the HCAs who provide care to clients residing in facility-based settings. HCAs working in facilities do not have to travel or work around hazards in

[11] As demonstrated in the recent strike action by employees at two privately operated facilities in Edmonton, AB.

clients' homes, but they do have their own challenges to contend with relating to staffing levels and workload demands.

The HCAs in this study were also unique in that their client caseloads were not as large and their workload not as demanding as that of their peers working in facility-based care or other home care offices rural or urban. They did not have to work evening or weekend shifts, they had flexibility determining the time they required to complete their assigned tasks, and had autonomy in scheduling their workday.[12] Typically, HCAs are required to work evening and weekend shifts with little or no control in determining the time allotment or order in which assigned care plan tasks are to be completed.

Suggestions for further research

The findings from this study, together with findings from the literature, indicate that issues of workplace conditions and safety, client obligations, and boundary blurring are common across this group of health care providers regardless of the setting or location of their workplace (e.g. urban/rural, facility/home, private/public). It would be important to know whether the theme of "taking chances" is also common in other settings where HCAs work. If so, how would this phenomenon of *putting clients' needs before personal safety* manifest in HCAs who work in other settings? Would the HCAs describe it as "taking chances" as I have?

[12] This could explain why they were still able to work at ages beyond that which most of their provincial and national counterparts have retired.

In the literature on professional boundary maintenance amongst health care providers, the consensus is that providers who do not set boundaries with their clients are at risk of compassion fatigue or caregiver burnout. But the research on HCA job satisfaction and turnover does not cite burnout as a reason contributing to job dissatisfaction or job departure. The behaviours known to contribute to compassion fatigue in care providers such as RNs or Social Workers, apparently augment the satisfaction of caregiving in HCAs. Are HCAs resistant to compassion fatigue? If so, what is it that contributes to their resiliency?

It would also be relevant to examine if the perception that the HCAs and their colleagues have about ICTs interfering with the client relationships persists as tablet devices and smart phones become increasingly affordable and ubiquitous. Would perception of interference diminish as the clients' themselves come to expect ICT use in the provision of health care (as in the case of the clients emailing photos of their wounds)?

In conclusion, in a day in the life of an HCA working in rural home care, HCAs are driving to clients' homes at various distances and, more likely than not, are encountering poor weather conditions or wildlife when they travel. The clients they visit, whose homes are in varying states of cleanliness and repair, look forward to and are appreciative of their arrival. The HCAs acknowledge and respect a client's right to live how and where they want and enter the home shedding any judgments and viewing their client as a

"most precious commodity." They are often providing care in precarious situations and have limited access to immediate assistance in case of an incident. The thought of dealing with an emergency situation is worrisome to them, especially if it entails having to provide first aid or CPR to a client until an ambulance arrives. Nonetheless, they set their worries aside, put the needs of their clients first, and carry on, hoping an incident does not occur.

Although ICTs do not make it to the top of the HCAs' list of solutions to the workforce shortage, they admit that ICTs would help to make some aspects of their jobs easier and safer. The HCAs are open-minded to the promise ICTs hold, not so much for themselves – they will likely be retired before any ICT deployment decisions are made – but for future HCAs. As the number of older adults expected to require care in their homes is predicted to increase dramatically over the next two decades, future HCAs will have even larger caseloads and will have higher expectations of efficiency and productivity placed on them. If ICTs could:

- offer peace of mind when travelling or providing care in hazardous home situations,
- save colleagues from having to drive out to a client's home,
- allow convenient access to client information,
- facilitate quick and efficient communication with colleagues,

then, in their minds, ICTs would be a welcomed addition and support to their work.

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Appendices

Appendix A – University of Alberta Health Research Ethics Approval

Approval

Date:	February 10, 2012	
Study ID:	Pro00028376	
Principal Investigator:	Lili Liu	
Study Title:	A day in the life of Health Care Aides (HCAs) in Rural Alberta: Frontline perspectives on when, where, and how Information and Communication Technologies (ICTs) could be helpful	
Approval Expiry Date:	February 8, 2013	
Sponsor/Funding Agency:	Alberta Health & Wellness	AH

Thank you for submitting the above study to the Health Research Ethics Board - Health Panel. Your application, including revisions received February 7, 2012, has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Health Research Ethics Board does not encompass authorization to access the patients, staff or resources of Alberta Health Services or other local health care institutions for the purposes of the research. Enquiries regarding Alberta Health Services approvals should be directed to (780) 407-6041. Enquiries regarding Covenant Health should be directed to (780) 735-2274.

Sincerely,

Dr. Jana Rieger
Chair, Health Research Ethics Board - Health Panel

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix B – Information Letter and Consent – HCAs

STUDY INFORMATION SHEET
HCAs

Study Title: A day in the life of Health Care Aides (HCAs) in Rural Alberta: Frontline perspectives on when, where, and how Information And Communication Technologies (ICTs) could be helpful

Principal Investigator:

- Lili Liu, PhD, Professor and Chair, Department of Occupational Therapy, University of Alberta. Phone: 780-492-5108

Co- Investigators:

- Angela Sekulic, BScOT, MScRS (student) Faculty of Rehabilitation Medicine, University of Alberta
- Suzette Bremault-Phillips, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Shaniff Esmail, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Sharla King, PhD, Assistant Professor, Health Services Education Research Common, University of Alberta

Background:
In Alberta, there are approximately 20,300 health care aides (HCAs), with a projected shortfall of 5,000 HCA's by 2016. Health care aides have demanding jobs and it is important to know as much about how they do their work and the challenges they face in order to find solutions that could ease the impact of this impending shortage.

Purpose:
This project is an offshoot of the Health Care Aides & Technology Project. Its aim is to get an accurate 'snapshot' of what it is like to be a Health Care Aide in Rural Alberta and to gain insight into how information and communication technologies (e.g. smart phones or tablets) could support them in their daily work.

Procedure:
You are invited to participate in this project. If you agree, a Researcher will shadow you over two of your work shifts including accompanying you on your client visits (the clients' will need to have provided consent prior to the researcher being present in their homes). In between client visits, the Researcher will ask questions about your experiences and what you find challenging and gratifying about the various aspects of your job. The Researcher will also be keeping track of other factors such as: time spent

travelling to client's homes, time spent completing care tasks, time spent communicating with the office/supervisors.

Only those interviews/discussions held outside of the clients' homes will be audio-recorded and transcribed for the purpose of analysis. You will have a chance to review the Researcher's summary notes to verify that your experiences have been accurately captured.

Possible Benefits:
Although there may be no direct benefits to you, it will be an opportunity to reflect on your practice. Your participation will help researchers get a better understanding of the daily work-life of health care aides and the challenges they face.

Possible Risks:
There are no identifiable risks to participating in this study. However, participants may feel uncomfortable during interviews or when being shadowed by the Researcher.

Confidentiality:
As your supervisor must approve your participation, we cannot ensure your confidentiality. However, you will not be identified in any of the research, results and reports in this study. Your supervisor and other staff will not have access to any of the data. All electronic information will be on a password-protected computer at the University of Alberta. All records will be destroyed after seven years.

Voluntary Participation:
Your participation in this study is voluntary and you can stop at anytime.

Contact Names and Telephone Numbers:
If you have concerns about your rights as a study participant, you may contact the Research Ethics Office at (780) 492-2615. This office is not connected with the study.

If you have any questions or concerns you may also contact:

- Joanne Volden, Associate Dean, Graduate Studies and Research, Faculty of Rehabilitation Medicine, University of Alberta; Phone: 780-492-9674

PARTICIPANT CONSENT FORM (HCAs)

PART 1

Study Title: A day in the life of Health Care Aides (HCAs) in Rural Alberta: Frontline perspectives on when, where, and how Information And Communication Technologies (ICTs) could be helpful

Principal Investigators:

- Lili Liu, PhD, Professor and Chair, Department of Occupational Therapy, University of Alberta. Phone: 780-492-5108

Co-Investigators:

- Angela Sekulic, BScOT, MScRS (student) Faculty of Rehabilitation Medicine, University of Alberta
- Suzette Bremault-Phillips, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Shaniff Esmail, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Sharla King, PhD, Assistant Professor, Health Services Education Research Common, University of Alberta

PART 2

	YES	NO
Do you understand that you have been asked to be in a research study?	□	□
Have you read and received a copy of the attached Information Sheet?	□	□
Do you understand the benefits and risks involved in taking part in this research study?	□	□
Have you had an opportunity to ask questions and discuss this study?	□	□
Do you understand that you are free to withdraw from the study at any time without having to give a reason?	□	□
Has the issue of confidentiality been explained to you?	□	□
Do you understand who will have access to the information you provide?	□	□

I agree to have the Researcher follow me during my work day:	YES □	NO □
I agree to take part in interviews:	YES □	NO □

Signature of research participant: _____

(Printed Name): _____

Date (D/M/Y): _____

Signature of Witness: _____

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator or Designee _____

Date (D/M/Y): _____

Appendix C – Information Letter and Consent – Clients

STUDY INFORMATION SHEET
Clients

Study Title: A day in the life of Health Care Aides in Rural Alberta

Principal Investigator:

- Lili Liu, PhD, Professor and Chair, Department of Occupational Therapy, University of Alberta. Phone: 780-492-5108

Co- Investigators:

- Angela Sekulic, BScOT, MScRS (student) Faculty of Rehabilitation Medicine, University of Alberta
- Suzette Bremault-Phillips, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Shaniff Esmail, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Sharla King, PhD, Assistant Professor, Health Services Education Research Common, University of Alberta

Background:
In Alberta, there are almost 20,300 health care aides (HCAs), and it expected that there will be a shortage of 5,000 HCA's by 2016. HCAs have demanding jobs and it is important to know as much about how they do their work and the challenges they face in order to find solutions that keep them happy and satisfied in their work.

Purpose:
The aim of this project is to get an accurate 'snapshot' of what it is like to be a HCA in Rural Alberta. This project is part of another research study, the Health Care Aides & Technology Project.

Procedure:
You are invited to participate in this project. If you agree, the Researcher will come to your home with your Health Care Aide and stay for the duration of your regularly scheduled visit. The Researcher is mostly interested in what your HCA finds both good and bad about the work they do. Please note that the Researcher will be watching how your HCA prepares for the tasks of your care but will not be observing any of the personal care provided to you.

Possible Benefits:
By participating, you will be allowing your HCA demonstrate the important role she plays in helping you to stay in your home.

Possible Risks:
There are no expected risks to participating in this study.

Confidentiality:
No information about you or your condition will be collected or reported in this study. You will not be identified in any of the research reports about this study.

Voluntary Participation:
Your participation in this study is completely voluntary and you can stop anytime.

Contact Names and Telephone Numbers:
If you have concerns about your rights as a study participant, you may contact the Research Ethics Office at (780) 492-2615. This office is not connected with the study.

If you have any questions or concerns you may also contact:

- Joanne Volden, Associate Dean, Graduate Studies and Research, Faculty of Rehabilitation Medicine, University of Alberta; Phone: 780-492-9674

PARTICIPANT CONSENT FORM (Client)

PART 1

Study Title: A day in the life of Health Care Aides in Rural Alberta

Principal Investigators:

- Lili Liu, PhD, Professor and Chair, Department of Occupational Therapy, University of Alberta. Phone: 780-492-5108

Co-Investigators:

- Angela Sekulic, BScOT, MScRS (student) Faculty of Rehabilitation Medicine, University of Alberta
- Suzette Bremault-Phillips, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Shaniff Esmail, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Sharla King, PhD, Assistant Professor, Health Services Education Research Common, University of Alberta

PART 2

	YES	NO
Do you understand that you have been asked to be in a research study?	□	□
Have you read and received a copy of the attached Information Sheet?	□	□
Do you understand the benefits and risks involved in taking part in this research study?	□	□
Have you had an opportunity to ask questions and discuss this study?	□	□
Do you understand that you are free to withdraw from the study at any time without having to give a reason?	□	□
Has the issue of confidentiality been explained to you?	□	□

I agree to have the Researcher to come to my home for my scheduled visit(s) with my Health Care Aide: YES □ NO □
Signature of research participant: _____ (Printed Name): _____ Date (D/M/Y): _____ Signature of Witness: _____ I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate. Signature of Investigator or Designee _____ Date (D/M/Y): _____

Appendix D – Information Letter and Consent – Team Members

STUDY INFORMATION SHEET
Other Team Members

Study Title: A day in the life of Health Care Aides (HCAs) in Rural Alberta: Frontline perspectives on when, where, and how Information And Communication Technologies (ICTs) could be helpful

Principal Investigator:

- Lili Liu, PhD, Professor and Chair, Department of Occupational Therapy, University of Alberta. Phone: 780-492-5108

Co- Investigators:

- Angela Sekulic, BScOT, MScRS (student) Faculty of Rehabilitation Medicine, University of Alberta
- Suzette Bremault-Phillips, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Shaniff Esmail, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Sharla King, PhD, Assistant Professor, Health Services Education Research Common, University of Alberta

Background:
In Alberta, there are approximately 20,300 health care aides (HCAs), with a projected shortfall of 5,000 HCA's by 2016. Health care aides have demanding jobs and it is important to know as much about how they do their work and the challenges they face in order to find solutions that could ease the impact of this impending shortage.

Purpose:
This project is an offshoot of the Health Care Aides & Technology Project. Its aim is to get an accurate 'snapshot' of what it is like to be a Health Care Aide in Rural Alberta and to gain insight into how information and communication technologies (e.g. smart phones or tablets) could support them in their daily work.

Procedure:
You are invited to participate in this project. If you agree, a time will be scheduled for you to be interviewed by the researcher. The focus of questioning will be to get a sense of the role you play in conjunction with the HCAs you work with as well as your perspectives on the problems encountered by the HCAs in their daily work and the potential of ICT solutions. The interview will take approximately one hour to complete.

Possible Benefits:
Although there may be no direct benefits to you, it will be an opportunity to reflect on your practice. Your participation will help researchers get a better understanding of the daily work-life of health care aides and the challenges they face.

Possible Risks:
There are no identifiable risks to participating in this study. However, participants may feel uncomfortable during interviews.

Confidentiality:
As your supervisor must approve your participation, we cannot ensure your confidentiality. However, you will not be identified in any of the research, results and reports in this study. Your supervisor and other staff will not have access to any of the data. All electronic information will be on a password-protected computer at the University of Alberta. All records will be destroyed after seven years.

Voluntary Participation:
Your participation in this study is voluntary and you can stop at anytime.

Contact Names and Telephone Numbers:
If you have concerns about your rights as a study participant, you may contact the Research Ethics Office at (780) 492-2615. This office is not connected with the study.

If you have any questions or concerns you may also contact:

- Joanne Volden, Associate Dean, Graduate Studies and Research, Faculty of Rehabilitation Medicine, University of Alberta; Phone: 780-492-9674

PARTICIPANT CONSENT FORM (other team members)

PART 1

Study Title: A day in the life of Health Care Aides (HCAs) in Rural Alberta: Frontline perspectives on when, where, and how Information And Communication Technologies (ICTs) could be helpful

Principal Investigators:

- Lili Liu, PhD, Professor and Chair, Department of Occupational Therapy, University of Alberta. Phone: 780-492-5108

Co-Investigators:

- Angela Sekulic, BScOT, MScRS (student) Faculty of Rehabilitation Medicine, University of Alberta
- Suzette Bremault-Phillips, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Shaniff Esmail, PhD, Associate Professor, Department of Occupational Therapy, University of Alberta
- Sharla King, PhD, Assistant Professor, Health Services Education Research Common, University of Alberta

PART 2

	YES	NO
Do you understand that you have been asked to be in a research study?	□	□
Have you read and received a copy of the attached Information Sheet?	□	□
Do you understand the benefits and risks involved in taking part in this research study?	□	□
Have you had an opportunity to ask questions and discuss this study?	□	□
Do you understand that you are free to withdraw from the study at any time without having to give a reason?	□	□
Has the issue of confidentiality been explained to you?	□	□
Do you understand who will have access to the information you provide?	□	□

I agree to be interviewed:	YES □	NO □
Signature of research participant: _____ (Printed Name): _____ Date (D/M/Y): _____ Signature of Witness: _____ I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate. Signature of Investigator or Designee _____ Date (D/M/Y): _____		

Appendix E – Interview guide – HCAs

Participant Code: _____

Possible interview questions for HCAs (to be audio-recorded) – NOTE – as ethnography is iterative and inductive process, the questions are subject to change as required to hone in on details requiring clarification or to verify data collected via observation and/or the interviews/focus groups/surveys.

Tell me about yourself and why you chose to become an HCA?

How do you feel about your job?

What are some of the highlights of your job?

Tell me about the challenges you face each day. In your mind what would be the number one challenge? What would be second? Third?

What are your thoughts on your role on the health care team?

Is there anything that would make you quit your job?

What are your thoughts on your role in the documentation/communication of your client's current health status/functioning?

What strategies do you think could address the impending shortage of HCAs? What should the focus be?

Are there ways you see ICTs being able to help you address these challenges? How?

From each of an organizational, personal, and client perspective what are the things that make or keep healthcare providers from using ICTs?

- Organizational
- Personal
- Client

Would the use of ICTs influence your decision to remain an HCA?

Appendix F – Data tracking sheet – HCAs

Participant Code: _____

Data tracking sheet

Observation Day: 1□ 2□

Audio recording tags: _____/_____/_____/_____/_____/_____

Time spent with clients providing care	Time spent in Documentation
Time spent communicating (note method – FTF, cell phone, client's phone):	Travel Time
Scheduler Team members Supervisor	
Safety hazards encountered	ICT used at home/work? Comfort with use?

Appendix G – Interview guide – Team Members

Participant Code: _____

Observation Day: 1□ 2□

Audio recording tags: _____/_____/_____/_____/_____/_____

Possible interview questions for HCAs' Colleagues (to be audio-recorded) – NOTE – as ethnography is iterative and inductive process, the questions are subject to change as required to hone in on details requiring clarification or to validate data collected via observation and/or the Phase 1 interviews/focus groups/surveys.

What is it like to be an HCA from your perspective? What do you think their job satisfaction is like?

Have the tasks required of HCAs changed over time? Have tasks been added that they never used to do, or taken away that they used to do?

What are the major barriers and challenges faced by HCAs day-to-day?

What supports and resources would help HCAs do their job more effectively?

In the course of your work at what points do you need to communicate with HCAs? How do you currently communicate with HCAs? How could communication with HCAs be improved?

In your opinion, how comfortable are HCAs in using technology?

Do you feel that the use of technology by HCAs would be useful?

Do you think that HCAs would accept/be excited about using technology in their work day?

Do you think that HCAs could easily use mobile devices and applications in their work?

How do you think technology (mobile devices and applications) would impact the work of HCAs – positively/negatively?

Do you think that the use of technology would improve the job satisfaction of HCAs?

Appendix H – HCA Workflow

Task in Workflow	Steps in Task	Challenges encountered that could be addressed by ICT	Possible ICT solutions	Pros	Cons
1. Client referred to Home Care	1a. Initial phone call to determine if client agreeable and to screen for potential risks				
	1b. Initial home visit completed by RN	Distances, weather/road conditions, time, deadzones, Secretary not always aware of where staff are	Links to navigation map and road reports. Access to satellite-based alert system (like Safetracks)	High risk trips could be avoided; alert system that would work regardless of cellular access	RNs may still go despite risks; people are reluctant to have their whereabouts tracked (counteracts autonomy)
	1c. RAI-HC completed				
	1d. Social and environmental scan (e.g. complicated family dynamics, state of home environment)		Could RN take a picture of the areas where care will take place (bathroom, bedroom)	HCA (or OT/PT) is aware of equipment and can anticipate how they can direct clients through their transfers	Photo may not represent all details
	1e. Client needs determined				
2. Client needs communicated to Manager	2a. Determination that services required do not exceed those allowed within the Home Care mandate				
3. Refer client to HCA	3a.Client's name written on the "Board"		Staff could enter client names into electronic scheduling system	HCA could be aware of schedule changes that happened after they went home; Manager would not have to call them; Secretary would be aware of their planned location	HCAs get a sense of autonomy from being in charge of their own schedules
	3b. Careplan placed in chart and/or client's needs discussed directly with HCAs		Careplan, client preferences, safe visit plan could be attached to clients name in schedule	When HCAs trade clients, each HCA has access to the same relevant information	Not possible at this time; RAI careplans would need to be supported on any proposed interface
	3c. Face-to-face discussion or note left		Electronic scheduling system	HCA would be aware of new client and would have all "need to know" information to safely undertake the required care	Face-to-face exchange of information may not be required - may miss out on benefits of personal connection with colleagues (brainstorming, problem-solving)
4. Assignment of HCA	4a.HCAs decide amongst themselves who will take on the client	How long do the visits take? Are client assignments within an HCAs FTE?	Electronic scheduling system	HCAs could still work together but it would be clearer to all, how much time was required for each client and whether an additional client would be within someone's FTE	HCAs like to be able to determine how long tasks take and prefer to be in charge of their own schedules
5. Home visit	5a. Getting there/getting back	Distances, weather/road conditions, time, deadzones, Secretary not always aware of where staff are	Links to navigation map and road reports connected to the client's name in schedule. Access to satellite-based alert system (like Safetracks)	High risk trips could be avoided; alert system that would work regardless of cellular access	HCAs feel badly about client's missing service so they often still go despite risks; people are reluctant to have their whereabouts tracked (counteracts autonomy)
	5b. Being there	Physical demands of tasks; abusive/demanding clients or family members	Satellite-based alert system	Call centred alerted if client or HCA injured during tasks or if threats are posed	It still takes time for Emergency Services to arrive
	5c. Leaving there	Clients asking for additional tasks to be done; clients in need of "time to chat"			
6. Communication of service provided	6a. Standard charting	Repetitive, time-consuming	Electronic charting	Timely documentation; nothing forgotten	Not allowed at this point.
7. Communication of changes in client condition or schedule	6b. Variance charting	Done at end of day, may not always be timely	Electronic charting with alerts sent to RN in case of variances	If charting done immediately after a client visit, RN could determine if an RN visit was necessary	RN may just recommend that the client go to ER anyhow if the change is dramatic. Face-to-face discussion may not be required - may lose connection with colleagues
	7a. Face-to-face, phone calls with RN and colleagues as needed	RN can't always answer phone; HCA not always available to take a call re: a change in schedule	Text messaging; scheduling change alerts; photos/videos of the changed condition (i.e. wound/rash, swelling, gait/mobility, speech, affect)	RN/HCA reviews message/alert at their convenience (i.e. once they have arrived at their destination) and can determine plan of action	RN may just recommend that the client go to ER anyhow if the change is dramatic. Face-to-face discussion may not be required - connection with colleagues
8. Activity tracking record	8a. Enter names, ID numbers, and time spent with the clients seen each day	Repetitive, time-consuming	Could be connected to electronic charting records	Less time required; could leave time for additional/extended client visit or team meetings/in-services	Not possible at this time
9. Mileage tracking	9a. Enter the distance travelled each day	Repetitive, time-consuming	Could be electronically connected to scheduling system	Less time required; could leave time for additional/extended client visit or team meetings/in-services	Not possible at this time

Appendix I – Preliminary Findings

Guiding questions	Themes from Vulcan County	How this compares to HCA experiences across the province	How this compares to the literature
Role of the HCA on the healthcare team?	Eyes and ears' of the RNs and Allied health staff; integral and 'equal' part of team; vital and valued;	(varies according to location - home-based vs facility-based, and sector of employment - private vs public) 'Eyes and ears' of the team as they see the clients more frequently than other members of the team; comments to RNs/LPNs not always taken seriously; feedback not always received about whether what they brought forward to the RN was important or whether action was taken; 'sometimes there is disrespect from 'higher up staff'	McClement 2010 (CAN) HCAs felt that they forged closer bonds with the patients than other staff members and sometimes even family members, as a result, they became advocates for their patients needs and wishes (interviews with 12 HCAs working in hospice care) Pfefferle, 2008 (US) HCAs encountered negative messages from their managers, supervisors, coworkers, and sometimes clients about the meaning and value of their work (87 Focus Groups in 16 Nursing Homes both private and public)
Suggested recruitment and retention strategies to address the impending shortage?	Recruitment - Pay for schooling; rural bonuses; high school co-ops; make it mandatory for students in health professions to start as an HCA, dispel the myth of 'wiping butts' and emphasize role in wellness and prevention Retention - wage parity with other industries (e.g. oil and trucking); benefit equity with other health care workers (i.e. vehicle maintenance benefit for UNA but not AUPE); hours of work equity (7.0 vs 7.75 hrs/day); increased reimbursement for mileage and personal cell phone use	Better vehicle maintenance/mileage reimbursement; reimbursement for use of personal cell phone; opportunities for paid professional development/in-services; workplace health and safety standards/resources to protect staff (HCAs at risk for injury); recognition through actions not just words; more permanent FTE (especially full-time) to reduce workloads and thus overtime/injuries/burnout	Mittal et al, 2009 (US) Themes associated with turnover: lack of respect, improper management, work or family conflicts, difficulty of the work, better paying job opportunities. Themes associated with retention: being 'called to service, patient advocacy, personal relationships with residents, a haven from home problems, flexibility of work schedule Seavey, 2011 (US) Irregular hours of work (casual or part-time hours) are correlated with decreased job satisfaction and increased intent to leave
What do you find rewarding about being an HCA? What are the highlights?	Diversity of caseload 'never a dull moment'; collaboration and teamwork; the 'richness' of client relationships; autonomy/freedom/flexibility; allowing people to stay in their homes	Rewards identified in survey (in order of frequency): 1. Caring for clients; 2. Client/family relationships; 3. Sense of accomplishment/making a difference; 4. Helping clients stay in their own homes From the interviews and focus groups: The relationships with the clients - the way clients light up when they see them, the stories they tell; the feeling that they are making a difference in allowing clients to remain in their homes longer. HCAs also love the diversity of the day and the feeling they have of being autonomous and independent.	Faul et al 2010 (US) HCAs get intrinsic satisfaction from their jobs and this overrides low wage (1,16 HCAs surveyed)
Challenges faced in the workday?	Timely conveyance of information between co-workers (people can't always be reached); workplace safety (roads and clients' homes are the workplace, working alone - 'no call bell to pull'); challenges of meeting all of client needs within limitations of AHS 'rules' and homecare mandate; providing care to friends and becoming friends with clients; challenges of providing end-of-life care; workload and schedule changes	Main challenges raised in survey (in order of frequency): 1. Dealing with difficult clients/families; 2. Completing required tasks on time/workload; 3. Safety concerns (abusive clients, injuries during transfers, hazards in clients' homes); 4. Staffing shortages; 5. Staff conflict; 6. Sudden change in client's condition or careplan; 7. Complexity of older adult care; 8. Weather conditions/winter driving Also (infrequently reported), difficulties getting ahold of the LPN/RN; dealing with upper management; understanding & communicating with clients; too much travelling; limited scope of practice; restricted access to client information; insufficient training/knowledge base; death of clients; client's not home at scheduled visit time; lack of respect from colleagues	Ashley et al, 2010 (US) HCAs report valuing helping others and being energized and rewarded by providing care. However, low wages absence of benefit plans and lack of recognition cause them to leave their jobs (131 HCAs surveyed) Kemper et al 2008 (US) HCAs want more pay, better working relationships including supervision, appreciation and respect (3,468 HCAs surveyed) Sherman et al 2008 (US) The state of a client's home, exposure risks, abusive client and family behaviours, and dangers of travelling ranked higher than workload or travel time and were related to lower job satisfaction and intention to leave (823 HCAs surveyed)
Reasons for continuing to work as an HCA?	'I love my job, I get something back'; 'I love to work'; pension; paycheque; supportive colleagues/team	The rewards of a happy client'; 'feeling good about doing a great job'; 'I know I make a difference'; 'it's actually more like ministry work than a job'	See Mittal above; Sims-Gould et al 2012 (CAN) HCAs report selecting and staying in the field because of financial considerations, enjoyment in working with people, and previous experience in healthcare (interviews with 57 HCAs in BC, ON, NS)
What types of technology would be helpful in your work?	Initial apprehension but after some discussion - a mobile device with the following options: still and video camera, access to client records, electronic charting & activity/mileage tracking; satellite tracking & navigation; up-to-date weather reports; text messaging; electronic scheduling; access to electronic patient education materials	Survey results (in order of frequency): 1. Employer-funded cell/smart phones with email/text capacity; 2. Computers with internet access; 3. Remote/mobile access to careplans; 4. No technology required; 5. Electronic charting; 6.Tablet style device 7. Updated call bell/paging system; 8. Electronic scheduling system; 9. Electronic access to client education materials; 10. Transfer/bathing equipment ***74% of survey respondents indicated ICT solutions to the problems they encounter in their work day.***	No research found which asks healthcare workers what they need *before* deploying
Apprehensions about using technology?	Generational differences - 'the young ones will do fine it's us old folks that will struggle'; unreliable connectivity; compatibility with existing AHS electronic medical record systems; will there be adequate training?; access to trouble-shooting IT support; 'make sure it works before giving it to us'; 'who will pay for it?	Need for adequate training beforehand (especially hands-on and 1:1) and tech support after; who would own, pay for, and service the device; reluctance to carry two devices (personal and employer-owned); data security/privacy issues; infection prevention & control; 'No technology can replace hands-on care'	Kossman, 2008 (US) Although they allow ease of access to patient data and thus safer care, 73% of RNs surveyed reported that they were spending at least half their shift documenting on the EMR and it interfered with the quality of care (46 RNs closed and open-ended survey questions) Lee, 2007 (Taiwan) Patients value nursing care over technology use but see that mobile devices could improve efficiency (14 patients interviewed) Loh et al 2009 (AUS) Concerns were raised about the loss of human connection and insufficient training on point of care documentation systems in long-term care facilities (53 surveys and 4 focus groups with multidisciplinary healthcare team) Tapper et al 2012 (CAN) After deployment of tablet-style devices for use by RNs in homecare, RNs were surveyed. Interference with client relationship and increased time for documentation were cited as primary concerns of device use. Device costs, unreliable network connections, and inadequate tech support were also problematic. (75 RNs involved in the device trial were surveyed)