

Identifying the Key Performance Improvement Domains for Home Health Agencies

SAGE Open Medicine
Accepted(In Press):1–21
©The Author(s) acceptance: Nov 2015
Reprints and permission:
sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/ToBeAssigned
www.sagepub.com/


Güneş Koru¹, Dari AlHuwait¹, Robert Rosati²

Abstract

Objective: To support home health agencies (HHAs) in the US in their individualized quality and performance improvement initiatives (QAPI) by identifying their key performance improvement domains (KPIDs).

Methods: Qualitative research was conducted by following the Framework method. Rich contextual data were obtained through focus group meetings participated by domain experts. The analysis results were further refined in an online forum and validated at a final meeting.

Results: Four focus groups involving a total of twenty participants resulted in useful discussions during which various perspectives were expressed by the expert participants. A well-defined set of seventeen KPIDs emerged under four categories, namely, economical value, sociocultural sensitivity, interpersonal relationships, and clinical capabilities.

Conclusions: The feedback we received from the focus groups indicates that performance improvement in HHAs is a lot more complicated than simply assessing whether certain clinical tasks are performed. The KPIDs identified in this study can help HHAs in their focused and individualized QAPI initiatives. Therefore, the results should be immediately relevant, interesting, and useful to the home care industry and policy makers in the US.

Keywords

Home care, home health agencies, and performance improvement

¹University of Maryland, Baltimore County

²Visiting Nurse Association Health Group

Corresponding author:

Güneş Koru, Department of Information Systems, University of Maryland, Baltimore County, USA

Email: gkoru@umbc.edu

ACRONYMS

(sorted alphabetically)

CMS: Centers for Medicare and Medicaid Services

HHA: Home Health Agency

IT: Information Technology

KPID: Key Performance Improvement Domain

OASIS: Outcome and Assessment Information Set

QAPI: Quality and Process Improvement

US: United States of America

WHO: World Health Organization

Introduction

Improving the quality of healthcare can result in better health outcomes and patient satisfaction while possibly reducing the overall costs of health care.¹ Historically, a number of initiatives have been designed and implemented to improve the quality of home care in the United States (US).² In the future of home care, quality improvement efforts will continue to take an important and critical role.

A recent proposed rule by the Centers for Medicare and Medicaid Services (CMS), the largest payer for home care services in the US, included quality assessment and performance improvement (QAPI) activities as a part of the conditions of participation in the Medicare and Medicaid programs.³ In this document, CMS states:

“We believe that the proposed QAPI conditions of participation would provide an opportunity for Home Health Agencies (HHAs) to develop a program that would enable them to identify areas for improvement which would help to ensure quality care and patient safety”.

CMS believes that all HHAs would be able to successfully implement QAPI programs because the proposed rule would include flexibility allowing HHAs to create focused and individualized programs suited to their specific contexts. Rather than being prescriptive, CMS explicitly acknowledges the difficulty of providing specific instructions to HHAs about implementing QAPI programs. Instead, the governing bodies of HHAs would be responsible for designing and

implementing QAPI programs based on the specific needs and conditions of their organization and patient population. For example, in the recommendations for Phase 1 of a QAPI initiative, CMS states its belief that an HHA would:

”Identify quality domains and measurements that reflect its organizational complexity; involve all HHA services; affect patient outcomes, patient safety, and quality of care; focus on high risk, high volume, or problem-prone areas; and track adverse patient events.”

CMS would only (i) assess whether an HHA has a QAPI program in place through a survey process, and (ii) expect the HHA to demonstrate measurable quality improvement based on the OASIS (Outcome and Assessment Information Set) and other data. The proposed rule is also in line with the accreditation standards Community Health Accreditation Partner and Joint Commission accreditation standards already in place for home care.

Given such initiatives, it becomes critical to support HHAs in their various QAPI activities. This study focused on providing HHAs with empirically-based guidance to be useful in their individualized QAPI programs. More specifically, the study investigated the quality attributes for home care provided by the HHAs in the US with an emphasis on those participating in the Medicare program. These quality attributes constitute key performance improvement domains (KPIDs), which can be used to view, characterize, and improve the performance of an HHA. Rich contextual information was collected via focus group discussions conducted with the HHAs providing services in one of the states in the US. The KPIDs identified in this study can serve as a useful tool in various discussions and brainstorming activities taking place as a part of the QAPI efforts in HHAs.

Background: Home Care in the US

In the US, home health care, referred to as home care in this paper, is typically reimbursed by Medicare and is defined as visit-based episodic secondary-care services provided off-site to mostly elderly home-bound patients at their homes.⁴ Home Health Agencies (HHAs) are the providers of home care services. One episode of care typically covers between 13 and 16 visits provided in 60 days under a physician’s monitoring and approval. Multiple home care visits occur in a week; one visit takes, on average, between forty-five minutes to one

hour depending on the type of care provided. Usually, an interdisciplinary team of providers with different educational backgrounds and professional cultures collaborate and coordinate to provide home care services under a physician's order and monitoring. In the most common Medicare-funded practice of home care in the US, physicians do not visit patients' home. Instead, home care is provided by nurses, physical therapists, occupational therapists, speech therapists, medical social workers, and home aides. The definitions of the services provided by these professionals can be found in the supplemental material section of this paper. In addition to providers, medications and medical equipment need to be carefully coordinated to arrive promptly at patients' home.

Home settings are often less controllable for clinicians compared to other clinical settings. As a result, communication, consulting with peers, access to information resources, and using decision support tools can be more difficult compared to providing care in other settings. Home care providers only spend a limited time with their patients but they have to consider what happens after they leave home.⁵ Beyond clinical care itself, e.g., wound care, many patients need family support or social support services without which their health conditions may deteriorate. Often, home care requires training not only patients, but also their family members and caregivers.

For home care quality, CMS has largely followed the Donabedian Model, also known as Structure, Process, and Outcome model.⁶ While *structure* and *outcome* perspectives are primarily concerned with the context and effects of health care, respectively, the process perspective is primarily concerned with actions. These perspectives were defined as complimentary "approaches to the acquisition of information about the presence or absence of the attributes that constitute or define quality."⁷ CMS collects and publishes a number of process and outcome measures for home care. The process measures are mainly about the level of compliance with the best clinical practices. The outcome measures are about improvement in health status, potentially avoidable events, and utilization of care (e.g., hospital re-admissions). In addition, Patient Experience of Care Survey is conducted with a random sample of patients from each HHA after which HHA-level results are publicized by CMS.

To guide process improvement activities in HHAs, CMS provides four generic steps in the Process-Based Quality Improvement manual:⁸ (i) select specific care processes, (ii) assess the reasons for non-compliance with best practices, (iii) develop a plan of action, and finally, (iv)

implement and monitor. The steps for process improvement outlined in the Outcome-Based Quality Improvement manual⁹ are similar except that the first step is the selection of specific outcomes to be improved, and the second is the evaluation of care processes leading to the investigated outcomes.

Home Care Quality: Need for Identifying KPIDs

However, in the recently proposed rule,³ CMS takes a broader view of quality improvement. CMS uses the term *performance improvement* to refer to improvements in all necessary domains of quality considering all HHA services. This broader organizational view seems appropriate given the complex and interdisciplinary nature of home care because effective improvement eventually boils down to effectively addressing various *how* questions related to both clinical and non-clinical operations of an HHA. For example, improving "Timely Initiation of Care", a process measure, would possibly require a QAPI team to answer *how can we better prioritize the order that patients are seen?*; improving "Depression Assessment Conducted" would probably require the team to answer *how can we more consistently and adequately conduct depression assessments?*. Similarly, *how* questions would be asked when a team works on improving various outcomes measures, e.g., *how can we reduce the rate of readmissions?* or patient satisfaction responses, e.g., *how can we better communicate with patients?* Addressing such questions is not trivial, and it often requires careful consideration and understanding the root causes of the organizational inefficiencies correctly, followed by effective planning, implementation, and evaluation.

Furthermore, as acknowledged by CMS,³ QAPI problems and their solutions are not immediately generalizable because HHAs and their populations show variation. In terms of formation, an HHA can be a standalone entity, a part of a larger chain, a franchising establishment, or a non-profit or governmental organization. Such formations can affect the organizational culture and the emphasis on performance improvement. While some HHAs serve wealthier sub-urban communities, some serve under-privileged urban communities or rural areas bringing up various different performance improvement problems. Furthermore, HHAs come in different sizes as measured by metrics such as patient census, number of admissions, or number of visits. Typically, the resources that can be invested in improvement initiatives are more limited in smaller HHAs.

Since "one size fits all" suggestions are infeasible and the advice in the process-based and outcome-based quality improvement manuals^{8,9} remain at a rather generic level, it becomes important to build empirical evidence that can support and guide the QAPI teams. The KPIDs identified in this study can serve as an empirically-based tool that can be used by a QAPI team in investigating performance improvement problems, understanding their root causes, and finding effective solutions. KPIDs can serve these purposes by providing a common terminology, understanding, and checklist for focus areas in an HHA, which can facilitate communication and brainstorming within a QAPI team.

Methods

In this study, a qualitative research approach was preferred to obtain contextual and rich data consistent with its exploratory purpose.¹⁰⁻¹² The Framework Method,¹³⁻¹⁶ a qualitative method used in many research domains including medicine,¹⁷⁻¹⁹ was adopted as the research method. This method is known to be a positivist and pragmatic method, which allows refinement and emergence of knowledge. Qualitative data were collected via focus group discussions.²⁰ Focus groups were preferred due to their dynamic nature because they enable direct involvement of all participants, facilitate interactions and discussions, and potentially lead to consensus among participants.²⁰ To ensure that the ethical standards for safeguards and protection of participants were in place, an institutional review board (IRB) approval was obtained from the University of Maryland, Baltimore County before conducting the focus groups.

In this study, the six dimensions of health care quality, recommended by the World Health Organization (WHO) for focused improvement initiatives,²¹ were presented to the participants to be further delineated and contextualized to home care in order to identify the KPIDs. Those dimensions are *accessibility*, *effectiveness*, *efficiency*, *equitability*, *patient-centeredness*, and *safety*. The Institute of Medicine agrees with WHO in that any health care system should improve in these main dimensions to achieve higher quality.²² These dimensions were chosen because they are comprehensive and they constitute the pillars of quality. On the other hand, they remain at a general level when home care settings are concerned. This study was designed to delineate, detail, and contextualize the pillars of quality to home care thus providing more concrete and evidence-based recommendations to the QAPI teams in HHAs. It is important to note that the six main dimensions are interdependent and interrelated rather than being

independent, sequential, or hierarchical.²³ Consequently, the contextual KPIDs derived from the pillars of quality will also be interdependent and interrelated.

For the purposes of this study, the WHO model was preferred over the CMS model to enrich and facilitate the focus group discussions. When QAPI is considered, the current CMS model provides useful measurements about HHA characteristics and a number of ratio measures about whether certain clinical tasks are performed. However, when the purpose is to facilitate further explorations in the QAPI efforts of HHAs, the answers to questions such as *why certain tasks are not being performed consistently?*, or *how well clinical tasks are performed?* ultimately need further discussions about the quality of care. Therefore, we chose the WHO model to serve as the starting point in exploring the contextual KPIDs for home care.

Participant Selection

Recruitment strategy was based on purposive sampling, which is preferred to minimize the possibility of bias in the focus group studies with small samples.²⁴ Locally available professionals who are knowledgeable about the quality of care issues in providing home care services were recruited through announcements made via their professional associations as well as personal contacts. This background homogeneity facilitated a free-flow of conversation within groups. Further segmentation within groups were avoided to ensure diversity of attitudes and opinions, which is also necessary to create discussions.^{10;25} Professional acquaintanceship among some participants was unavoidable since quality-conscious professionals who play important roles in their HHAs also meet in various other local professional events.

Conducting focus groups

Four focus groups were conducted simultaneously due to practical reasons associated with time and availability. Similar constraints about the timings or number of groups have also been encountered in a number of other studies, but dealt with successfully.²⁶ Our validation phase (discussed below) assured that appropriate feedback and validation were received from participants. Each focus group was run by an experienced facilitator assisted by a student scribe who took notes. A facilitator manual explaining how to run the focus groups was prepared to ensure consistency across the focus groups.²⁷ The researchers and facilitators met twice before

the day of the focus groups to discuss and review the meeting plan. They also reviewed the facilitator guide multiple times.

On the day of the focus groups, the meeting commenced with a presentation including the background knowledge and the aims of the activity as well as the next steps, after which the participants were divided into groups. From a total of twenty, each group included four to six randomly-assigned participants. To start with, each participant was provided with six index cards with different colors, each card corresponding to one of the quality dimensions stated by WHO.²¹ On each card, a description of one quality dimension was printed along with a question asking what defines that principle in home health care. For example, for patient-centeredness, the question stated was "what defines patient-centeredness in home health care?". In addition, two white index cards were provided to each participant in case the participants would like to write additional thoughts about the performance and quality improvement concepts throughout the meeting. Prior to the start of the discussions, the participants were given some time to think and take notes on the back of the cards. This method facilitated group discussion and allowed the researchers to capture the participants' opinions. Each set of eight cards given to a participant was assigned a unique number. No personal identifiers were associated with any of the index cards. During discussions, flip charts were used by the facilitators to capture the group's main discussion points and definitions of KPIDs in home care. The student scribes took notes throughout the focus groups and they shared these notes with the facilitators and researchers.

Data Analysis

Data analysis started after focus group discussions and continued throughout the study. Analysis was iterative in nature where the results were carried over from one step to the next. Index cards, flip charts, and notes constituted the qualitative data to be analyzed. A conceptual framework was developed by coding and observing the common themes emerging. Descriptive accounts of the KPIDs were developed from this analysis along with the categorization of KPIDs which were further validated.

Validation

After analyzing the data from face-to-face focus group discussions, all participants were invited to participate in an online discussion forum to provide further feedback for refining and validating the identified KPIDs and their respective definitions. The final validation of the refined KPIDs was obtained in a final face-to-face group interview.^{28;29}

Results

As expected, the focus groups were effective in engaging participants and creating discussions which, in turn, provided useful qualitative data. The participants have held various executive, director, managerial, clinical, health education, and health IT positions in home health care. The median and average professional expertise were 15 and 17 years, respectively. Out of twenty, sixteen participants represented Medicare-eligible HHAs licensed and operating in the researcher's State in the US; one was an external faculty member of a Nursing School; one represented a private-duty agency (receiving only out-of-pocket payments); one was a state employee with a relevant job position, and one was from a relevant professional association.

Thematic charts were created to observe the similarities and differences among focus groups. Then, descriptive accounts were formed by defining descriptive elements and by classifying the data and refining the categories. The descriptive elements were presented to the participants in an online discussion forum and a face-to-face meeting which allowed the elements to be further refined. The KPIDs identified as a result of this process, shown in Table 1, clustered within four categories: Economical Value, sociocultural sensitivity, interpersonal relationships, and clinical capabilities. In this section, we provide the results under these main categories by also providing participant quotes written on the index cards. Each quote is linked to a participant by providing a participant ID (e.g., P3) in parentheses at the end of the quote.

Economical Value

The participants agreed on perceived **worthiness** meaning that home care should bring and demonstrate perceivable value to patients, caregivers, and families in return of the time, effort, and/or money they spend. One participant noted *"It's important to consider value determination of services provided to patients and families by themselves"* (P4). **Affordability** emerged as another descriptive element: *"Access to home care should not be hindered by ability to pay.*

<i>Category</i>	KPID	Concise Definition
<i>Economical Value</i>	Worthiness	Demonstrate perceivable value to patients, caregivers, and families
	Affordability	Control and reduce costs to make home care a feasible alternative and sustainable business
<i>Sociocultural Sensitivity</i>	Cultural Competency	Provide care suited to the cultural needs of patients and caregivers including their religions and languages
	Socioeconomic Awareness	Provide care by considering the socioeconomic conditions of patients
<i>Interpersonal Relationships</i>	Fairness	Schedule and provision care in an unbiased manner by considering only healthcare needs and conditions
	Courtesy	Be polite, respectful, and considerate toward patients and caregivers
	Reliability	Be dependable, follow-up on questions, and fulfill promises
	Expectation Management	Set goals aligned with patients' abilities, needs, and overall care plans; manage patient expectations accordingly
<i>Clinical Capabilities</i>	Professional Competency	Follow evidence-based practices while making best use of resources
	Timeliness	Be on time in every aspect of home care delivery
	Coordination	Plan and deliver home care within the context of patients' journey in the health care system
	Completeness	Be thorough, avoid omissions, pay attention to detail and correctness
	Engagement	Involve all participants to actively participate in home care delivery
	Standards Conformance	Consistently provide care according to evidence-based clinical standards and guidelines
	Customizability	Be flexible to tailor services according to the preferences, needs, and demands of patients and families
	Monitorability	Observe, track, and measure home care delivery to assure and improve quality
Accountability	Be responsible and answerable for all care delivery actions	

Table 1. Key Performance Improvement Domains (KPIDs) for Home Health Agencies

The care should be both financially and geographically accessible” (P6). In the discussions, the participants expressed that home care needs to be delivered by controlling and reducing its costs in order to make it feasible for patients and their payers (CMS), and to maintain its sustainability as a business.

Sociocultural Sensitivity

Many participants indicated that home care staff should develop **cultural awareness** to respond to various cultural needs of the patients and caregivers, including their religions and languages. A participant stated: *"If unfamiliar with cultural preferences and customs, case manager should research before start of care then speak to patient and family"* (P15). Furthermore, in home care delivery, **socioeconomic awareness** is needed to consider the socioeconomic conditions of patients and caregivers such as their education, income, financial situation, geographic location, and the level of family, community, and social support available to them. One participant stated: *"Make written material available for all education levels and languages"* (P20).

Interpersonal Relationships

This category is about the relationships between home care professionals and patients, caregivers, and families. Under this category, the importance of **fairness** was stressed: *"Eliminate the Very-Important-Person status that consumes resources"* (P16). According to our participants, staff should be trained to consider only health conditions and healthcare needs in the scheduling and provisioning of home healthcare services being free of any implicit bias associated with income, race, gender, cultural background, beliefs, or other factors. And, it was emphasized that home care professionals should show **courtesy** towards patients and caregivers: *"Our care must be friendly and supportive"* (P20) Participants also expressed the need for courtesy using words such as *polite, respectful, and considerate*. **Reliability** was also identified as an important descriptive element. One participant said: *"Care delivered should be dependable by patients and caregivers. For example, providers should follow-up on patient questions and requests as well as their own promises"* (P1). **Expectation Management** was identified as a descriptive element: The participants expressed that, first, home care goals should be set realistically by aligning them with patients' abilities, needs, and their overall healthcare plans. Then, by good communication, the expectations of patients, caregivers, And families should be balanced with the home care goals.

Clinical Capabilities

The participants indicated that clinicians must develop **professional competency** to follow evidence-based practices while making the best use of the resources available within the

HHA and community: *"Personnel must be appropriately licensed, certified, and trained for their roles; they should attend ongoing training"* (P6). The participants frequently mentioned **timeliness**: *"We need to use scheduling management systems and be more effective in using GPS and mapping devices to reach our patients"* (P9). They emphasized that care needs to be delivered in a prompt and timely manner: *"... home care that is available fast and 24/7"* (P11). It was mentioned that timeliness should encompass all aspects of home care activities including, but not limited to: intake, scheduling, visits, and follow-ups.

The participants agreed that care delivery activities need to be well planned and conducted along the continuum of care and throughout the patient journey in the healthcare system. **Coordination** involves all activities inside and outside of the HHA boundaries as well as the information flow: *"We should work with patients, other providers, and physicians to ensure coordination of efforts"* (P15). The participants stressed the importance of delivering care characterized by its thoroughness which avoids omissions and pays attention to detail and correctness. This descriptive element called **completeness** applies to documentation as well as the actions of care delivery such as infection control, checking for hazards at home, etc. One participant (P4) noted that a *"complete documentation of each visit"* is required. On a flip chart, it was stated that care is all about doing things right.

Engagement was identified as another descriptive element: *"Patients and their families must be engaged in the plan of care. Providers should ask patients if they can teach them back what they learned"* (P11). In addition, the participants stressed that providers should involve all stakeholders, inside and outside of the HHAs' boundaries (e.g., other providers), to actively participate in the actions of care delivery.

Standards conformance was highlighted in the discussions. For example, one participant said *"Our care must be evidence-based and generalizable"* (P18). The participants agree about consistently delivering care supported by scientific evidence and standards to all patients based on their clinical needs. At the same time, **customizability** was also mentioned as an important element: *"Providers must not take a 'cookie cutter' approach to care. They should tailor their services based on the preferences, needs, and demands of patients, caregivers, and families"* (P6).

Many participants emphasized **monitorability** which means it should be possible to observe, track, and measure home care delivery to assure and improve quality. One participant stated:

HHAs must carefully manage and monitor each case (P12). The participants also mentioned that providers, clinicians, and employees should be **accountable**, described as being responsible and answerable for their actions and care delivery practices towards their patients and caregivers according to the prescribed healthcare plan.

Related Work

Comprehensive investigations of quality attributes for home care, as done in this study, still remain largely an unexplored research area. Arguably, one reason could be that the process and outcome measures extracted from OASIS have taken the main focus because OASIS is required for Medicare reimbursements. It is, however, encouraging that CMS would like to go beyond OASIS measures in the proposed rule.

The proposed rule itself forms a related work in which CMS invested time and effort. In this rule, while leaving QAPI efforts up to HHAs, CMS does make a number of points related to the KPIDs identified in this study. For example, CMS emphasizes the importance of considering health disparities, which is consistent with the sociocultural KPIDs identified in our study. CMS also mentions skills and competencies of home care professionals. CMS encourages a patient-centered approach involving patients in decision making. It seems that the KPIDs expressed by our participants bring supportive empirical evidence to the policy changes proposed by CMS.

A related study was conducted recently by Leff et al.³⁰ who established a network of organizations to develop a quality-of-care framework and a set of quality indicators for home-based medical practices, excluding the home care provided by the Veterans Administration. After conducting interviews with the network members and a literature review, the researchers identified a set of quality domains, standards, and some measures for home-based primary care and palliative care. Differently, our study only focused on the KPIDs and only for home care as commonly practiced in the US as a secondary type of care provided by HHAs and reimbursed by Medicare.

Despite some differences in research focus and type of care, the domains identified in this study are generally consistent with those reported by Leff et al. For example, Leff et al. identified cost or affordable care, provider competency, and care coordination which are included in Table 1. Access, patient and caregiver experience, assessment, and goal attainment, as defined by Leff et al., have many similarities with timeliness, patient engagement, completeness, and

expectation management in Table 1, respectively. Safety was identified by Leff et al., which was one of the quality dimensions serving as a starting point for our research. Quality of Life was identified by Leff et al. but not in our study perhaps because we did not focus on hospice or palliative care. Education identified by Leff et al. was mentioned under Engagement in our study. Overall, the domains identified in our study seem to be more detailed and contextualized to the current practice of Medicare-reimbursed home care services in the US.

Limitations

Similar to any empirical study, this study has some limitations. The results are based on the qualitative data collected during the focus groups that included local participants. Despite the rich data, it is possible that certain KPIDs may be left unmentioned by the participants. To mitigate this risk, the methodology involved asking participants to confirm the validity of KPIDs as well as their comprehensiveness in an online forum and in a final face-to-face meeting.

Although it is a small possibility, our scribes may have missed some details resulting in an omission of data. We decided not to audio-record the discussions due to the business sensitivities attached to the quality of care issues. As researchers, our main purpose was to make the participants feel more comfortable in group discussions to enable a free-flow of conversations. Generally, our observation is that the scribes successfully captured the discussions in great detail. Their thorough work was evidenced by the consistency of their notes with the data available in the participants' note cards and the flip charts produced by the moderators. Furthermore, the research results were validated both in an online forum and in a final face to face meeting. In any case, the quotes provided in this paper are accurate because they directly come from the hand-written notes provided by the participants in their note cards.

Another limitation of our study is its focus on home care as provided by the HHAs in a single state in the US and as reimbursed by CMS primarily for the Medicare patients. Due to its qualitative nature, we needed to conduct the research in a specific context. While the results from this study provide a useful framework for consideration by HHAs in the US for their QAPI initiatives, caution must be taken before immediately generalizing the results to all HHAs in the US without considering their contextual attributes. The differences in the populations' the HHAs serve and the variations of their care delivery settings, such as State laws and geography (e.g. remote rural counties), may affect the applicability of results.

From an international perspective, the differences in care models and definitions may also impact the generality of the results. In the United Kingdom, similar services can be called domiciliary care, social care, or in-home care, and the providers can be independent agencies, or serve as a part of the statutory responsibility of social services departments of local authorities.³¹ The Canadian Government calls such services "home and community care" which can be even provided by non-regulated workers, volunteers, friends and family caregivers.³² There is a common theme that the US, United Kingdom, and Canadian definitions of home care all cover the secondary care services described in the Background section. On the other hand, the providers and their licensing requirements, payers, reimbursement mechanisms, and process and quality improvement landscape could be different. The readers in different countries should be cautious not to immediately translate our results before paying attention to the context in their own countries.

Due to its qualitative nature, the results from this study need further investigation to improve their generalizability. Future studies can possibly obtain quantitative data from a large sample of experts via online surveys. Such quantitative data may further confirm the validity of the KPIDs identified in this study. Furthermore, those studies could quantitatively explore the relationships between HHA characteristics such as rurality, size, etc. and the KPIDs. Within the available resources, this study collected data only from providers; the future studies can explore the KPIDs by also incorporating data from other stakeholders such as patients and caregivers.

Discussion

The feedback we received from the focus groups indicates that performance improvement in home health care is a lot more complicated than simply assessing whether clinical tasks are performed. Further, the focus groups revealed that to truly have an impact on patient outcomes will require a broader view of what organizations should be doing as part of the overall care delivery process. For example, given the nature of home health care, attention to social and cultural issues is paramount to delivering patient-centered care. In addition, it is essential that there be sensitivity to individual finances, where patients live, community resources, family involvement, and social support systems.

For home health care to be effectively delivered, HHAs will need to develop protocols and procedures for performance improvement along the KPIDs. The challenge will be how home

health care providers will operationalize the relevant measures and collect the relevant data reliably. Some of the recommendations from the focus groups provide guidance in how the measurement might be done: When discussing clinical capabilities, the focus groups specifically pointed out the need to measure professional competencies, the use of technology, care coordination and comprehensive documentation. Another example was provided that directly relates to patient engagement. Members of the focus groups recommended that clinicians use the teach back method to assure patient education is effective, which has already been identified as a best practice with heart failure patients.³³ All of these areas identified by the focus groups are measurable KPIDs that organizations can be held accountable for and fit well within the Donabedian model of quality improvement.⁶

Other insights gained from the qualitative data suggest that future QAPI programs should make an investment to measure how well staff is able to control the cost of delivering care, social and cultural sensitivity, interpersonal relationships, clinical capabilities, family engagement and the use of evidence based standards. The goal would be to assess along a spectrum, from not-at-all to fully-implemented, how well home care agencies are able to deploy the KPIDs identified in this study. For example, implementation would look for evidence of training activities, the use of care related technology, comprehensive clinical documentation, utilizing guidelines built into electronic medical records, etc. We recognize that before CMS or accreditation bodies require the KPIDs measures, there is more work that needs to be done to validate whether the measures do have an impact on patient outcomes. Future efforts to identify measures can use the previously-established evidence-based quality indicators such as ACOVE (Assessing Care of Vulnerable Elders).³⁴

This study also provides useful guidance for information technology (IT) adoption efforts in HHAs because the essential purpose of IT adoption should really be about performance improvement. Effective QAPI plans made through the use of KPIDs in this study should inform the evaluation of features in IT products, vendor selection decisions, and organizational IT implementation projects. Therefore, the identification of KPIDs serves as a useful step toward achieving effective and efficient IT adoption in HHAs.

Conclusion

CMS is poised to significantly advance quality improvement in home health care by implementing the new conditions of participation expected to be finalized by a rule in October 2017.³ As an immediate follow up to this study, we plan to engage our colleagues in the HHAs to collaborate with them in their QAPI programs. We believe that the findings from this research provides preliminary evidence about the areas of importance that are worthy of wider investigation. By doing so, it offers CMS and other stakeholders an opportunity to expand the scope of the current process measures used in home health care by going beyond assessing whether specific tasks were completed. Eventually, the results from this study could lead to a framework for developing a set of performance measures. However, future research to assess the impact of these KPIDs on Medicare beneficiaries would be highly useful before performance measures find common use among HHAs.

Acknowledgements

We wish to acknowledge the following individuals whose support was instrumental to this research: Ann Horton, Diane Link, Sejal Mendpara, Brandt Braunschweig, Ahmad Alaiad, Rand Obeidat, Yaa Buanya, Astha Jain, and Wafa Raja. We also would like to thank the Maryland National Capital Home Care Association for its support.

Declaration of conflicting interests

The authors declare no conflict of interest. The study was partially funded by grant R03HS022352 from the Agency for Healthcare Research and Quality. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality.

Supplemental material

The following definitions provide more information to the interested readers about the types and nature of home care services provided by the home health agencies in the US:

Skilled Nursing Services – are given by either a registered nurse (RN) or a licensed practical nurse (LPN). Examples of such services include (i) providing shots, IV medications or tube feeding, (ii) changing wound dressings, (iii) teaching patients about medications, and (iv) diabetes foot care. In general, any service that could be done safely by the patient themselves or any non-clinical person without the supervision of a nurse, is not considered skilled nursing care.³⁵

Physical Therapy – care services that help the patient regain productivity, return to maximum function, and attain independence. The physical therapist works with patients to prevent further loss of mobility by developing fitness and wellness programs to promote a healthier and more active lifestyle. Physical therapy can be applicable to patients who fell, have difficulties walking, or underwent joint or knee replacement surgery for example.^{35;36}

Occupational Therapy – focuses on the patient's ability to perform the broad range of activities of daily living, i.e., daily self care, such as bathing, dressing, feeding, and toileting.³⁷ Occupational therapists promote the patient's independence by improving the skills required to perform day to day skills such as dressing and feeding, or teaching alternative ways to accomplish them. Occupational therapy can be applicable to patients who suffered a stroke, had a heart attack, or have a noticeable decline in function for instance.^{35;36}

Speech Therapy – such services help patients improve breathing, speaking, and swallowing functions. Speech therapists focus on improving the patient's ability to use and understand words. Speech therapy may be appropriate for patients who suffered from a stroke, have difficulty speaking, or swallowing for example.^{35;36}

Medical Social Workers – help patients and their caregivers with social, financial and emotional concerns related to their illness, condition, or disease. Services include counseling, crisis intervention, and help finding resources in the community, such as meal providers, transportation, or religious services.^{35;36}

Home Aide Services – provide assistance to patients with bathing, dressing, light meal preparation, and minimal household tasks on a temporary basis.³⁵

References

1. Berwick DM, Nolan TW and Whittington J. The triple aim: care, health, and cost. *Health Affairs* 2008; 27(3): 759–769.
2. Rosati RJ. The history of quality measurement in home health care. *Clinics in geriatric medicine* 2009; 25(1): 121–134, vii–viii. DOI:10.1016/j.cger.2008.11.001.
3. Centers for Medicare and Medicaid Services (CMS). Medicare and medicaid program: Conditions of participation for home health agencies. *Federal Register* 2014; : 61164–61213.
4. Ellenbecker CH, Samia L, Cushman MJ et al. Patient safety and quality in home health care. In Hughes RG (ed.) *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Advances in Patient Safety, Rockville (MD): Agency for Healthcare Research and Quality (US), 2008.
5. Hirdes JP, Fries BE, Morris JN et al. Home care quality indicators (HCQIs) based on the MDS-HC. *The Gerontologist* 2004; 44(5): 665–679. DOI:10.1093/geront/44.5.665.
6. Donabedian A. The quality of care: How can it be assessed? *JAMA* 1988; 260(12): 1743–1748. DOI: 10.1001/jama.1988.03410120089033.
7. Donabedian A. *Explorations in Quality Assessment and Monitoring - Volume 1: The Definition of Quality and Approaches to Its Assessment*, volume 1. Health Administration Press, Ann Harbor, Michigan, 1980.
8. Centers for Medicare and Medicaid Services. Process-based quality improvement (PBQI) manual. Technical report, Centers for Medicare and Medicaid Services, 2010.
9. Centers for Medicare and Medicaid Services. Outcome-based quality improvement (OBQI): Implementation manual. Technical report, Centers for Medicare and Medicaid Services, 2010.
10. Kitzinger J. Qualitative research: Introducing focus groups. *BMJ* 1995; 311(7000): 299–302. DOI: 10.1136/bmj.311.7000.299. URL <http://www.bmj.com/content/311/7000/299>.
11. Parsons M and Greenwood J. A guide to the use of focus groups in health care research: Part 1, 2000.
12. Creswell JW. Data collection. In *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. SAGE. ISBN 9781412916073, 2007. pp. 125–129.
13. Ritchie J and Spencer L. Qualitative data analysis for applied policy research. In Bryman A and Burgess RG (eds.) *Analysing Qualitative Data*. Routledge, 1994. pp. 173–194.
14. Ritchie J and Lewis J. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. SAGE Publications, 2003. ISBN 9780761971108.
15. Smith J and Firth J. Qualitative data analysis: The framework approach. *Nurse Researcher* 2011; 18(2): 52–62.
16. Srivastava A and Thomson SB. Framework analysis: A qualitative methodology for applied policy research. *Journal of Administration & Governance* 2009; 4(2): 72–79.
17. Read S, Ashman M, Scott C et al. Evaluation of the modern matron role in a sample of nhs trusts. Final Report to the Department of Health, The Royal College of Nursing Institute and The University of Sheffield School of Nursing and Midwifery, Sheffield and London - UK, 2004.

18. Gerrish K, Chau R, Sobowale A et al. Bridging the language barrier: the use of interpreters in primary care nursing. *Health Soc Care Community* 2004; 12(5): 407–13. DOI:10.1111/j.1365-2524.2004.00510.x.
19. Emery D, Cowan A, Eaglestone B et al. Care plus. Final report, The University of Sheffield, 2002.
20. Pope C, Royen Pv and Baker R. Qualitative methods in research on healthcare quality. *Quality and Safety in Health Care* 2002; 11(2): 148–152. DOI:10.1136/qhc.11.2.148.
21. World Health Organization. Quality of care: a process for making strategic choices in health systems, 2006.
22. Institute of Medicine. Crossing the quality chasm: A new health system for the 21st century, 2001.
23. Begun JW, Zimmerman B and Dooley K. Health care organizations as complex adaptive systems. In *Advances in health care organization theory*. Jossey-Bass Incorporated Pub. ISBN 078795764X, 2003. pp. 253–288.
24. Morgan DL. *Focus Groups as Qualitative Research, Second Edition*. 2nd edition ed. Thousand Oaks, Calif: SAGE Publications, Inc, 1996. ISBN 9780761903437.
25. Freeman T. Best practice in focus group research: making sense of different views. *Journal of Advanced Nursing* 2006; 56(5): 491–497. DOI:10.1111/j.1365-2648.2006.04043.x.
26. Wong LP. Focus group discussion: a tool for health and medical research. *Singapore Med J* 2008; 49(3): 256–60.
27. Dawson S, Manderson L, Tallo VL et al. A manual for the use of focus groups. *MAN IN INDIA* 1993; 73(1): 17–27.
28. Frey JH and Fontana A. The group interview in social research. *The Social Science Journal* 1991; 28(2): 175–187.
29. Coreil J. Group interview methods in community health research. *Medical Anthropology* 1994; 16(1-4): 193–210.
30. Leff B, Carlson CM, Saliba D et al. The Invisible Homebound: Setting Quality-Of-Care Standards For Home-Based Primary And Palliative Care. *Health Affairs* 2015; 34(1): 21–29. DOI:10.1377/hlthaff.2014.1008.
31. Cooper J and Urquhart C. The information needs and information-seeking behaviours of home-care workers and clients receiving home care. *Health Information and Libraries Journal* 2005; 22(2): 107–116. DOI: 10.1111/j.1471-1842.2005.00551.x.
32. Government of Canada. Home and community care, 2015. URL <http://healthycanadians.gc.ca/health-system-systeme-sante/services/home-domicile/commuity-communautaires-eng.php>.
33. Suter PM, Gorski LA, Hennessey B et al. Best practices for heart failure: a focused review. *Home Healthcare Nurse* 2012; 30(7): 394–405. DOI:10.1097/NHH.0b013e31825b11ab.
34. Wenger NS, Roth CP, Shekelle P et al. Introduction to the assessing care of vulnerable elders - 3 quality indicator measurement set. *Journal of the American Geriatrics Society* 2007; 55: S247–S252. DOI: 10.1111/j.1532-5415.2007.01328.x.
35. Centers for Medicare and Medicaid Services (CMS). Medicare and home health care.
36. of Labor Statistics UB. Occupational outlook handbook. URL <http://www.bls.gov/ooh/>.

37. Krapp K (ed.) *Gale encyclopedia of nursing and allied health*, volume 1. Farmington Hill, MI: Gale Group, 2002.