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Challenges for Home Health Care Providers: A Needs Assessment

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Abstract

Home health care provides substantial benefits over traditional, hospital-based health care, such as supporting older adults' independence and quality of life, as well as being more cost effective. This aspect of the health care industry could be enhanced through increased technological supports. When providing health care in a home setting, caregivers are faced with many challenges that impede their ability to perform their jobs. Technological interventions have the potential to alleviate many of these challenges. However, to achieve this potential, new technologies must be created to meet the needs of home health care providers. To date, these providers' specific and most critical needs are not thoroughly understood. This understanding can be gained by conducting a detailed needs assessment that captures the common challenges and difficulties that home health care providers encounter. We conducted a needs assessment comprising three phases: 1) an extensive literature review; 2) subject matter expert interviews; and 3) structured interviews with home health care providers. We identified several significant sources of frustration and difficulty faced by providers including: medical device usage; patient education; family involvement; provider isolation; and barriers to communication. This analysis provides an understanding of the challenges confronting home health care providers that can provide guidance for interventions. Future home health care technology can be developed to specifically target these workers' most urgent needs and allow them to perform their jobs with greater ease.

Keywords

needs assessment; home health care; human factors; technology interventions

Home health care has become an attractive alternative to hospital-based health care for a number of reasons. It may be more economically viable as the home setting may be more cost effective than providing care in a hospital (Naylor et al., 1999). The home environment would reduce exposure to nosocomial (hospital-associated) infections (Leff et al., 2005), to which older adults are particularly susceptible (Smith, 1989). The option to receive home health care is also consistent with the concept of aging in place.

However, the health care professionals who are charged with delivering health care services in the home setting encounter substantial obstacles and challenges on a daily basis. Technological supports and other interventions have the potential to alleviate health care

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providers of these burdens, but only if the designers of such technologies and interventions have a comprehensive understanding of the nature of the challenges and the subsequent needs of the health care providers. Given the growing need for home health care services and the limited supply of caregivers, we need to learn more about difficulties home health providers experience and the problems and errors that occur in home health care settings.

To acquire this information, a thorough needs assessment of home health care providers is required. A needs assessment is typically the first step toward defining the needs of the individual for whom a design is intended. A needs assessment and the resulting implications for design are part of a human factors approach to design. Human factors practitioners seek to understand human capabilities, limitations, and behaviors and bring this information to bear on the design of technology and systems (Beith, 2001). The field of human factors has a long history of addressing problems related to design and adapting technology or systems to fit to people, rather than forcing people to adapt to technology or systems. This perspective is central to successfully conducting a needs assessment and using the findings to guide future interventions (e.g., technologies, training programs) that will alleviate the burden on home health care providers.

A needs assessment identifies the user and task characteristics, the context in which activities are carried out, and the challenges faced during these activities. Ideally, these are identified independent of the existing procedures, tools, or processes that are used, which allows designers to create solutions that address the specific needs of the individual, rather than fixing problems related to the current method or tool used to perform an activity (Beith, 2001).

We conducted a three-phased needs assessment study: (1) an extensive literature review; (2) subject matter expert interviews; and (3) structured interviews with home health care providers (see Figure 1). The data gathered from this approach provide insights to support the successful design and implementation of technology interventions targeted at alleviating the challenges faced by home health care providers.

Phase I: Literature Review

Between 44,000–98,000 people are estimated to die each year from medical errors in the U.S. (Kohn, Corrigan, & Donaldson, 2000). Caregivers often work under high physical and psychological demands. As a result, health care associated infections and occupational injuries contribute to high turnover rates for nurses (Letvak, Buck, & Buck, 2008) and nursing assistants (Temple, Dobbs, & Andel, 2009). Although these estimates are based on studies of hospital settings, it is likely that these patterns also exist in home health care settings. An understanding of the home health care problem space will help designers and researchers explore solutions to minimize or avoid medical errors and to facilitate tasks for caregivers. To investigate these issues in the context of the home, Phase I of this study entailed an analysis of the existing literature to assess the current knowledge base about human factors issues related to home health care (see also Mitzner, Beer, McBride, Rogers, & Fisk, 2009).

Context of Care

Home health care patients—An initial goal was to understand the characteristics of home health care patients, and this was accomplished by reviewing survey data from the CDC (2000). These data showed that this population is predominantly women (65%), 65 years and older (71%), unmarried (58%), living in private or semi-private residences (94%), and living with their family members (63%). Home health care patients may also be receiving some care from informal caregivers, such as a spouse or adult child. In fact, there is a growing trend toward people receiving a combination of formal and informal care. From 1982 to 1994, the number of Medicare beneficiaries age 65 and older receiving both formal and informal care grew from 21% to 28% (Federal Interagency Forum on Aging Related Statistics, 2000). Together, these characteristics provide important information about the context of home health care. Most home health care takes place in private residences, where other family members are living, and involves multiple caregivers, including informal caregivers. From this context we have explored two potential sources of error that impact the home health provider: (1) transition and handoff communication across multiple caregivers; and (2) the physical structure of the care setting.

Transition and handoff communication—Transition and handoff communication must occur when caregiving responsibilities extend across multiple settings and multiple people, such as when patients move from a hospital to a home or when several providers are managing different aspects of the same patient's care. Errors in transition and handoff communication can greatly impact the quality of care received in the home. For example, an error in diagnosis, prescribed therapy, treatment, and/or medication could result in mistreatment or an adverse drug event. One study found that 68% of specialists reported not receiving any information from the primary care physician before the referral visit, and 25% of primary care physicians reported that they had not received any information from specialists four weeks after referral visits (Gandhi, Sittig, Franklin, Sussman, Fairchild, & Bates, 2000). Communication breakdowns such as these are estimated to be one of the largest sources of medical error in traditional health care settings, such as hospitals, and are likely to occur often in home health care as well.

There is reason to believe that transfer systems will be improving in the near future. In 2007, the Joint Commission on Accreditation of Health Care Organizations issued a requirement for hospitals to establish standards for handoff communications. To meet this requirement, hospitals need to develop better communication systems for exchanging health information between various medical personnel and caregivers. One way hospitals have attempted to make such improvements is to borrow communication strategies from the aviation and military domains (e.g., Mann, Marcus, & Sachs, 2006; and see Oriol, 2006, for a review), areas in which human factors research has significantly contributed.

Although there is no handoff communications requirement for home health services, they may be able to borrow some of the communication strategies from hospitals. However, hospital systems such as expensive electronic tracking boards may not be feasible in home settings. Furthermore, home health communication systems must be developed to involve

informal caregivers as well, who may have no previous formal training about communication strategies related to transitions in medical care.

Additional research is necessary to improve communication among caregivers in a home setting. There is a clear need for communication systems and standards for home health care. Given that these systems would be used in homes they must be relatively unobtrusive and easily stored and accessed. Moreover, they must be inexpensive enough to be economically feasible for the home environment. In addition, the system must take into consideration the different needs and preferences of formal and informal caregivers.

Feasibility of technology interventions for home health care communication— Technology has the potential to minimize communication errors related to home health care (Singh, Naik, Rao, & Peterson, 2008). For instance, electronic medical records can improve communication and reduce transition and handoff errors (e.g., Scott-Cawiezell, Madsen, Pepper, Vogelsmeier, Petroski, & Zellmer, 2009). It is important to note that home-based health care may be less vulnerable to some of these errors as compared to hospital settings. For example, in home settings providers typically have a longer-term relationship with the patient, the staffing ratio is usually one-to-one rather than being team-based, and there may be fewer interruptions in care. Alternatively, some types of communication errors may be more likely in a home care setting, particularly in the case of involvement of multiple conflicting family members and lack of any formal communication and transition system. More research is needed to explore the types of communication errors that are made in home health care settings when patients transition from the hospital to the home as well as between different providers coming into the home.

Physical structure of care setting—What truly separates home health care from formal health care is the physical setting itself. Homes are not designed to accommodate health care providers. Supports available in hospitals to assist caregivers with their tasks may not be available or feasible in the home, which can contribute to occupational injuries. Based on worker's compensation records, Meyer and Muntaner (1999) found that 52 injuries occur per 1,000 home health care workers per year; a rate that falls between nursing home workers (132 per 1,000) and hospital-based workers (46 per 1,000). When a permanent partial disability award was made, 63% of the time it was for a back injury. However, when all injuries were considered 63% were the results of overexertions and falls; d 13.5% occurred as a result of motor vehicle accidents. One study compared the rates of low back injury for hospital-based nursing aides and home health aides and found that home health aides had much higher rates of low back injury (Myers, Jensen, Nestor, & Rattiner, 1993). Most of the home health aides' injuries occurred during patient-related, planned activities. Most injuries also occurred in the absence of using lifting equipment and 40% of the injuries occurred at the bedside. Furthermore, 88% of the home health aides were working alone when the injury occurred. These statistics indicate the need to better understand the nature of these injuries and the importance of designing technology supports for home health care providers that may protect them and their patients from injuries and errors.

Home modification and training have been shown to be successful for addressing older adults' physical limitations in many activities, with the most benefits evident for bathing and

toileting (Gitlin, Winter, Dennis, Corcoran, Schinfeld, & Hauck, 2006). There is also a need for modifications and training designed to increase older patients' independence. Modifications and training particularly aimed at increasing older adults' mobility may, in turn, help to reduce home health care providers' occupational injuries related to lifting and moving patients.

Caregiving Tasks

Based on data from the U.S. Department of Health's Home Health Care Survey (U.S. Dept. of Health and Human Services, 2000), which captured usage rates of home health care services, we categorized patients' most common needs as either chronic health condition treatment and management or personal care assistance. Chronic health condition treatment and management is needed for the most common conditions affecting this population of mostly older adults: heart disease, diabetes, cerebral vascular disease, chronic obstructive pulmonary disease (COPD), malignant neoplasms, congestive heart failure, osteoarthritis and allied disorders, fractures, and hypertension. Registered nurses provide these services as well as education and training to help older adults better manage their conditions *independently*. As an example, a skilled nurse might instruct a patient with hypertension as to the use of an electronic blood pressure monitor.

Personal care tasks—Needs for assistance with personal care include different types of daily activities, which increase with the age of the patient. The National Home and Hospice Care Survey (CDC, 2000) reported that over half of home health care patients received help for at least one activity of daily living (ADL). The most frequent ADLs requiring assistance were bathing or showering (83%), followed by dressing (39%), transferring to or from a bed or chair (30%), and using the toilet room (22%). Almost half (43%) of patients 65 years of age needed help with at least one instrumental activity of daily living (IADL). The most common IADLs for which assistance was received were doing light housework (31%), preparing meals (20%), taking medications (20%), and shopping (11%). Patients required assistance walking as well (28%). An important part of home health care providers' services is providing education and training to increase patients' ability to perform personal care tasks independently.

Medical device training—Human factors interventions may be particularly beneficial for training and ensuring proper use of medical devices used to manage chronic health conditions by health care providers and by patients themselves. Previous human factors research has demonstrated the significance of training, even for "walk-up-and-use" medical devices, such as automated external defibrillators (Mitchell, Gugerty, & Muth, 2008). Furthermore, home-based intervention training on personal care devices can improve patients' overall functioning, rate of use, and satisfaction as well as their ability to use that device (Chiu & Man, 2004).

Training is a key element to reducing usage difficulties and errors. However, all training is not equal particularly for older adults who may be more sensitive to training quality. For instance, when learning to use a blood glucose meter older adults performed better after having video training based on instructional principles than after text-based instruction or

viewing the manufacturer's instructional video (Mykityshyn, Fisk, & Rogers, 2002). Younger adults' performance was less influenced by instruction type. Therefore, there is a need for training programs particularly suited for older users to reduce errors in using medical devices in the context of their homes.

Medication management—Modern pharmaceutical treatments are one of the most important factors contributing to the advanced state of health care today. Medications exist that are effective in treating the most common age-related health conditions: high blood pressure and cholesterol, diabetes, heart disease, cancer, and stroke. As a result, medication management is an important part of the majority of older adults' health care. Five out of six persons 65 and older are taking at least one medication and almost half take three or more medications (CDC, 2004). The management of multiple medications that may all have different schedules and side effects creates a complex task with life threatening consequences for mistakes. In fact, nearly 1 in 20 hospital admissions can be traced to problems with medications, many of which were preventable (Winterstein, Sauer, Hepler, & Poole, 2002).

Age-related changes in cognition may make medication management especially difficult for older adults. For example, older adults exhibit prospective memory declines even for tasks that have become habitual (Boron, Rogers, & Fisk, 2006; Einstein, McDaniel, Smith, & Shaw, 1998). Prospective memory is memory for an activity to take place in the future, such as remembering to take a medication. Furthermore, age-related declines in vision may make it difficult to read medication instructions accurately, particularly if the lighting is dim (Kosnik, Winslow, Kline, Rasinski, & Sekuler, 1988) or if the text to background contrast is poor (Mitzner & Rogers, 2006). These declines are exacerbated in suboptimal lighting, which is common in home settings (Charness & Dijkstra, 1999).

Home health care providers are limited in the amount of assistance they can provide for medication management because they are regulated as to the degree of involvement they can have in managing and administering medications. Typically, only a registered nurse can manage medications or help patients manage their own medications (i.e., make a decision about which medication to administer and when to administer it, based on a physician's prescription). Home health aides may only be permitted to transfer a medication from a container to a patient. However, given the complexity of the task, medication management may even prove challenging for a professional home health provider if they do not have any task supports.

Assistive devices may be particularly helpful for managing medications. For example, technologies such as electronic medical records, electronic prescription and administration of medication, electronic reminder devices, bar coding, and radiofrequency identification systems can be implemented to better assist home health care patients in managing their medications (Wachter, 2008). One study found that electronic reminder devices (ERDs) can increase medication adherence (Charles, Quinn, Weatherall, Aldington, Beasley, & Holt, 2007), although a literature review by Wise and Operario (2008), which found conflicting findings about the benefits of reminders, highlights the need for more research in this area.

Summary of Literature Review

The literature review reflected a deficiency in studies specifically addressing home health care. However, the available research does highlight a particular need for better communication systems and standards specific to home health care and for more research about communication errors unique to home health care settings, where patients transition from the hospital to the home as well as between different providers coming into the home. Moreover, additional supports are needed for chronic condition treatment and management, personal care assistance, and medication management. These may be best developed as a new technology or durable equipment depending on the specific need and context. Monitoring and assistive devices are needed for managing chronic conditions and supporting personal care. There is also a particular need for assistive devices for education management for use by patients themselves as well as informal and formal caregivers. Home modifications may be necessary to create a safe and functional home health environment and training is needed to help older patients perform personal care tasks and use medical devices independently. Our literature review provided guidance for the next phase of the study in which we interviewed experts in the field of home health care. From these interviews we sought to obtain more detailed information about the most prevalent difficulties home health care providers encounter in their daily tasks.

Phase II: Subject Matter Experts

The next necessary step of the needs assessment was an in-depth analysis of caregiving tasks and the context of care for home health providers. As a valuable source of information, we conducted interviews with four subject matter experts (SMEs), seasoned experts in the field of home health care. The goal of the SME interviews was to obtain a better general understanding of the challenges home health care providers encounter, and the day-by-day activities these workers engage in.

Subject Matter Expert Interviews

The SMEs were recruited from local home health care agencies. The individuals interviewed in this study held multiple degrees, had extensive past professional experience, and were currently in a variety of professional positions. All SMEs were seasoned experts within the domain of home health care, and held past employment which entailed visiting home settings to provide care. Thus, these individuals had a wealth of both knowledge and experience in home health care and were a valuable source of information. An overview of the SMEs' experience is presented in Table 1.

The SMEs were first asked to provide a description of their background, including past professional experience, degrees held, current position, and associated responsibilities. Next, they were asked to discuss the "typical" day for a home health care provider, including duration of patient visits, tasks performed, variability of patients cared for, and common difficulties encountered. SMEs were asked to limit their responses to describing work with older patients. Additionally, they were also asked to describe differences between categories of home health providers (e.g., a registered nurse versus a physical therapist) when answering the aforementioned questions.

Categories of Home Care Providers

Collectively, the interviews provided insight into the general daily activities and responsibilities of various types of home health care providers. Four categories of home health care providers were identified as being the most common: certified nursing assistants (CNAs), physical therapists (PTs), occupational therapists (OTs), and registered nurses (RNs). These different categories of home health care providers are often expected to work together, and provide specialized care to the patient based upon each provider's expertise and job title. Although some tasks, such as checking vital signs, are performed by several or all of the various kinds of providers, most of the providers perform tasks that are specific to their job category (see Table 2).

Experience of Home Health Care Providers

The SMEs reported that, in general, health professionals are required to have one to two years of experience before working in the home health care field. As a means of avoiding potential liability, many home health care companies avoid hiring health providers that are new to the health care field. As one SME stated, "you are practicing very autonomously in home health," therefore home health providers may rely more heavily on experience to administer proper care. Home health companies may assume that professionals that are new to the health care field do not have the necessary skills and experience to be an effective health care provider in a home setting. In fact, one SME reported that many health care providers make the transition to home health care near the end of their career, just prior to retirement.

Variety of Patients

A home health care provider interacts with a population of patients who have diverse needs. As one SME described, certain patients, such as orthopedic patients, may not require much assistance, whereas patients recuperating from injuries associated with a fall might require slightly more assistance. Further, patients recovering from a cerebral vascular accident (CVA, most commonly associated with a stroke) or another progressive neurological condition will likely need a great deal of assistance, and patients suffering from dementia, such as Alzheimer's disease, may be anywhere on the continuum.

Areas of Difficulty

The SMEs discussed several common threads concerning difficulties or challenges faced by providers in the home health care field. These difficulties were reported as prominent in all categories of home health care providers. The challenges can be broadly categorized as medication management, difficulties working in a home environment, training, and device use.

Medication management—Medication management was consistently identified as one of the greatest obstacles home health care providers encounter, and the data found in Phase II support this claim. As reported by one SME, the average patient using her company's services is taking approximately 12 or more different medications, often times with different dosage instructions and schedule regimens. Compound this with an average patient age of 81

years, and the burden of managing these numerous prescriptions becomes even greater. As discussed in Phase I, research suggests that older adults have difficulty with prospective memory tasks such as taking medication even when the tasks have become habitual (Boron, Rogers, & Fisk, 2006).

Home environment—As in other health care settings, the diversity of patient diagnoses is great. However, managing these diagnoses in a nontraditional health care setting, such as the home, comes with its own set of challenges. Each home that home health care providers visit is different and may hinder their ability to provide care. In addition to the environmental factors (e.g., crowded or dimly lit surroundings), that may serve as obstacles to care giving, the SMEs reported that in some circumstances, a patient's family members may act as a barrier to care giving, either by their over-involvement or lack of involvement.

Training—Another hurdle facing the home health care industry involves training for home health care providers. Although some internship and graduate mentoring programs are available to prepare recent graduates to enter the home health care field, reportedly there has been a struggle to create training programs that address the complexity of the job. Further, for providers who may have spent a career in a field outside of home health care and would like to make the switch to home health care, it is not yet clear what the best route of training may be to enable a smooth and effective transition. Along similar lines, many home health care companies are struggling in terms of how to measure competency effectively.

Device use—The need to interact with multiple forms of technology is yet another demand of working in home health care. Not only must providers employ traditional equipment such as stethoscopes and blood pressure cuffs, they are also required to use technologies such as laptop computers for data entry and mobile phones for communication with the agency. In general, the SMEs reported that home health care providers spend an average of 45 minutes with each patient. The providers interact with their home agency via phone-based reporting systems, in which they "dial-in" after their interaction with each patient to report task completion. Although this may not pose a problem for some home health care providers, those who are not as familiar or comfortable with such technologies may struggle when forced to use them in their everyday work.

Summary of Subject Matter Expert Interviews

The goal of this phase was to obtain an understanding of the areas of difficulty home health care providers encounter on a day-by-day basis, as reported by subject matter experts. The SMEs provided valuable information about the type and scope of issues encountered by providers in this domain. Themes from the interviews include: need for training and evaluation of competencies; diversity of providers, tasks, and patient needs; and the role of technology for this work domain. These findings serve as an initial step towards understanding the needs, capabilities, and limitations of home health care providers.

The SME interviews provided insights into the scope and day-to-day process of administering home health. The next appropriate phase would be to further investigate the needs of home health care providers, by interviewing providers currently administering

home care. The knowledge gained from the SUBJECT MATTER EXPERT interviews was used to develop structured interviews for home health professionals who are working in the field.

Phase III: Home Health Care Providers

The knowledge gained from the first two phases of the needs assessment, as discussed above, were critical for the third phase to be successful. The previous phases provided an understanding of the home health care domain and knowledge of common language and terminology used by health care providers to incorporate into the interview script. Additionally, the data gathered from the literature and the SMEs supplied a thorough list of the tasks and activities performed by home health care providers, which was used to guide the discussion in the structured interviews. The third phase of the study focused on conducting structured interviews with home health care providers. These structured interviews were designed to identify the nature of the problems encountered by home health care providers, explore the context in which they occurred, and reveal how the providers were able to resolve the issues, if at all.

Drawing from the categories of home health care providers identified in Phase II of the needs assessment, Phase III proceeded by recruiting and interviewing a subset of these providers. Four certified nursing assistants (CNAs) were interviewed regarding the difficulties they encounter while on the job. Before the structured interview took place, the CNAs completed a set of questionnaires that documented general demographic and background information, including their education, training, and employment history. Additionally, these questionnaires required CNAs to report the frequency with which they performed various caregiving tasks. The structured interview questions were based upon the tasks they reported performing most frequently.

For each frequently performed task, the CNAs were asked to describe the ideal step-by-step process required to complete each task. Next, they were asked to discuss the frustrations and difficulties commonly associated with performing these tasks. Participants were asked to provide detailed examples of such difficulties, as well as how the issues were resolved, if at all. If the CNAs indicated that they trained older adults to perform any of the tasks, they were also asked about what difficulties they encountered while training the older adult, as well as what aspects of the task the older adult appeared to have trouble learning.

Additional Provider Challenges

Many of the difficulties discussed during Phase I and II of the needs assessment were echoed in the interviews with CNAs. However, the CNAs also reported several challenges in their job that had yet to be considered.

Medical device usage—When CNAs enter a home to administer care, they must use whatever devices or equipment the patient owns. This might include devices such as blood glucose meters or feeding pumps. This situation forces CNAs to interact with new and novel devices often, which may increase the potential for usage errors. Errors may result from the CNA not thoroughly understanding how the device should be used, or it may be due to

negative transfer, whereby there is interference from previous learning in the process of learning something new. The likelihood of negative transfer occurring is high due to the overlap in functionality of many of the devices CNAs operate, including blood glucose meters. If CNAs believe that they know how to operate a new blood glucose meter because they have successfully used others in the past, they may (erroneously) assume the new device works in the same way as the others they have used. Although devices such as blood glucose meters may have similar functions, there are certain to be slight variations in their operation. A CNA may overlook these slight variations, and use the device improperly, which can have serious consequences for the health and well being of the patient. Further, if CNAs are training the patient to use the blood glucose meter, they may pass on this faulty knowledge to the patient and increase the chance of serious error.

In addition to the heightened potential for error, the introduction of a novel device requires the CNA to become familiar with the device, oftentimes having to read through the instruction manual. This is time that is taken away from interacting with and providing care to the patient.

Patient education—Another area where CNAs reported frustrations and difficulties was educating the patient and the patient's family about their health conditions and treatment plan, including medications they were prescribed. CNAs reported that it was important for patients to understand why they were taking certain medications, and how these medications would affect their bodies, including possible side effects. Many CNAs reported that if patients had a reasonable understanding of their medication and why they needed to take it, they were more likely to comply with their medication regimen. However, medication education requires that CNAs have a thorough understanding of various diseases and the related medications, and they may lack this knowledge. Many health conditions and the associated medication effects are complicated. The CNAs must be able to express this information in layperson's terms so that patients and family members can understand. Even if the CNA does have a sophisticated understanding of the health condition, they may not have the communication skills to adequately express that information.

Family involvement—As health care moves from the hospital to the home, the dynamics between a patient's family and the health care providers become increasingly dynamic and complex. In a hospital setting, the health care providers are typically viewed as the authority figures. But when health care takes place in the home setting, the CNAs suggested a shift in authority. Family members have a greater influence, be it positive or negative, on the patient's health care plan. The CNAs discussed that often the family has demands regarding the patient's care that exceed the capabilities of the CNA, or are actually in conflict with the provider's professional opinion as to what is best for the patient's well-being. For example, one CNA discussed a family who wanted their mother, the patient, showered and fully dressed every day. This requirement was not outlined in the health care plan, and was exhausting not only for the CNA, but for the patient as well. Additionally, when a CNA is working in a home setting, it was reported that patients and their family would request the CNA to perform tasks and activities that were outside their job responsibilities, such as extensive cooking or cleaning. In some cases, CNAs refused to comply with these requests,

but in other cases, especially those in which the CNA was independently employed and not associated with an agency, they complied, perhaps to avoid the potential negative repercussions, such as losing that patient as a client.

However, it should also be noted that families can also serve an important and beneficial role. CNAs discussed that when they have a patient who does not want to comply with their medication regimen, they will explain the situation to a family member of the patient who is then able to persuade the patient to take their medication.

Provider isolation—When a health care provider transitions from a hospital or assisted living facility to a home setting, the support system that is inherent in those types of institutions disappears. Many CNAs reported that they often need help, especially with physically demanding tasks such as lifting or moving patients, but there is no help available to them, oftentimes because agencies are understaffed or because the patient load is just too high to assign multiple CNAs to a single patient. As a result, CNAs risk personal injury to themselves as well as possible harm to the patient. Recall from Phase I that 63% of occupational injuries in home health care were the result of physical overexertions and falls.

Communication—CNAs often need to communicate with other health care providers, or with each other. In cases where there are two CNAs assigned to a single patient, they often need to communicate with each other regarding what tasks were completed and what tasks remain to be done for that patient. However, communication between providers is limited, partly due to HIPAA restrictions. While these restrictions are certainly essential to guarantee the protection of the patient's private health information, it creates a challenge for providers. CNAs reported they are only able to leave handwritten notes for one another at the patient's home, or to contact another provider through the agency that employs them. These limited methods leave room for omission errors in which critical pieces of information are not shared with another because there is not a standardized medium to do so. As discussed in Phase I, handoff and transition errors can have serious, even fatal, consequences.

Summary of Home Health Care Provider Interviews

The goal of this phase of the needs assessment was to identify the specific frustrations and difficulties experienced by home health care providers on a daily basis. Structured interviews were conducted with certified nursing assistants (CNAs) who were actively engaged in providing health care services to patients in the home setting. This allowed us to capture and document the most pressing issues and needs of the health care professionals who are working in the field. This phase identified several categories of difficulties including using medical devices; educating patients and their families about diseases and medications; family involvement; working in isolation; and barriers to communication.

Conclusions and Interventions

This three-phased needs assessment afforded a detailed and systematic investigation into the challenges faced by home health care providers. Identifying these difficulties is a critical step that must occur before interventions can be properly designed and implemented. Based upon our findings, we identified five categories of issues: medical device usage, patient

education, family involvement, provider isolation, and communication. The present needs assessment study provides guidance for the development of interventions to support home health care providers. Potential interventions and the primary categories of issues they target are presented in Table 3.

Improved training programs, and clear, readable instructional manuals or Quick Start guides may enable CNAs to use a wider array of devices with greater ease while minimizing the time required to familiarize themselves with the devices. In addition, including all levels of caregivers in usability testing may help designers create devices that are easier to use. By providing support tools for patient education, CNAs may feel better equipped and comfortable discussing complex medications and health conditions with their patients and patients' families. Understanding the team dynamics between health care providers, patients, and families, and how these dynamics may change when health care moves to the home setting, will allow for a clearer distinction of each individual's role and responsibilities in the health care plan. Finally, improved communication systems and devices may help to ensure that all relevant information is accurately conveyed between health care providers. These solutions could be simple and inexpensive, such as standard forms, or technology-based with more capability, such as computers with tablet interfaces. Through the implementation of effective and well-designed interventions, home health care providers will be able to perform their jobs with greater ease, safety, and satisfaction.

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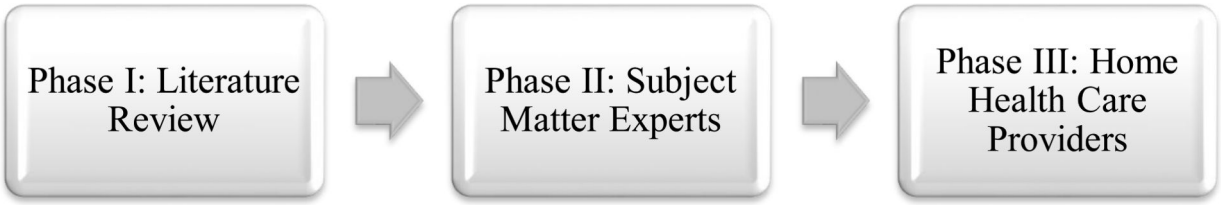

Figure 1.
Overview of needs assessment phases.

Table 1

Background Information for Subject Matter Experts

Education	Past Experience	Current Position
Bachelor of Science in Nursing	Authored books on the topic of home health care	Aging and Disability Resource Specialist for a government agency
Doctor of Health Science with specialization in Geriatrics	CEO of a visiting nurse agency	Corporate Director of Rehabilitative Research and Quality for home health care agency
Fellow in the American Academy of Nursing	Consulted for hospital-based home healthcare programs	
Geriatric Nurse Practitioner	Held positions in multiple home health agencies	Owner/Director of a home health company
Master in Physical Therapy		
Registered Nurse	Worked in hospital-based outpatient rehabilitation programs	President of a home health care consulting firm

Table 2

Job Responsibilities Performed by the Four Categories of Home Health Care Providers

Job Responsibilities			
Certified Nursing Assistants	***Physical Therapists***	***Occupational Therapists***	***Registered Nurses***
Personal Care ▪ Bathing ▪ Dressing ▪ Eating ▪ Hygiene ▪ Mobilization ▪ Training	Assessing gait abnormality Gait/balance training Neuromuscular re-education	Activities of Daily Living ▪ Dressing ▪ Eating ▪ Mobilization	Catheter changes Medication management Medication administration
Companion Care ▪ Meal planning ▪ Medication reminders	Therapeutic exercise	Adaptive Equipment Needs ▪ Order devices and equipment ▪ Train patient on device and equipment use	Patient education Wound care

Table 3

Providers' Issues and Potential Interventions

Categories of Issues	Potential Interventions
Medical device usage	Training, improved device design, instructional manuals
Patient education	Support tools for patient education
Family involvement	Understanding "team" dynamics
Provider isolation	Support for activities that are physically demanding
Communication	Improved communication systems and devices