Standards for the Use of Telemedicine for Evaluation and Management of Resident Change of Condition in the Nursing Home

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Abstract

Objectives: This document offers guidance to clinicians and facilities on the use of telemedicine to deliver medically necessary evaluation and management of change of condition for nursing home residents.

Settings and participants: Members of the telemedicine workgroup of AMDA—The Society for Post-Acute Long-Term Medicine-developed this guideline through both telephonic and face-to-face meetings between April 2017 and September 2018. The guideline is based on the currently available research, experience, and expertise of the workgroup’s members, including a summary of a recently completed systematic mixed studies literature review to determine evidence for telemedicine to reduce emergency department visits or hospitalizations of nursing home residents.

Results: Research and experience to date support the use of telemedicine as a tool in change of condition assessment and management as a means of reducing unnecessary emergency department visits and hospitalization. Telemedicine-delivered care should be integrated into the primary care of the resident and delivered by providers with competency in post-acute long-term care. The development and sustainability of telemedicine programs is heavily dependent on financial implications. Quality measures should be defined for telemedicine programs in nursing homes.

Conclusions/Implications: Telemedicine programs in nursing homes can contribute to the delivery of timely, high quality medical care, which reduces unnecessary hospitalization. Reimbursement for telemedicine-driven care should be based upon medical necessity of visits to care and the maintenance of quality standards. More studies are needed to understand which telemedicine tools and processes are most effective in improving outcomes for nursing home residents.

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Over the last several years, there has been an increasing interest in, use of, and support for telemedicine by the members of AMDA for change of condition evaluation and management for nursing home residents. AMDA has hosted several annual conference symposia, as well as an AMDA On-The-Go Podcast. The AMDA Foundation has also deepened our understanding of telemedicine by sponsoring a survey of 435 physicians and nurse practitioners who attended the 2015 Annual Symposium. The purpose of that study was to quantify provider perceptions and desired functionality of telemedicine in nursing homes to reduce potentially avoidable hospitalizations. Overall, respondents indicated strong agreement with the potential for telemedicine to improve timeliness of care, fill existing service gaps, and reduce potentially avoidable hospitalizations in nursing homes.

In 2017, AMDA convened a Telemedicine and Technology workgroup to further define and guide the work of the organization. Given the increasing evidence supporting the effectiveness of telemedicine for managing medically necessary provider visits in the nursing home, the workgroup identified a need for a guideline to assist nursing home clinicians and facilities in integrating telemedicine that is grounded in evidence and tailored to meet the needs of the population receiving care in this setting. Similar standards have been developed to guide telemedicine practice in other sites of care. This guideline is based on the currently available research, experience, and expertise of the Telemedicine and Technology workgroup experts and may inform the development and oversight of telemedicine programs in nursing homes. It may also serve as a foundational guide for the development of programs in other sites of care.

Scope

This article offers guidance to clinicians and facilities offering medically necessary evaluation and management of change of condition for nursing home residents. For the purpose of this guideline, we use the Centers for Medicare and Medicaid Services (CMS) definition of telemedicine that seeks to improve a patient’s health by permitting 2-way, real-time interactive communication between the patient and the physician or practitioner at the distant site. This electronic communication means the use of interactive telecommunications equipment that includes, at a minimum, audio and video equipment. As noted by the American Telehealth Association, the use of telemedicine is not a separate medical specialty. Rather, it is a tool or program that can be used in primary and specialty care. Medical care services delivered via telemedicine may include examination, assessment, management, interprofessional care planning and care coordination, education, and counseling.

Although many healthcare professionals offer services in nursing homes, the recommendations of this guideline are limited to medical care services. This guideline does not offer recommendations on clinical protocols for care in nursing homes. AMDA has developed and made available other guidelines for that purpose. This guideline does not offer recommendations on the use of telemonitoring or telemedicine in roles of the medical director in the nursing home. In addition, this document will focus on the evaluation and management of residents with change of condition in the post-acute and long-term care (PALTC) in the nursing home. There is significant variation in the regulations, resources, care processes, and population of patients across the continuum of PALTC from assisted living to nursing homes, which supports each of these settings being considered individually. As additional evidence becomes available, focused discussion on standards for telemedicine in other settings in the PALTC continuum may be warranted. Table 1 includes basic definitions for terms used to describe telemedicine.

Drivers for Telemedicine in the Nursing Home

The availability of technology should not be the driver for telemedicine in the nursing home. Good medical care should be the main driver for telemedicine adoption; telemedicine is a tool that can help improve medical care. Nursing home residents, nursing homes, health systems, and insurers/payment all have incentives that vary by stakeholder for the use of telemedicine as a tool in the nursing home. However, for all of these groups, the potential of telemedicine programs in nursing homes to deliver timely, high quality medical care that reduces unnecessary hospitalization is a central driver for program adoption.

Potentially avoidable hospitalizations have been shown to account for up to 67% of admissions to hospital from nursing homes. In the United States, these hospitalizations incur costs of up to $9 billion annually. They are often driven by instability of chronic conditions such as congestive heart failure, chronic obstructive pulmonary

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Commonly Used Terminology in Telehealth</th>
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<tr>
<td>Terms</td>
<td>Definition</td>
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<tr>
<td>Acute change of condition:</td>
<td>A clinically important deviation from a patient’s baseline in physical, cognitive, behavioral, or functional domains; clinically important means a deviation that, without intervention, may result in complications or death; and unrelieved by measures already prescribed.</td>
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<td>Asynchronous:</td>
<td>Describes “store and forward” transmission of medical images/data over a period of time. The transmission typically does not take place at the same time it is acquired.</td>
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<td>Distant site practitioners:</td>
<td>Practitioners at the distant site who may furnish and receive payment for covered telehealth services.</td>
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<td>Distant Site:</td>
<td>Site at which the physician or licensed practitioner delivering the service is located at the time the service is provided via telecommunications system. AKA hub site, specialty site, consulting site, provider/physician site and referral site.</td>
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<tr>
<td>Originating sites:</td>
<td>Location of the patient at the time the service being furnished via a telecommunications system occurs.</td>
</tr>
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<td>Presenter (patient presenter, telepresenter):</td>
<td>An individual with a clinical background trained in the use of telehealth equipment who is available at the originating site to “present” the patient, manage the cameras and perform any “hands-on” activities to complete the tele-examination.</td>
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<td>Synchronous:</td>
<td>Interactive “real-time” video connections that transmit information in both directions during the same time period.</td>
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<td>Telehealth:</td>
<td>The use of electronic information and telecommunications technologies to support and promote long-distance clinical healthcare, patient and professional health-related education, public health and health administration. Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications.</td>
</tr>
<tr>
<td>Telemedicine:</td>
<td>Technology that seeks to improve a patient’s health by permitting 2-way, real-time interactive communication between the patient, and the physician or practitioner at the distant site. This electronic communication means the use of interactive telecommunications equipment that includes, at a minimum, audio and video equipment.</td>
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*Centers for Medicare and Medicaid Services, Telehealth Services.2,27
1AMDA. Acute Change of Condition Clinical Practice Guideline.25
disease, and infections (pneumonia, urinary tract infections, cellulitis). CMS has brought additional focus on the need to understand and improve care with quality measures, such as “Percentage of residents who were rehospitalized after a nursing home admission” and “Percentage of short-stay residents who have had an outpatient emergency department visit.” Hospitals and nursing homes experience financial penalties and payment reductions based on patient rehospitalization; accountable care networks are considering the return to hospital rate of nursing homes carefully in identifying nursing homes that are preferred in their network.

A key factor in hospitalization from nursing homes is the complexity of the population of nursing home residents. The nursing home residents of today are sicker and more complex than ever before. Cognitive impairment, behavioral symptoms, functional dependence, and medical comorbidity are prevalent. A significant proportion of the nursing home residents have recently transitioned between care settings, often after acute illness, which further contributes to the complexity of care in the nursing home. The preparedness of nursing homes to care for this population varies greatly. High rates of staff turnover remain problematic for many facilities. It is often challenging for facilities to maintain the skills and capacity of their staff to identify and treat acute illnesses. A small, but dedicated, workforce of medical providers focuses their practice on PALTc. This focus has been associated with better quality of care. AMDA has defined competencies specific to medical provider practice in the PALTc setting. Many rural or otherwise isolated nursing homes do not currently have access to providers with robust knowledge and skills in caring for nursing home residents. Access to timely evaluation and treatment of acute illness by providers competent in PALTc medicine is essential to quality of care. Telemedicine has the potential to create access to these providers at distant sites.

**Evidence-Base for the Use of Telemedicine in the Nursing Home**

Wilchesky, Cetin-Sahin, and Handler\(^\text{11}\) conducted a systematic mixed studies review\(^\text{12}\) of the literature to identify studies that used telemedicine to reduce emergency department visits or hospitalizations of nursing home residents. Each study had to have a comparison group (eg, usual care) and be written in English or French. A 3-phase search strategy was used. First, the following databases were searched from their inception until July 2016: Embase, MEDLINE, CINAHL, Social Work Abstracts, PsycINFO, The Cochrane Library, Ovid Textwords, AMED, Global Health, Health and Psychosocial Instruments, Joanna Briggs Institute EBP Database, Ovid Healthstar, and Web of Science. Second, a backward and forward citation tracking process was conducted. Finally, the gray literature was reviewed. Six studies were included in the synthesis.\(^\text{11–16}\) A summary of these studies, all of which had different technology solutions, workflows, telepresenters, and hours of operation, are shown in Table 2.

Four of the studies\(^\text{11,13–16}\) assessed the impact of the telemedicine intervention on emergency department visits (Table 2). Three of these studies showed a reduction in emergency department visits ranging from 8.8% to 37%\(^\text{11,13,15}\); whereas 1 study\(^\text{16}\) showed an increase in emergency department visits (although not statistically significant).

Five of the studies\(^\text{11,13–16}\) assessed the effectiveness of telemedicine on hospitalizations. Four of the studies showed a reduction in hospitalization rates ranging from 4.4% to 25%, whereas 1 study\(^\text{16}\) showed an increase in hospitalizations (although not statistically significant). The study by Grabowski et al\(^\text{3}\) showed a 4.4% reduction in hospitalizations from nursing homes that were more engaged in telemedicine. This was associated with approximately $120,000 in net savings (after paying for the telemedicine services).

Case study reports have also supported the impact of telemedicine on emergency department use and hospitalization. One skilled nursing home reported that 29% of the patients evaluated by a telemedicine program that supported after-hours care by a physician avoided a hospital visit, amounting to more than $1.5 million in estimated savings to Medicare and other payers.\(^\text{17}\) Similarly, as part of a CMS innovation project targeting reductions in avoidable hospitalizations among nursing home residents, a health system implemented an after-hours telemedicine care program where advanced practice registered nurses could assist in the diagnosis and treatment of acute changes in condition and other medical emergencies in 18 nursing homes. This program estimated that 51% of telemedicine consultations avoided a hospital transfer.\(^\text{18}\) Notably, this telemedicine program was introduced as 1 part of a multifactorial approach to reducing hospitalization from the nursing home.

Internationally, experience with telemedicine in the nursing home care varies. For example, in Ontario, Canada, access to telemedicine is

**Table 2**

<table>
<thead>
<tr>
<th>Authors (Country, Year)</th>
<th>Study Design</th>
<th>N (Institutions)</th>
<th>N (Residents, Beds, Consultations)</th>
<th>Outcome 1: ED Visits</th>
<th>Outcome 2: HA</th>
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<tr>
<td></td>
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<td>Effectiveness in</td>
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<td></td>
<td>Reducing ED Visits</td>
<td>Reducing HAs</td>
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<tr>
<td>Grabowski (USA, 2014)</td>
<td>Randomized Pre-post intervention study</td>
<td>11 (6 control, 5 intervention)</td>
<td>1067 control beds; 700 intervention beds</td>
<td>—</td>
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<tr>
<td>Hex (UK, 2015)</td>
<td>Retrospective quasi-experimental study</td>
<td>48 (21 control, 27 intervention)</td>
<td>All residents over 65 y old</td>
<td>—</td>
<td>Number of ED visits</td>
</tr>
<tr>
<td>Hofmeyer (USA, 2016)</td>
<td>Prospective pilot study</td>
<td>20 (Intervention only)</td>
<td>736 consultations</td>
<td>—</td>
<td>Proportion of residents requiring transfer after telemedicine assessment</td>
</tr>
<tr>
<td>Hsu (Taiwan, 2010)</td>
<td>Prospective pilot study</td>
<td>3 (Intervention only)</td>
<td>82 residents</td>
<td>—</td>
<td>Number of ED visits</td>
</tr>
<tr>
<td>Hui (China, 2001)</td>
<td>Feasibility pilot study</td>
<td>1</td>
<td>200 beds</td>
<td>—</td>
<td>Number of ED visits</td>
</tr>
<tr>
<td>Stern (Canada, 2014)</td>
<td>Cluster randomized stepped-wedge trial</td>
<td>12 (Each site exposed to both intervention &amp; control)</td>
<td>67 residents (control period); 94 residents (intervention period)</td>
<td>—</td>
<td>Number of ED visits</td>
</tr>
</tbody>
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ED, emergency department; HA, hospital admissions.

\*P values provided where available.
funded through the government health system with access to all health care providers who register. There are currently over 9000 healthcare providers connecting to the Ontario Telemedicine Network through their individual devices and over 1000 healthcare room-based telemedicine sites. Since its inception in 2006 with a focus on remote and rural communities in Northern Ontario, telemedicine is now available province-wide in all health care sectors including Long-Term Care. Physicians are eligible for payment through the provincial telemedicine framework for assessments that include a small premium for the technical aspect as well as for cancellations. Telemedicine consultation enables the consultant to interact with the resident and family and to access to the health record and inter-professional team. This is particularly relevant for telepsychiatry and the assessment and management of behavioral symptoms of dementia. The most common telemedicine specialists engaged in Ontario are psychiatry, endocrinology, dermatology, neurology, and cardiology. Evaluations of the Canadian experience will be valuable to those systems and regions developing their own programs.

**Conducting Telemedicine Consultations**

It is a common misconception that older adults do not like technology or do not have the desire to use technology. Experience with telemedicine has demonstrated that older adults can embrace the use of technology to help in their care and have enjoyed clinical encounters delivered via telemedicine. Telepresenters navigate the technology side for older adults, and the residents often enjoy their therapeutic presence. The use of telemedicine may reduce the need to leave a familiar environment and caregivers present in their home; this can be a source of great comfort for older adults, particularly when they are ill. The burdens of travel outside the nursing home for evaluation and management in emergency department or resultant hospitalization can be considerable and contribute to delays in care, exacerbation of behavioral and physical symptoms, and poor outcomes for residents.

Telemedicine does not replace the roles of the primary care provider team. When designing a telemedicine system, caution should be taken to avoid creating another silo of care. Primary care providers and practice groups serving residents in nursing homes may elect to develop telemedicine programs as a means of increasing access to care for their residents and expanding the data available for evaluation and management of change of condition while providers are not in the home. Primary providers should establish a reliable method of communicating important information about a resident’s history and care to providers who may use telemedicine during on-call coverage for their patients. Access to the nursing home medical record can also assist in painting an accurate clinical picture of the resident being assessed. Once the visit is complete, clinical documentation should be integrated to the greatest degree possible in the nursing home’s medical record. Similarly, the nursing home staff and primary care team should be alerted that a telemedicine evaluation was completed and what treatment(s) were rendered. Figure 1 illustrates the process steps for a clinical encounter for acute illness using telemedicine in the nursing home.

When documenting a telemedicine visit, the same standards as face-to-face visits apply. A normal evaluation and management note form is ideal with the chief complaint, history, exam, assessment, and plan. This will assist in clear communication between providers. When setting up the system, it should be clear whether an electronic prescribing system is to be used or verbal orders are expected.

Telemedicine visits have the same privacy considerations as a face-to-face visit. The resident should be examined in their room, with curtains drawn or in an office. A quiet area with good lighting is the optimal setting. A designated room is attractive because less setup is required and a stable Internet connection is assured. A mobile unit may be more patient-centered because it eliminates the need to move the resident if they are dependent or very ill. Technical concerns related to connectivity and ongoing maintenance must be addressed to ensure successful interactions between the telemedicine provider and the resident.

Like any provider rendering care in a facility, a telemedicine provider will need to be credentialed by the nursing home. The facility will need to keep on file a copy of the license, Drug Enforcement Administration registration, and malpractice coverage policy covering that nursing home. The provider should ensure that telemedicine is in the delineation of privileges or scope of practice in their malpractice policy. Prior to using telemedicine services in the nursing home, the resident or their decision maker needs to consent to treatment via telemedicine. They should know the situations in which care might be provided by telemedicine and understand that given the limitations of the technology the identical level of care as a bedside evaluation may not be attained. The resident or decision maker must have the ability to refuse telemedicine care. In some states, there may be additional considerations such as the need for informed consent for telemedicine prior to each consultation.

**Financial Considerations in Telemedicine**

The development and sustainability of telemedicine programs is heavily dependent on financial implications. Multiple factors contribute to the financial return on investment for telemedicine in PALTC including the number and acuity of high-risk patients in the program and the cost to provide the telemedicine services. For nursing homes, the greatest sources of savings because of implementation of telemedicine programs associated with its use for change of condition management likely stem from reduction in hospitalizations, improved quality metrics, and the establishment or maintenance of preferred referral network status with hospitals and payers.

Figure 2 outlines programmatic steps associated with payment for telemedicine-based care in the nursing home using traditional current fee-for-service payment models. In the United States, services provided with synchronous technology under (fee-for-service) Medicare and Medicaid programs, certain evaluation and management (Current Procedural Terminology (CPT) code range for Evaluation and Management Services) codes are used to pay providers and homes for using telemedicine. The codes can only be paid when the originating site is in a county outside the Metropolitan Statistical Area and in a rural Health Professional Shortage Area (ie, designated a rural area). Providers can determine if their home is considered rural as per Medicare and if they qualify for reimbursement for certain Current Procedural Terminology code range for Evaluation and Management Services codes by visiting the Medicare Telehealth Payment Eligibility Analyzer. A telemedicine facility fee may also be paid to nursing homes caring for short- or long-term Medicare beneficiaries as a separate part B payment. These facility fees allow for the nursing home to recoup some money for the time taken by staff to use the telemedicine equipment and examine the resident on behalf of the distant site provider (ie, be a telepresenter). Medicare Advantage Programs are also removing barriers for telemedicine. Telemedicine is part of Medicaid programs in 49 states, with 31 of those states having rules on parity to cover telemedicine services that are comparable to in-person visits.

However, the prevalence of value-based care is growing. In 2015, the US Department of Health and Human Services acted to make it easier for Accountable Care Organizations (ACOs) providing telemedicine to qualify for Medicare incentive programs. This policy shift was made because US Department of Health and Human Services believes that the use of telemedicine can help reduce costs for the Medicare program. ACOs are creating innovative models to reduce
costs and risk for the ACO through the use of telemedicine for urgent care in the nursing home. These ACO-based models are likely to influence subsequent payment structures adopted by CMS and other payers. Thus, program development of telehealth services requires strategies to address various stakeholders and their financial interests in the landscape of healthcare.

**Policy, Research, and Practice**

As facilities and systems develop telemedicine programs, and as proprietary groups enter the market to provide services, there is increasing need for defined standards, such as those included in this article, to define and measure best practice. How to define and maintain a balance between enhancing access to quality care through telemedicine and the responsibility of medical providers to perform in-person assessments when practicable will be a key consideration in the evolution of telemedicine in PALTC. Robust quality measures for assessment of the quality of telemedicine care are needed to ensure the standard of care is maintained or elevated during adoption of telemedicine tools. The National Quality Forum has developed a framework to support measure development for telehealth (superscript 28.). Using this foundation, our workgroup has developed a measurement framework to assess the value and impact of telemedicine for evaluation and management of change of condition in the nursing home (Table 3). Ultimately, the ability to deploy telemedicine as a tool in nursing homes will be heavily influenced by the availability of reimbursement mechanisms. Payment should be based upon medical necessity of visits to care and the maintenance of quality standards. Restricting the use of telemedicine tools based on sole factors such as geography and arbitrary visit numbers is unlikely to provide a framework that optimally increases access to care and ensures quality. Given its potential return on investment, expansion of
reimbursable telemedicine care in PALTC should be a focus of advocacy.

AMDA has defined competencies for medical providers in PALTC. These competencies should also be applied as appropriate by providers delivering care via telemedicine tools to nursing home residents. Health professionals engaged in care for residents of nursing homes using telemedicine, from telepresenters to distant site providers, will also need skills to effectively use the technology associated with telemedicine. As such, significant investment in workforce development, including defining essential skills, and developing and disseminating training curricula, clinical practice tools, and education materials for residents and their family members, will be essential to optimizing the use of telemedicine in nursing homes.

Survey-based research from over 500 AMDA Symposium conference attendees in 2016 showed the highest level of interest in telemedicine for managing dermatology, geriatric psychiatry, and infectious disease. Additional research on the impact of delivering these other types of care using telemedicine tools in the nursing home would be valuable. The unique aspects of the population, care processes, and regulatory environment in nursing homes may warrant the development of specified standards for using telemedicine to provide consultative specialty medical services in the nursing home. Similarly, better understanding of the role and value of telemedicine in medical direction in nursing homes is also warranted.

Conclusions and Implications

Integration of telemedicine into nursing home care should be grounded in evidence and tailored to meet the needs of the population receiving care in the nursing home setting. The studies and described clinical experience to date support the efficacy of telemedicine as a tool in change of condition assessment and management. Providers delivering care via telemedicine in the nursing home should have competency in PALTC. More studies are needed to understand which
telemedicine tools and processes are most effective in improving outcomes for nursing home residents.

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