Understanding Omissions of Care in Nursing Homes

Final Report

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Executive Summary

Adverse events and poor health outcomes are continuing challenges for nursing home residents and staff. Research has shown that many resident harms are avoidable and may be caused by situations in which residents do not receive needed care, often called omissions of care. These avoidable harms—for example, healthcare-acquired infections, falls, and adverse drug events—may lead to additional harms, such as resident hospitalizations, prolonged nursing home stays, unrecognized pain, and pressure ulcers.

Research on omissions of care in nursing home settings is limited and definitions of omissions of care vary. Although there is agreement that an omission is care that is left undone or unfinished, existing definitions differ on whether there must be an associated risk of harm. Definitions also vary in whether they specify the type of care omitted, the attribution for the omission, or the reasons omissions occur. Some of this variation reflects differences in the care settings or care providers for whom the definition was developed. This lack of agreement about what constitutes an omission of care presents challenges to researchers and care providers interested in improving nursing home care.

During a year-long project, our team developed a definition of omissions of care for nursing homes intended to be meaningful to stakeholders, including residents and caregivers, and actionable for research or improving quality of care. We developed the definition by analyzing findings from a literature review and obtaining feedback from subject matter experts and stakeholder participants. Subject matter experts were researchers with at least 10 years' experience in nursing home quality and safety. Stakeholder participants were individuals with professional or advocacy experience in nursing home care.

The proposed definition of omissions of care follows:

> *Omissions of care in nursing homes encompass situations when care—either clinical or nonclinical—is not provided for a resident and results in additional monitoring or intervention or increases the risk of an undesirable or adverse physical, emotional, or psychosocial outcome for the resident.*

In this definition, clinical care encompasses all clinical care that a resident needs and that aligns with the resident's goals for health and well-being, including care that may not be part of a formal medical care plan. Nonclinical care includes all other forms of care that residents need or want, such as bathing or dressing, access to leisure activities or the outdoors, or comforting and companionship. In this way, the definition is person centered and focuses on "whole person care" through equal emphasis on clinical and nonclinical domains of nursing home care.

The definition of omissions of care is accompanied by additional resources intended to help organizations understand and use the definition. These resources include a list of intended

uses, a glossary of terms, a set of principles for using the definition, a checklist of causes of omissions, a set of examples of omissions, and a catalog of resources and tools nursing homes could use to address omissions of care. These resources are explained further below.

Intended uses for the definition. The definition was designed to guide quality improvement efforts, training and education for care providers, and research. The definition was not designed for use in regulatory enforcement or performance measurement. This section helps stakeholders understand the purposes for which the definition was designed and consider its value in nursing home environments.

Explanation of terms used in the definition. We present an explanation of concepts and terms used in our definition of omissions of care. This section is meant to support a uniform interpretation of the definition across settings and stakeholders.

Principles for operationalizing the definition. This section provides general advice for how stakeholders may use the definition in nursing home settings. The principles outline core considerations for deciding what "needed care" is, determining the difference between omitted and delayed care, thinking about risks and harms that may apply to the resident, and developing quality plans or facility responses to omissions of care.

Checklist of causes of omissions in nursing home settings. Using our review of published research, we developed a checklist of common causes of omissions of care that can affect nursing home residents. For those using the definition for quality purposes, this checklist is a helpful guide to identifying causes that apply when omissions occur. This checklist could be used for training and educational purposes to increase provider awareness of factors that may lead to omissions, such as insufficient staffing, poor communication among care providers, and lack of staff knowledge.

Examples illustrating how the definition applies to specific scenarios in nursing home care. This section presents cases intended to clarify the way the definition works, using examples suggested by subject matter experts and stakeholder participants. Each example presents a real-world situation, explains why it is or is not an omission, and illustrates that a given omission of care could have multiple causes, including causes outside the nursing home's control.

Catalog of resources and tools. This section provides an overview of resources and tools developed for nursing homes that can be used to identify and address omissions of care. Many of the resources focus on specific adverse events (e.g., falls) or care processes (e.g., medication administration). Stakeholders and providers can use this catalog to identify resources they can use to address omissions of care or improve outcomes associated with omissions.

How To Get Started Using the Definition

Our team developed these resources with major stakeholder groups in mind. We see this definition and the catalog of resources to be actionable, usable, and valuable for residents and those providing care to residents. Below, we discuss how stakeholders may use these resources in various settings.

Nursing homes and nursing home care providers. Nursing homes can use the definition to help staff consistently focus on person-centered care aligned with each resident's goals for health and well-being. Existing research and tools focus on clinical care and may overlook domains of care that contribute to resident happiness and dignity. This definition supports person-centered care by establishing clinical and nonclinical care as equally necessary components of nursing home care. By separating the omission from its causes, the definition can also help nursing homes think systemically when evaluating care processes related to omissions of care. This definition may also help nursing homes develop a comprehensive approach—such as via Quality Assurance/Performance Improvement (QAPI)—to preventing, detecting, and responding to omissions of care.

Organizations that support or supply nursing homes. Organizations that support and supply nursing homes can use the definition to inform the development of new resources, trainings, or services, or to expand or revise current products. For example, organizations that offer multiple tools focused on different safety outcomes could assess the cross-cutting role of omissions of care in these outcomes. This process could enable them to create a single tool focused on care omissions. Similarly, the definition could also inform enhancements to electronic health records (EHRs) or other record-keeping systems.

Researchers and research funders. A single, widely adopted definition of care omissions will be useful in driving research efforts and building a reliable evidence base. Current research is limited, and its usefulness is constrained by inconsistencies in how omissions of care have been defined. Researchers could use this definition to standardize what is considered an omission, guide further research studies, select outcomes of interest, or develop surveys and questionnaires for both residents and staff. Research funders can use this definition to reframe research requirements to look for ways to accurately detect omissions or investigate how well current interventions have succeeded in incorporating omissions of care.

Policymakers. Policymakers can use this definition to consider ways different quality improvement initiatives could best incorporate consideration of omissions of care. For example, diverse initiatives aimed at adverse outcomes may now include differing requirements or recommendations relevant to care omissions, potentially creating confusion or driving unintended consequences. Policymakers can also use the definition to consider whether to adjust provider training, certification, or oversight guidance.

Important Considerations

Although the stakeholders and technical experts who took part in the process of developing this definition thought it would be useful for improving research and care for nursing home residents, they also noted some limitations and concerns. These concerns may be important to bear in mind when using the definition.

First, technical experts noted that the supporting content for the definition is both lengthy and conceptual, which may detract from the usability of the definition by nursing homes until materials that support implementation, such as a toolkit, can be developed. Second, technical experts and stakeholder participants expressed concern about how the definition would apply to situations in which the resident or designated family member contributes to an omission of care. They noted that skipping care that a resident declines would not be an omission but worried about how those implementing the definition would account for a resident's cognitive status, which could be deteriorating.

Finally, stakeholders and technical experts raised concerns regarding the potential use of the definition for regulatory or performance measurement purposes. They emphasized that the development process did not include a consideration of regulations; nor did it examine the definition's alignment with existing nursing home regulations.

Introduction

The purpose of this task order was to support an understanding of the evidence related to omissions of care in nursing homes and identify tools and resources for the field. These tools and resources could potentially improve resident safety if their applicability to omissions of care was better understood. The specific objectives of the task order were to:

- Determine the current and evolving state of research on omissions of care in nursing homes and more fully document how and why they occur.

- Propose a definition of omissions of care specific to nursing homes that is meaningful to providers, payers, quality measurement and patient safety organizations, consumers, and researchers.

- Assess commonly available secondary data sources for their utility in supporting more accurate identification and timely reporting of omissions of care in this setting.

- Engage with experts and stakeholders to share the findings and ask for input on potential tools, research, and technical assistance the Agency for Healthcare Research and Quality (AHRQ) could develop to support providers' efforts to deliver safer care in nursing homes and overcome barriers to implementation.

- Develop plans for dissemination of the definition and the project findings.

Adverse events and poor health outcomes are continuing challenges for nursing home residents and staff. Residents' complex needs and challenging working conditions for staff increase the probability of these undesirable outcomes,[1,2,3] but research has shown that a substantial portion of these harms are avoidable.[4] In examining safety events in skilled nursing facilities, the Office of Inspector General (OIG) found that approximately one in three Medicare beneficiaries experienced an adverse event, more than half of which were attributable to either medication harms or infections.[5] The OIG also found that nearly 60 percent of these events were attributable to omissions of care. These potentially avoidable harms—for example, healthcare-acquired infections, falls, and adverse drug events—may lead to additional harms, such as hospitalizations, prolonged stays, unrecognized pain, and pressure ulcers.[5,6,7]

Research on omissions of care specifically in nursing homes is still in its early stages. As this report will demonstrate, the existing research reveals variations in the ways omissions of care are defined. Some common elements emerge across definitions. For example, researchers agree that omissions include care that is left undone or unfinished. However, authors have varied regarding other components of the definition, such as whether there must be an associated risk of harm for missed care to count as an omission. Authors also vary in whether

they integrate the potential magnitude of associated harms or the proximate cause of omissions into their definitions of omissions of care.

In this report, we present a single definition of omissions of care for nursing homes intended to be meaningful and useful for the spectrum of stakeholders in long-term care. We developed the definition by synthesizing findings from an environmental scan and obtaining input from subject matter experts and stakeholder participants throughout the development process. To support uptake of the definition, the report also presents information about resources and tools useful for identifying when and how omissions occur, which omissions may lead to which consequences, how they may be monitored, and what strategies are effective for preventing them.

The Definition

> Omissions of care in nursing homes encompass situations when care—either clinical or nonclinical—is not provided for a resident and results in additional monitoring or intervention or increases the risk of an undesirable or adverse physical, emotional, or psychosocial outcome for the resident.

An omission of care is the act of "not doing" something that is consistent with a resident's goals for health and well-being. The definition above purposefully does *not* include the following:

a) The reason for the omission

b) The individuals or entities responsible for its occurrence, which may include but are not limited to administrators, staff and/or caregivers, organizational leadership, or residents or family members

c) The type of care omitted

d) The magnitude of the results or risk that the omission creates

However, these factors are highly relevant in considering methods to identify or avoid omissions, understand root causes, or determine how to address omissions when they occur.

Explanation of Concepts and Terms Used in the Definition

Care, either clinical or nonclinical. "Care" encompasses the following:

a) Care the resident needs, expects, requests, or wants, which is often called "whole person care" and includes nonmedical care such as bathing or dressing, providing recreation or leisure activities, or providing comfort or companionship

b) The formal, medical care plan to provide goal-directed, person-centered care for the resident

c) Written or verbal orders from the professional responsible for ordering the service for the resident, such as prescriptions, dietary requirements, or physical activity orders

d) Applicable policies, guidelines, standards, and regulations or laws related to provision of care

e) Proper documentation and record keeping, communication with family members and healthcare providers, and management of the resident's care coordination or transition of care needs

Not provided. Care is "not provided" when it is:

a) Never delivered;

b) Incomplete; or

c) Delivered but delayed beyond the appropriate or necessary timeframe.

The frequency of omission is not included in the definition but could play a role when determining a response. To assess omissions in the "delivered but delayed" category, nursing homes need to establish a timeframe, based on applicable criteria, in which care is to occur (see also 2—"care provided outside the appropriate 'care window' may still be an omission"— below, in the section on principles for operationalizing the definition). An omission of care may be attributable to multiple factors, but neither the cause nor the attribution is part of the definition of omissions.

Physical, emotional, or psychosocial outcome. In nursing homes, all health, well-being, and quality-of-life outcomes are relevant. These include traditional clinical outcomes of physical well-being, such as blood pressure, mobility, skin integrity, and pain; emotional outcomes, such as self-esteem, mood, loneliness, and anxiety; and other psychosocial outcomes, such as ability to participate in social activities, isolation, autonomy, and positive relations with others.

Individuals or entities responsible. A wide variety of individuals or entities may be ultimately responsible for an omission of care or for responding to omissions that occur. However, the definition excludes considerations of causes or responsible entities so that it may flexibly encompass *all* possible causes and agents. For example, a vaccine may be omitted for a resident because of any of the following:

a) The nurse does not administer it.

b) The physician fails to order the vaccine to be given.

c) The nursing home administration orders insufficient vaccine supplies.

d) There is a nationwide shortage, and no vaccine doses are available.

In all these scenarios, the result is the same omission of care, but the accountable party, and thus the response required, varies. If these causes were written into the definition, however, it could discourage stakeholders from considering other causes that might arise. For example, an insurer might refuse to pay for the vaccine or the pharmacy might fail to deliver an order on time. When a resident refuses care, however, this is not an omission because the care is no longer something the resident expects, requests, or wants. Examples are provided in the sections "Principles for Operationalizing the Definition" and "Causes of Omissions of Care Applicable to the Nursing Home."

Increased the risk of additional monitoring or intervention, or undesirable outcome. An omission of care need not result in actual harm or an adverse outcome for the resident. If failure to provide care increases the risk of potential harm or adverse outcome, it is an omission of care. Further, when failure to provide care causes no harm but does result in additional testing, monitoring, or treatment, it is an omission of care. The magnitude of the increased risk is not included in the definition but is critical to consider when prioritizing quality improvement efforts and developing strategies to prevent the omissions from occurring.

Intended Uses for the Definition

We propose this definition of omissions of care to guide further research and quality improvement activities. The intended audiences include nursing home residents and family members, researchers, health professionals, providers, and policymakers. This definition is not intended for regulatory purposes, enforcement actions, or accountability measures, such as performance measures, public reporting, or payment programs.

The definition is intended to support the following:

a) Research. Investigating the nature, frequency, and impact of omissions of care in nursing homes. Researchers must be confident that studies focused on omissions of care have defined the concept in the same way and therefore have designs and results that are reasonably comparable.

b) Quality improvement planning. Evaluating root causes or developing interventions. Researchers, providers, and policymakers need a consistent way to determine whether an omission has occurred. A concise, uniform definition that encompasses all forms of omitted care in nursing homes is needed as a basis for planning for quality.

c) Quality improvement activities. Developing or improving policies and procedures, communications, staffing, or resource management to prevent or respond to omissions of care. A concise, uniform definition may help all stakeholders consider and apply the same principles, seeking alignment of policies and practices, in designing and implementing quality improvement interventions. For example, health information technology companies could consider and apply the same principles, achieve alignment of concepts or terms, and support standardization of documentation for quality improvement strategies related to omissions of care in nursing homes.

d) Training and education. Including the definition in professional or in-service continuing education for nursing staff, administrators, and clinicians. A concise, uniform, and accepted definition that encompasses both clinical and nonclinical care and potential outcomes can help providers better understand and communicate with one another, as well as interpret and apply differing regulations, measurements, guidelines, or policies relevant to omissions of care.

Omissions are related to multiple factors, including systems issues and individual actions; thus, the definition below does not include causes and attributions, which could serve to codify specific ideas about how and why omissions occur. Rather, cause and attribution are considered part of the way stakeholders respond to omissions that occur. We believe this approach can help stakeholders think more comprehensively about what care has been omitted and determine how to respond to these omissions.

Principles for Operationalizing the Definition

These five principles guide researchers, health professionals, providers, and policymakers in thinking about ways to use this definition.

1. **Consider the resident's needs, well-being, and goals of care, in addition to care ordered by health professionals or facilities, included in best practice guidelines, or required by law.**

   – Consider the full spectrum of care needs, both medical and nonmedical, such as psychosocial and spiritual care and activities of daily living (ADLs and instrumental ADLs).

   – Engage the resident or designated family members in determining care that is consistent with their goals and needs. While health professionals often define "needed care" by what they order or provide as a matter of routine or requirement, residents also define care through their expressed goals and needs.

   This does not mean that any and all care a resident wants must be provided on demand to avoid being considered an omission requiring a response. Contextual factors such as the

frequency and magnitude of impact omissions have on residents' physical, emotional, and psychosocial well-being must be considered. An exaggerated example illustrates this issue: A resident may strongly desire a specific brand of coffee that is different from the brand used by the nursing home's dining services. Failing to provide this brand could be considered an omission under the proposed definition but is unlikely to cause or increase risk of harm or adverse outcome. By contrast, failing to provide meals that meet a resident's religious requirements, such as kosher or halal meals, would be an omission of care that could have a considerable impact on the resident's well-being.

– Respect the resident's right to decline care recommended by health professionals or practice guidelines. Refusals should be documented, and the refused care should not be considered an omission if the risks and benefits of the refusal are clearly communicated between the resident (or other designated proxy decision maker) and the nursing home. Repeated refusals of care such as medication or basic hygiene may carry different risks of harm than isolated refusals. Respecting repeated refusals of care may constitute an omission if residents or their designated proxies do not understand the consequences of their decisions (see example 7, under "Selected Examples of Omissions of Care," below).

2. **Consider that care provided outside the appropriate "care window" may still be an omission.**

    – Care that is delivered to the resident may still constitute an omission if it is not delivered in a timely fashion. To assess omissions, providers must ascertain for each form of care mandatory requirements, use evidence-based guidelines, or establish facility standards for a "care window," or timeframe within which care must be provided. For example, if the resident's medications are to be given between 8 a.m. and 10 a.m., the resident is to receive a shower every other day before dinnertime, or a flu vaccine is to be administered during the month of September, care delivered outside these care windows would be omissions.

    – Similarly, providers must determine the impact of integrating necessary care that the facility does not provide in-house. For example, residents requiring periodic offsite care may need different care windows for in-house care. Or if the nursing home is not capable of providing certain forms of care (e.g., ventilators), then a care window should be determined for the resident's transfer to an appropriate alternative facility.

3. **Consider omissions that increase risk (i.e., potential) for harm or adverse outcome, as well as those that result in harm or adverse outcomes.**

    – Ascertain mandatory requirements or establish facility standards for assessing whether omitting care leads to harm or increased risk of harm. Harm may occur in many domains, including resident safety, physical and emotional comfort, or social and mental well-being. For example, if the care addresses resident preferences or respects the

person's dignity, then omitting this care may increase risk of harm in domains such as self-esteem or mental health and well-being.

- Engage the resident or designated family members in determining relevant harms or adverse outcomes. Harms and adverse outcomes have historically been defined by health professionals, but residents or family members may have valuable perspectives on relevant physical, emotional, and psychosocial well-being outcomes. Residents or family members can help

  » Define the omission.

  » Assess the impact of the omission.

  » Investigate root causes.

  » Determine the response, including both immediate mitigation and long-term quality improvement efforts.

- Determine the assessments of resident risk factors or surveillance of health and well-being that may be needed. For example:

  » Ensuring maintenance of function and psychosocial well-being

  » Preventing physical or emotional decline

  » Managing individualized resident goals and needs

  » Guaranteeing high-quality, coordinated care

  Consider how these assessment activities may themselves result in or increase risk of harm.

4. **Consistently detach the process of determining whether an omission has occurred from possible causes or attributions.**

- Determining whether an omission has occurred should be restricted to considering whether care was needed, requested, wanted, or expected; was consistent with the resident's goals for health and well-being; and whether the care took place at the appropriate time (see examples below, under "Selected Examples of Omissions of Care"). Adding attributions or causes may distract stakeholders from clearly and consistently determining whether an omission has occurred. Further, including attribution when defining omissions potentially decreases stakeholders' capacity to detect omissions that indicate broader opportunities for improvement or system change.

- Determining the cause and attribution of an omission should be the first step in responding to omissions, developing quality improvement efforts, or identifying strategies to prevent future omissions. Causes and attribution should also be considered across a broad spectrum that encompasses both proximate and distal contributors. For

example, an omission may result from nursing home staff action, or it may be the result of actions by external entities, policies, or availability of community resources.

Limiting omissions of care to those attributable to the nursing home organization and its staff may result in ignoring of failing to detect contributing factors outside the facility. For example, an omission may occur because the community does not have equipment to perform a needed diagnostic test. This omission may indicate that the community needs to determine whether investing in such equipment may be beneficial beyond the experience of one resident. Laboratories that do not perform ordered tests or pharmacies that do not deliver ordered medication represent omissions that are not directly attributable to the nursing facility or health professionals within the facility. Incorporating attribution may lead to ignoring or overlooking these omissions in quality improvement efforts.

5. **Develop interventions or quality improvement plans that account for the types of omissions, the types of harms, and causes and attributions, and that consider whether the incidence of omission is isolated or systemic.**

   – Consider the magnitude of an increased risk when determining quality improvement efforts and developing strategies to prevent omissions. For example, omitting a single dose of a levothyroxine for a resident with hypothyroidism has an extremely low risk for undesired outcomes and does not require additional monitoring or testing but would constitute an omission of care. In contrast, forgetting to conduct a laboratory test for a resident on coumadin may lead to failure to detect an abnormal international normalized ratio (INR), which may increase risk of bleeding or clotting if the INR is out of range. Failure to administer the first dose of an antibiotic for a resident with sepsis would have an increased risk of an undesirable outcome. More important, all three of these examples occurring in a single facility in the same week may represent a broader systemic problem with consistent administration of medication. Thus, each represents an omission of care, and the response to the omission will be dictated by the cause and magnitude.

   – Create a process for responding to omissions of care that considers the spectrum of possible harms and underlying causes. While magnitude of risk or contribution to patient safety is critical, the frequency or likelihood of occurrence, alignment with regulations or quality goals, or association with evaluation or reimbursement requirements are also valid considerations in responding to omissions of care. In addition, determining whether this was a single incident that deviated from normal practice or is likely to recur is an important consideration in developing a response. A single failure to reposition a resident at high risk of pressure ulcers is an omission requiring response.

The type and extent of the response should be aligned with the associated potential harms or increased risks and should take into account root causes and attributions for the omission. However, responding to infrequent omissions while overlooking more widespread failures, such as not providing adequate oral care to multiple residents on multiple occasions, may reflect a process for responding to omissions that does not adequately address relevant potential harms or causes. Consequently, the causes for the omissions are not addressed and the omissions (and harms) continue to occur.

Causes of Omissions of Care Applicable to the Nursing Home

A wide variety of factors may cause or contribute to omissions of care that are specific to nursing homes. Omissions are related to multiple factors, including systems issues and individual actions, so the definition does not include causes and attributions, which could serve to codify specific ideas about how and why omissions occur. While the definition explicitly excludes cause and is intended to encompass omissions caused by factors or entities both inside and outside of the nursing homes, we provide this list as supportive information for those using the definition.

A literature review focused on long-term care yielded the following list of potential causes for omission applicable to the nursing home:

- Time constraints for staff, such as:

  – Inadequate time allowed to perform or document care.

  – Increased workload.

  – Increased time required for nursing interventions.

- Staffing constraints, such as:

  – Need for a better mix of staff by training and role/function.

  – Need for more staff to be assigned, either as a matter of routine or because of temporary staff shortages or unexpected absences.

- Staff turnover.

- Rationed nursing care, such as:

  – Explicit rationing: Care is rationed through policies that limit care or prioritize care processes inappropriately.

  – Implicit rationing: Care is rationed through habit or individual staff decisions to, for example, leave care unfinished at the end of a shift.

- Need for improvement in staff knowledge or training needs.

- Complex or complicated resident needs.

- Inefficient facility layout requiring excessive travel times between resident rooms (i.e., workflow improvement opportunity).

- Opportunity for improved teamwork, including better definition of roles and responsibilities.

- Opportunity to improve effective communication, including addressing the following:

  - Need for better communication within the care team.

  - Lack of communication with, or failure to listen to, residents or family, particularly regarding care preferences.

  - Need for better communication about risk factors or at-risk residents.

  - Need for improved interprofessional collaboration.

  - Need for more consistency in staff assignments or better handoffs between shifts.

- Delegation of tasks opportunity.

- Inadequate or inconsistent documentation practices, including the following:

  - Need for high-quality written plans for palliative care, advanced care directives, and transfers to acute care.

  - Lack of adequate assessment or surveillance of at-risk residents.

  - Lack of systematic medication reviews and reconciliations.

- Denial that there is an issue or that omitted care has an impact, or lack of transparency about omissions and their impact.

- Urgent or unanticipated situations that interfere with standard care processes.

- "Busy days," on which there are multiple admissions, discharges, or transfers.

- Resident's level of acuity.

- Need for more or better material resources, including the following:

  - Medications.

  - Supplies.

  - Equipment.

  - Technological infrastructure.

- Resident forgetting to provide self-care (separate from resident refusal or preference).

- Family member decisions (unless the family member has power of attorney for healthcare decisions).

- Physical skills opportunity for staff.

- Lack of personal or organizational accountability for resident's care needs and safety.

- Lack of payer reimbursement.

- Lack of management support for resident's care needs and safety.

Selected Examples of Omissions of Care

These examples were developed in consultation with the expert panel and stakeholders. They are intended to illustrate how the definition operates in practice by using case-based examples to demonstrate what is or is not an omission, and the ways matters of cause and attribution may vary and thus are part of addressing omissions that occur.

1. **A nursing home resident does not receive an influenza vaccine at the appropriate time of year. Flu vaccine is not contraindicated for the resident, and the resident has not refused the vaccination.**

   a. This is an omission because appropriate and needed care is not provided at the proper time.

   b. Possible cause 1: The nursing home administrator ordered insufficient doses of vaccine, thus creating a delay in care. Attribution: nursing home.

   c. Possible cause 2: There is a nationwide shortage of flu vaccine because of failures in manufacturing, and facility orders are not being filled. Attribution: supplier.

2. **Bed-bound residents at risk for developing pressure ulcers do not consistently receive appropriate preventive care such as repositioning.**

   a. This is an omission because residents at risk for an adverse outcome do not receive appropriate and needed care.

   b. Possible cause 1: The nursing home owner reduced facility staffing to minimal levels during evening, nighttime, and early morning hours, which affects resident/staffing ratios. Available staff therefore have difficulty completing all required tasks during these hours, and residents are not repositioned on schedule as ordered. Attribution: nursing home owner.

   c. Possible cause 2: Some nursing staff who work intermittently at the facility are not aware of which residents are at risk for pressure ulcer and how to reposition them (e.g., reposition heels for bed-bound resident). Attribution: nursing home staff.

3. **A resident is prescribed a medication not in accordance with professional standards or guidelines (e.g., McGeer Criteria for antibiotics, AGS Beers Criteria™).**

   a. This is not an omission of care. This is a commission of care, or the provision of care that is not needed.

4. **A resident is given the wrong dose of coumadin because the facility forgot to conduct a laboratory test to monitor the INR.**

   a. Forgetting to do the test is the omission of care. Giving the wrong dose of coumadin is not an omission; this is a commission of care.

   b. Possible cause 1: The nursing home staff did not consistently document physician orders or track performance of monitoring tests. Attribution: nursing home staff.

   c. Possible cause 2: The nursing home uses agency nurses who are not familiar with the facility policy and procedure on ordering tests. Attribution: nursing home administration.

5. **A resident would like to be groomed and dressed nicely when friends or family members come to visit (per the communicated and documented goals of care) but does not consistently receive the assistance needed to achieve this goal.**

   a. This is an omission of care.

   b. Possible cause 1: The nursing home's care policy does not prioritize this form of care. Attribution: nursing home.

   c. Possible cause 2: Staffing shortages result in nursing staff's not having sufficient time to assist the resident with grooming beyond complying with regular hygiene requirements. Attribution: nursing home.

6. **A resident is misdiagnosed, or staff fail to detect and diagnose a condition.**

   a. This is not an omission of care. The misdiagnosis is not a failure to provide care. Misdiagnosis may be the *cause* of omissions of care when it results in a failure to supply care the resident needs. However, when misdiagnosis is the result of a failure to follow guidelines—for example, a policy for conducting screening tests or performing resident assessment—then that failure is the omission of care. In this case, the attribution could be the nursing home or the care provider.

7. **A resident declines to take a dose of medication or a shower. The resident is cognitively intact.**

   a. This is not an omission of care. Residents have the right to decline care that is ordered or offered. Nursing homes should consider the cognitive status of the resident, ask about the reason for refusal, and consider and communicate the potential risks of omitted care to the resident.

   b. Possible cause 1: A resident refused to take a medication because he does not like the side effects and does not feel well that day. Attribution: resident.

   c. Possible cause 2: A resident refused care because he was not in the mood for a shower that day. Attribution: resident.

   d. Note: Repeated refusals of care by a resident may constitute an omission of care, if the resident cannot describe the consequence of the decision.

8. **A resident needs but does not receive assistance with performing oral hygiene activities (e.g., brushing teeth, denture care).**

   a. Not receiving needed assistance with performing oral hygiene activities is an omission of care.

   b. Possible cause 1: The nursing home does not have a workflow for ways and times to assist with oral hygiene activities. Attribution: nursing home.

   c. Possible cause 2: The nursing home does not have training for staff on providing assistance with oral hygiene activities. Attribution: nursing home.

Project Methods

In this section, we describe the methods used for performing the environmental scan and the development of the definition based on existing literature informed by subject matter experts and reflecting stakeholder input into the draft definition.

Environmental Scan

We conducted an environmental scan to support the development of the definition and identification of relevant tools and resources. A separate document provides detailed methods and results of the scan. In this report, we provide summary information about the methods used and the findings from the scan.

The environmental scan included three categories of information, each requiring different methods for search, retrieval, and review:

- Peer-reviewed literature

- AHRQ resources, such as AHRQ reports, grants, and contracts, as well as other materials available on AHRQ's website

- Gray literature, such as research reports, issue briefs, and papers not published in academic journals; tools; and materials describing data sources, interventions, or resources that could be used to identify and address omissions of care in nursing homes

To identify peer-reviewed studies, we conducted searches in PubMed, Web of Science, EBSCO Academic Search Premier, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) using keywords and controlled vocabulary terms that described nursing homes, omissions of care, and relevant outcomes or adverse events. Search terms were selected with input from our technical expert panel (TEP). We included articles with explicit definitions of omissions of care for full-text review, regardless of date of publication.

For adverse events/harms in nursing home or long-term care (LTC) settings, we structured our review as an update and supplement to the prior AHRQ report, *Resident Safety Practices in Nursing Home Settings*, which reviewed nursing home safety research from 2005 to 2015. Thus, we excluded articles published before 2015. We retained articles that focused on omissions of care and adverse events in care settings other than nursing homes if they were relevant to nursing home settings, such as including a focus on older adults.

To identify AHRQ resources and gray literature, we used Google and Google Scholar to conduct online searches and conducted reviews of websites for AHRQ and organizations such as AARP (formerly American Association of Retired Persons), LeadingAge, Gerontological Society of America, American Geriatrics Society, and AMDA (Society for Post-Acute and Long-Term Care Medicine).

We used two methods for abstraction. For literature specifically focused on omissions of care, we extracted information such as (a) any definition included, (b) care setting, (c) causes of omissions, (d) associated outcomes, (e) study findings, (f) data sources used, (g) tools or interventions referenced, and (g) manner of detection and reporting. For literature focused on adverse events, we inspected each item to determine whether the study described (a) evidence of omitted care as a factor contributing to incidence, (b) key risk factors appropriate for surveillance that might prevent adverse events, (c) information about practice interventions directed at reducing either event incidence or care omissions, and (d) information about data sources used to determine either incidence or omission.

TEP and Stakeholder Engagement

To guide the project and ensure the consideration of varied perspectives in the development of the definition, we assembled two essential groups of thought leaders to provide input:

1. Recognized technical experts who have published studies on long-term care quality improvement to serve on a TEP. The TEP reviewed the overall study design, provided input on the environmental scan methods, suggested stakeholders to include, provided iterative input on the definition and its supporting content, and provided input on reports and dissemination plans.

2. Broadly defined stakeholders, including people affiliated with organizations that represent the resident and caregiver perspectives. The stakeholder group provided iterative input on the definition and its supporting content and provided suggestions for resources, tools, and trainings that nursing homes could use to detect or address omissions of care.

We first convened the compact group of subject matter experts with substantial knowledge of and research experience in nursing home care and safety to serve as TEP members and to assist with guiding and providing input on the technical deliverables (e.g., draft definition). Exhibit 1 provides a list of TEP members and their affiliations. We held three formal meetings with TEP members during the project. The first meeting included the following:

- Review of the project aims and proposed study methods

- Recommendations for and proposed format of the stakeholder group

- Discussion of key questions and considerations for defining omissions of care for nursing homes

During the second meeting, experts reviewed and provided input on the results of the literature review and the feedback obtained from the stakeholder group. The experts also discussed the proposed draft definition. In the final meeting, experts reviewed and provided final feedback on the draft definition and the supporting materials, as well as the draft project report and dissemination plan. Between meetings, we circulated proposed modifications to the definition and drafts of supporting contextual material to TEP members for feedback and requested input on aspects of the dissemination plan. In addition, individual members were contacted regarding questions specific to their research or expertise.

Exhibit 1. TEP members

Name	Medication Safety	Infections	Care Transitions/ Coordination	Staffing Volume/ Turnover	Falls/ Restraints	Health IT
Nicholas Castle, Ph.D. Chair, Department of Health Policy, Management and Leadership West Virginia University	◆	◆	◆	◆	◆	
Jerry Gurwitz, M.D. Chief, Geriatric Medicine University of Massachusetts Medical Center	◆	◆				◆
Steven Handler, M.D., Ph.D. Assistant Professor, Department of Bioinformatics University of Pittsburgh	◆	◆	◆	◆	◆	◆
Joseph Ouslander, M.D. Dean, Geriatric Programs, Smith School of Medicine, Florida Atlantic University		◆	◆			◆
Jack Schnelle, M.D. Professor of Medicine, Chair of Geriatrics Vanderbilt University Medical Center	◆		◆	◆		

Next, we invited people affiliated with stakeholder organizations to participate in webinars and/or provide written feedback on the draft definition and its supporting materials (exhibit 2). To identify stakeholders for invitation, we polled the project team, gathered suggestions from AHRQ staff and the TEP, and asked invited stakeholders to share information about the opportunity with others in their organization or in their personal network. Unlike the formal TEP with its set roster of members who contributed throughout, the stakeholder group was informal. Participation in the stakeholder activities does not imply that these organizations endorse the definition or its supporting content.

Participation in the stakeholder input opportunities also grew over time. The research team identified new organizations to invite and some participants shared materials with colleagues whose portfolios included the topic. This approach enabled us to include a broad spectrum of perspectives because we did not restrict participation in any way. For example, those who

participated often shared both personal perspectives and professional or organizational perspectives. Ultimately, the number of individuals who contributed was far larger than the number of organizations included in our initial outreach.

Early in the project, we invited people from the stakeholder organizations to participate in a webinar facilitated by a peer stakeholder, with research staff support and AHRQ representation. The webinar was designed as a listening session to give essential audiences a chance to share their perspectives. During this session, we shared the purpose of the project and the initial draft definition and invited participants to share their views on key questions about the definition and its usefulness. The group provided substantial input, including input from a resident and caregiver perspective. Near the conclusion of the period of performance, we invited stakeholders to a second webinar to:

- Share the definition and dissemination plans.

- Invite participants to share their final perspectives or suggestions.

Between meetings, we circulated drafts of the definition and supporting contextual material for feedback and invited stakeholder participants to provide input in writing. In all, formal requests were circulated five times to TEP and stakeholder participants. To increase transparency, we compiled comments and our responses to these comments into documents that were shared with both groups.

Finally, individuals in both groups made meaningful contributions to the list of resources, tools, and training and to dissemination plans.

Exhibit 2. Stakeholder organizations included in outreach to obtain stakeholder input

Organization Name
1. American Association of Nurse Assessment Coordination
2. American College of Health Care Administrators
3. American Geriatrics Society
4. American Health Care Association
5. AMDA Foundation
6. AMDA—The Society for Post-Acute and Long-Term Medicine
7. American Nurses Association
8. Ascension Healthcare
9. California Advocates for Nursing Home Reform
10. Center for Medicare Advocacy
11. Gerontological Advanced Practice Nurses Association
12. Good Samaritan Society
13. Healthcentric Advisors
14. LeadingAge
15. National Association of Directors of Nursing Administration in Long Term Care
16. National Academies of Practice
17. National Association of Health Care Assistants

Organization Name
18. National Association for Support of Long-Term Care
19. National Consumer Voice for Quality Long-Term Care
20. On Lok
21. PointClickCare
22. Qualidigm
23. Rural Health Research
24. SNP Alliance
25. The Joint Commission
26. The Long-Term Care Community Coalition

Resources, Secondary Data Sources, and Dissemination Plans

To support dissemination and meaningful use of the definition, we undertook three activities:

- Scan and review of existing resources, tools, and trainings that nursing homes could use to address omissions of care

- Review of the utility of available secondary data sources that could be used to identify and report omissions of care in the nursing home setting

- Development of a dissemination plan for the definition and the supporting documentation

We identified resources, tools, and training by:

- Extracting information about resources, tools, or training from articles included in the literature review.

- Reviewing relevant organizational websites.

- Searching the internet with an internet search engine.

- Providing a draft list to TEP members and stakeholder participants for review and requesting suggestions.

In searching for and evaluating resources, we focused on resources that were complete, designed for long-term care or nursing homes, and readily available for use. Resources were considered complete when they provided, for example, both a tool and an explanation of the way to use it. Similarly, training materials such as slide decks were included when they were part of a curriculum or had full speakers' notes to support their use. Whenever possible, we downloaded copies of identified resources for examination. When this was not possible, we examined available descriptive information about the resources.

We conducted a limited evaluation of resources, tools, and training materials designed to permit consistent and thorough description and classification of identified materials, and to provide core information that stakeholders could find useful when searching for items. For each item, we examined the following:

1. Content and purpose

2. Target audiences and applicable care settings

3. Target omissions, adverse events, or harms

4. Dissemination method or manner of use

5. Data source (as applicable)

6. Proprietary status

Dissemination Plan Development

We developed a dissemination plan following the processes outlined in AHRQ's Patient Safety Dissemination Tool[8] and consulting with AIR experts, TEP members, and stakeholder participants.

Assessing Utility of Secondary Data Sources

To evaluate the utility of common secondary data sources for accurate identification and timely reporting of omissions, we examined data from the literature review and the collected resources and tools, consulted with TEP members, and conducted some supplementary, focused literature searches. These searches aimed to identify recent descriptions of secondary data sources used to identify omissions or track adverse events in nursing homes. From these data, we assembled a list of commonly referenced secondary data sources. We then developed a profile for each data source, describing how it was (or could be) used in relation to care omissions, along with information about benefits and limitations of the data.

Summary of Findings

Environmental Scan Findings

In all, we included 34 items that explicitly defined omissions of care and 327 items that focused on adverse events. The environmental scan provides detailed results and a complete reference list for all literature included in the scan. In this report, we provide a summary of key findings from the scan.

This summary of findings is organized into three broad topic areas: (a) definitions of omissions of care, (b) adverse events related to omissions of care in nursing homes and interventions intended to prevent them, and (c) data sources used. In our review of the literature, we identified several common concepts used in defining omissions: (a) types of omissions, such as delayed care or unfinished, undone, or inadequate care; (b) types of omitted care, including clinical and psychosocial care; (c) causes of the omission; and (d) whether omitted care resulted in a definite or potential adverse outcome. An overview of common concepts authors included when defining omissions is provided in table 3. Full bibliographic information and detailed findings for each publication that specifically defined and examined omissions of care are provided in the scan.

Definitions of Omissions of Care

For the purposes of developing a definition of omissions of care, we began with a review of the 34 articles that explicitly defined care omissions. Across these publications, authors defined omissions of care as delayed, unfinished, undone, or inadequate clinical or psychosocial care, or administrative care tasks that should have been done, could have been done, or needed to be done in a timely manner. Kalisch and colleagues' definition of missed care was the most widely cited in defining omissions (cited by 17 other authors in this review) and is described as "any aspect of required patient care that is omitted, in part or in whole, or delayed."[9]

Across the literature, we found the following common themes. Exhibit 3 provides per-article detail for these themes and also indicates which articles focused on nursing homes specifically.

Any delay or failure in care is an omission. All 34 articles in our review defined omissions as unfinished, undone, or inadequate care that should have been delivered, whereas 13 articles also defined omissions as including delayed care. Authors varied in whether they included the need for or the appropriateness of care in the definition. For example, Dabney and colleagues describe omissions as the "failure to do the right thing,"[10] while Dhaini and colleagues define them as "any reduction of standard clinical practice."[11]

Omissions occur in clinical and psychosocial care. In defining types of omissions, 21 articles focused only on omissions in clinical care, 2 focused only on omissions in psychosocial care, and 9 focused on both clinical and psychosocial domains of care. Clinical care included tasks related to providing nursing care, planning care, or helping residents with tasks such as ambulation or toileting. Psychosocial care included tasks such as patient comforting, emotional care, and social care.

Omissions can lead to adverse events. Seven articles either included adverse events as part of their definition of omissions or studied adverse events as definitive outcomes related to omissions. Conversely, five articles noted that omissions were related to only the potential for adverse patient or resident outcomes but did not specify that an omission necessitated a

definite adverse event. Five additional articles defined omissions as both leading to adverse events or to the potential for such events.

Causes of omissions. Of the 34 articles in our review, 19 identified a cause of the omission. Notably, these causes were largely because of time constraints, rationed nursing care due to high rates of nurse burden, complex or complicated resident needs, and urgent or unanticipated situations that interfered with regular care.

Exhibit 3. Common concepts used in defining omissions of care

	Lists Cause of Omissions	Includes Clinical Care	Includes Psycho-social Care	Includes Definite Adverse Outcomes	Includes Potential Adverse Outcomes	Delayed Care	Unfinished, Undone, or Inadequate Care	Applied to Nursing Homes
Simmons, 2016*		✓				✓	✓	✓
Ball, 2014	✓	✓	✓				✓	
Berlin, 2017		✓					✓	
Bittner, 2011	✓	✓	✓			✓	✓	
Carthon, 2015	✓	✓	✓		✓		✓	
Cho, 2015	✓	✓					✓	
Dabney, 2015	✓				✓		✓	
Dhaini, 2017	✓	✓					✓	✓
Gillespie, 2018							✓	
Gilmore-Bykovskyi, 2018		✓		✓			✓	
Gravlin, 2010	✓	✓			✓	✓	✓	
Griffiths, 2018	✓	✓		✓	✓	✓	✓	
Hayward, 2005		✓		✓	✓		✓	
Henderson, 2017	✓	✓				✓	✓	✓
Hirst, 2002		✓	✓	✓			✓	✓
Jones, 2015	✓	✓			✓		✓	
Kalisch, 2013		✓					✓	
Kalisch, 2009a	✓	✓			✓	✓	✓	
Kalisch, 2009b	✓	✓		✓	✓		✓	
Kind, 2011		✓					✓	
Malmedal, 2008			✓				✓	✓
Miller, 1976		✓					✓	✓

	Lists Cause of Omissions	Includes Clinical Care	Includes Psycho-social Care	Includes Definite Adverse Outcomes	Includes Potential Adverse Outcomes	Delayed Care	Unfinished, Undone, or Inadequate Care	Applied to Nursing Homes
Naden, 2013			✓	✓			✓	✓
Nelson, 2015	✓	✓	✓	✓			✓	✓
Papastavrou, 2014	✓	✓		✓		✓	✓	
Papastavrou, 2016	✓	✓	✓			✓	✓	
Poghoysan, 2017		✓	✓				✓	
Recio-Saucedo, 2017		✓	✓	✓		✓	✓	✓
Schnelle, 2016		✓				✓	✓	✓
Smith, 2018		✓		✓		✓	✓	
Srulovici, 2017	✓	✓				✓	✓	
Suhonen, 2018	✓	✓		✓	✓	✓	✓	
VanFossen, 2016	✓	✓					✓	
Zúñiga, 2015	✓	✓	✓	✓	✓		✓	✓
Total across 34 articles	**19**	**30**	**11**	**12**	**10**	**13**	**34**	**11**
Percent	**56**	**88**	**32**	**35**	**29**	**38**	**100**	**32**

Adverse Events and Interventions in Nursing Homes

We examined 327 articles on adverse events that could result from a discrepancy between a resident's needs and the care or resources provided in nursing homes. In our review, we looked for instances in which this discrepancy could be the result of omissions of care. Similarly, we looked for interventions aimed at reducing the discrepancy between resident needs and available services and resources, which might result in fewer adverse events and omissions. In this section, we summarize the evidence about associations between omissions and adverse events, key characteristics of interventions cited in the literature, and information about the data sources that have been used in detecting or evaluating omissions in the reported studies.

The 34 articles that included definitions of omissions and the 327 articles focused on adverse events identified similar adverse events as potential outcomes of omissions of care. However, the literature on adverse events did not emphasize person-centered aspects of care to the same degree as the literature defining omissions of care. Person-centeredness includes residential and psychosocial aspects of nursing home care, such as social support, dignity, enjoyable activities, autonomy, and respect. Omissions of care that undermine the person-centeredness of resident care may result in depression, loneliness, and increased risk for death (suicide and all-cause mortality). The novelty and the challenge of defining and reducing

omissions of care in nursing homes appears to lie in the twofold purpose of nursing homes to address medical and psychosocial needs.

When examining the relationships between omissions of care and adverse events, authors tended to focus on causes rather than on the type of omitted care. The articles reviewed demonstrated that it may be difficult to distinguish between causes of omissions and the omissions themselves, which we found to be the case during review and refinement of the definition (see sections below on TEP and stakeholder participant contributions to the definition). The literature also indicated that adverse events were often not related to a single omission. Rather, a sequence of omissions may lead to the adverse event. For example, during a shift change, a staff person fails to communicate a change in resident's status to the next staff person, who then does not perform a monitoring assessment, which leaves the physician unaware of the resident's symptoms when ordering a diagnostic test, resulting in the resident's suffering an acute illness exacerbation.

Studies identified a variety of common causes for omissions that could lead to adverse events, including resource restrictions (e.g., staffing, time, or money), poor teamwork and communication within and between care settings, ineffective delegation of tasks, lack of education, complex resident care needs, and urgent or unexpected situations that interfered with regular care. That is, whereas some omissions were events occurring at the patient level (e.g., missed doses of medication, failure to reposition a bed-bound resident), many others were programmatic or systemic in nature (e.g., lack of staff education, unavailability of programs, insufficient surveillance and supports). This observation has important consequences for developing an operational definition of omissions of care, as current definitions tend to reflect event-level conceptualization and may not sufficiently take into account risk that is cumulative when care is omitted repeatedly over time or omitted throughout a nursing home.

In all, we found 19 adverse event domains that have been associated with omissions of care in nursing home residents. Considering these different potential events can provide important insights to operationalize a definition of omissions of care. Below, we briefly summarize each of these domains and specify their connection to omissions of care. Detailed findings for each domain are presented in the environmental scan. These detailed findings include information about interventions and data sources that authors identified as supplying information or evidence related to omissions of care.

Summary of Findings on Adverse Events
In this section, we provide an overview of findings from the full scan, which includes more detailed results and the complete bibliography of the 327 articles used to develop these findings.

Avoidable hospitalizations of nursing home patients. The literature defined avoidable hospitalizations as transfers from a nursing home to a hospital that were potentially avoidable if a different or earlier action had been taken by nursing home care staff. Common omissions that led to avoidable hospitalizations included communication and teamwork breakdowns, poor infection control practices, inappropriate medication use, failure to detect or report changes in resident status, and lack of understanding of resident preferences.

Characteristics of successful interventions for reducing avoidable hospitalizations included assessment support, communication facilitation, education strategies, and documentation of resident preferences. One such program is the Interventions to Reduce Acute Care Transfers (INTERACT) program. INTERACT comprises three core components: (1) early screening and management of health conditions; (2) communication, documentation, and decision support for health condition management; and (3) use of advance care planning for hospice and palliative care in nursing homes. The INTERACT intervention has been shown to decrease all-cause hospitalizations in nursing home residents by addressing and minimizing the factors that contribute to and constitute omissions of care. Other techniques for avoiding hospitalizations include increasing access to physicians, such as via telemedicine.

Cardiovascular events. Studies identified cardiovascular events due to omissions in diagnoses and lack of monitoring of at-risk residents. For example, research showed that taking psychoactive medication increases residents' risk for adverse cardiovascular events. To address this increased risk, care providers may need to increase their monitoring of a resident's health; thus, inadequate monitoring may be an omission. One option to minimize increased cardiovascular risk would be the use of nonpharmacological interventions.

Cognitive decline. Cognitive decline encompassed varying levels of cognitive impairment. The literature suggested that higher rates of cognitive decline may be due to omissions such as lack of physical activity or ADL-related programs, greater levels of unmet need, and malnourishment. Successful interventions used to slow or reduce cognitive decline appear to consist of physical activity interventions (e.g., ADL training) and the reframing of challenging behaviors for residents with cognitive impairment. These studies suggested that cognitive decline may serve as an indicator of an unmet need, which could constitute an omission of care, rather than as behavioral problems needing antipsychotic treatment.

Death. Death included all-cause mortality and suicide. A large portion of the literature focused on death as a result of care omissions. Omissions of care associated with resident death include a lack of resident monitoring and surveillance, low vaccination rates, incorrect diagnoses and prognoses, limited physical and social activities, poor hygiene practices, lack of followup care, high nurse turnover rates, and use of physical restraints. Lack of screening for risk factors associated with resident death (e.g., low body mass index [BMI], delirium, fall risk) may also constitute an omission.

Interventions in care practice aimed at reducing all-cause mortality (excluding suicide) focused on hygiene, oral health, and infection. Several tools have been developed to screen residents for mortality risk, including the Minimum Data Set-Changes in Health, End-Stage Disease and Symptoms and Signs (MDS-CHESS) scale and the Fatigue, Resistance, Ambulation, Incontinence, Loss of weight, Nutritional approach, and Help with dressing checklist (FRAIL-NH).

Literature on suicide pointed to several areas in which omissions of care might contribute to incidence of suicide. Isolation, loneliness, and poor adjustment to nursing homes are major risk factors for suicide and may be attenuated through focused programs. Lack of such programs for those at risk for suicide, therefore, may be an omission. Nursing homes conduct systematic screening for risk factors for suicide, including depression, health deterioration, post-traumatic stress disorder (PTSD), and schizophrenia. Thus, failure to conduct screening or to act on screening results may be considered an omission of care.

Delirium. Delirium was often defined as mental confusion and emotional disruption in the absence of diagnosed cognitive decline. Delirium may be caused by omissions related to medication interactions, untreated pain, acute infection, and use of antipsychotics. Successful interventions—such as Stop Delirium!—included consultation with a specialist in delirium via educational sessions and additional resources for nursing home staff. Another program, HELP-LTC, included delirium risk-reducing activities and incorporated a dedicated certified nursing assistant (CNA) to deliver the HELP-LTC intervention. Although the results of the HELP-LTC intervention indicated a reduction in delirium severity, it is unclear whether improvements were due to increased communication between a dedicated CNA and the rest of the nursing staff or the actual activities intended to reduce the risk of delirium.

Depression. The literature discussed resident-centered medical and social omissions that contribute to increased rates of depression. These included failures to recognize and treat depression and also omissions of care that might prevent depression. For example, failure to screen for depression, insufficient training among staff, high documentation burden, and high staff member caseload have all been defined as omissions that may contribute to depression rates. Similarly, a lack of understanding, education, and confidence among staff regarding the treatment of depression can lead to unaddressed depressed mood. Thus, a lack of programs and trainings aimed at increasing staff awareness of and knowledge about depression treatment may constitute an omission. Finally, the lack of physical activity programs, relevant therapies, and enjoyable activities for residents is associated with higher rates of depression, as are untreated pain and unaddressed sleep difficulties.

Disability/functional decline. Functional decline encompassed ADL disability and reductions in physical mobility and performance. The lack of screening for risk factors that predict disability and functional decline may constitute an omission of care; risk factors include cognitive decline, surgeries, geriatric syndromes, and vitamin D deficiency. Of the evidence reviewed,

rehabilitation and multicomponent interventions that include supervised exercises have been shown to slow or alter functional decline.

Falls. Falls were the second most commonly discussed adverse event (with death being the first). Risk factors for falls included poor vision, use of multiple medications, reliance on walking aids, vertigo, balance problems, low BMI, a history of falls, depression, and cardiovascular disorders. Residents with any of these risk factors may need additional supervision and surveillance, especially during sit-to-stand procedures, when falls are more common (as compared with falls during ambulation). Thus, a failure to provide adequate supervision and surveillance of residents who have these risk factors may be an omission. A lack of programs for improving strength and balance may also be an omission, especially in settings such as nursing homes, where the population is already at higher risk for general frailty. Successful interventions, such as the Sunbeam Program, incorporated supervised balance exercises with progressive resistance training with long-term (7–12 months) maintenance and functional group exercise sessions.

Incontinence. Some studies addressed the link between omissions of care and incontinence. Although studies identified risk factors for incontinence—including physical inactivity, greater ADL limitation, cognitive decline, and comorbidities—they did not describe how care staff might act to reduce incontinence. Evidence suggested that incontinence can be reduced through interventions to maintain continence, so failure to deliver such incontinence treatment could qualify as an omission. Educational programs incorporating best practices through workshops and systematic assessment guidelines to improve providers' knowledge and skills have also successfully reduced the prevalence of incontinence.

Infections. A large body of literature is devoted to reducing infections in nursing homes and studies have found consistent links between care omissions and infections. Common omissions included poor infection prevention and hygiene practices, which were often influenced by lack of knowledge and education about infection prevention and hygiene among staff. These findings are consistent with AHRQ's 2016 resident safety report.

Loneliness. Loneliness was addressed in six articles in our review. Omissions of care related to loneliness included a lack of social contact and social support, lack of dignity and self-determination, and unaddressed grief. Programs that successfully reduced loneliness increased peer interactions, engagement, and social support.

Medication omissions. Medication errors were prevalent in the reviewed literature. AHRQ's 2016 report on resident safety included medication omissions under the larger category of medication errors. Avoidable causes of medication omissions included inadequate medication knowledge and training among staff, lack of collaboration between staff and settings, lack of access to a physician or pharmacist, and insufficient staff-to-resident ratio. Similarly, the lack of

medication reconciliation practices was especially important because it entails systematically reviewing inconsistencies among care settings and necessitates communication among providers. Residents at greatest risk for medication omissions included those with a greater numbers of care transfers, those with a greater numbers and types of medications and comorbidities, and those with dysphagia.

Several interventions that successfully reduced medication errors and omissions were found in the literature, including the Multidisciplinary Multistep Medication Review (3MR). This program consists of assessing resident perspective, reviewing patients' medical history, reviewing and appraising medications, holding a meeting between the physician and pharmacist, and implementing changes. This medication reconciliation program increased communication among care providers and identified problematic or missing medications. Alternatives to this intervention include the Visiting Pharmacist (ViP) intervention and the use of videoconference resources for care transitions and medication reconciliation.

Nutrition. Nutrition-related adverse outcomes included dehydration, weight loss, and malnourishment. Risk factors for nutrition-related problems included dysphagia, eating dependency, leaving 25 percent or more food on one's plate, and voluntary stopping of eating and drinking (VSED). Thus, a lack of screening for and support to ameliorate these risk factors may qualify as an omission. Examples of risk-oriented care omissions that may contribute to poor nutrition include lack of support for eating dependency and lack of diet modification for residents with dysphagia. Poor oral health practices were also associated with nutrition outcomes, indicating that improving resident oral health may improve these outcomes. Although extreme weight loss and malnourishment were linked to omissions of care in nursing home settings, little evidence linked dehydration to omissions. The nutritionDay Project was one example of an intervention aimed at reducing malnutrition and increasing knowledge and awareness of nutrition performance in nursing homes.

Pain. Causes of pain that may be related to omissions of care include end-of-life or palliative care that does not align with resident wishes, poor communication between providers, underuse of pain medication in residents with cognitive decline, lack of assessment regarding pain, and use of physical restraints. A meta-analysis included in our report found that analgesics were the most effective medication for reducing pain, and underuse of analgesics might constitute an omission.

Pressure ulcers. AHRQ's 2016 resident safety report noted that the literature on pressure ulcers focused on treatment of existing wounds rather than preventive guidelines. Our review found several preventive measures, the absence of which is an omission. Preventive measures to reduce the development of pressure ulcers include repositioning, using special mattresses and chair cushions, offloading residents' heels, and communicating responsibility for resident care

to designated staff. Our review also found that lack of knowledge and physical skills to complete preventive measures were factors contributing to pressure ulcers.

Poor resident-centered care. Poor resident-centered care was highlighted in just three articles and focused on aspects of dignity and autonomy among nursing home residents. Omissions of high-quality resident-centered care may entail a lack of resident choice in wake and sleep times, not being heard, poor response time from staff, lack of access to nature, and lack of transparency about death in the resident's community. Poor resident-centered care may also be related to depression and loneliness due to a lack of engaging and meaningful activities that support social identity, productivity, and reciprocal relationships.

We also noted that few articles focused on psychosocial or quality-of-life adverse events apart from those pertaining to resident-centered care. Part of this finding may be due to our search terms, which did not include nonclinical domains. The use of broad search terms such as "adverse events" likely yielded literature representative of resident quality of life, psychosocial omissions, and adverse events but may well underrepresent the number of studies in the period covered by our review. Since our search retrieved so few studies related to omissions of care and psychosocial care, it is possible that this is a gap in the literature that warrants either supplemental literature review or additional research studies.

Expert and Stakeholder Engagement

TEP Contributions to the Definition and Supporting Documentation
At the first meeting, TEP members discussed a set of questions about key considerations in developing the draft definition. Discussion content was summarized in notes that were shared with TEP members for review and correction. Exhibit 4 provides a summary of discussion for each statement and recommendation the TEP made. Panelists broadly agreed that omissions of care encompass things that were not done, regardless of cause or attribution. TEP members also agreed that omissions of care do not encompass care provided in error or in a substandard way and concurred that these are commissions of care that deserve a separate definition. They also concurred that the magnitude of risk or potential harm is not germane to defining omissions and that "care" includes all manner of clinical and nonclinical care.

The panelists debated about how to account for omissions caused by circumstances outside the nursing home's control or by residents' refusing care. This discussion helped clarify the obstacles to operationalization created by blending definition elements that seek to establish *what an omission of care is*, with causative elements that explain *how the omission came to occur*. Ultimately, the panel agreed that residents and outside entities are agents who might cause omissions of care, but the cause is not relevant to the definition itself. Rather, these

factors are important considerations when determining how to prevent or respond to omissions.

In discussing how to account for the relationship between omissions and their causes and attributions, the panel and the research team concluded that the definition would require supporting documentation that would address the following:

- What was meant by the term "care"?

- What factors were deliberately excluded from the definition and why?

- What were the intended uses of the definition?

Exhibit 4. Summary of first TEP meeting discussion

Topic	Notes
Are omissions restricted to **something NOT done** or can they also include things that are done? For example, is giving the wrong drug and not monitoring for complications an omission of care?	• The panel agreed that omission is something that is not done. • Panelists agreed that, when the wrong care is given, this is a commission rather than an omission of care. The panel thought that commissions should be considered separately. • Panelists debated how to address failure to monitor residents. They agreed that not monitoring for likely complications qualified as an omission. Panelists thought that the clearest definition would focus on the most proximal, the most definable, most recent event regardless of what preceded it.
Do omissions of care **only apply to healthcare-related omissions**?	• The panel agreed that omissions apply to all forms of care provided in nursing homes. They thought it crucial to encompass person-centered care and what is important to residents, such as matters of dignity, respect, and quality of life. But they debated about the types of nonmedical care services that could result in omissions. • Panelists expressed reservations about a definition that included omissions that could not arguably be related to well-being in some way. For example, is it an omission of care when the facility does not serve a preferred brand of coffee?
Does the **magnitude** of potential harm or severity of harm matter when defining an omission of care?	• The panel thought the magnitude of potential harm or severity of harm should not be used to define omission of care. Panelists agreed that issues of magnitude or severity are relevant to determining a course of action when omissions are found. • Panelists thought that harm could be medical, physical, or emotional (i.e., anything that affects quality of life).

Topic	Notes
Do **lack of knowledge, skill, or competency** constitute omissions only if they result in actual harm?	• The panel thought that lack of knowledge is a reason for an omission of care but is not itself an omission of care. Discussion surfaced the multilevel nature of omissions: not washing hands before touching residents is an omission of care; not training staff to wash hands is also an omission but might not be an omission *of care* because it applies to staff, not residents. Ultimately, lack of training may or may not be the reason for the omitted care itself.
Does the care omitted have **to have an evidence base** supporting it as a standard of care? When omitted care is not a standard of care, is it still an omission?	• Panelists noted that some good nursing practices are not based on evidence and that the nature of "evidence" could be debated. Panel members struggled with this issue, noting that lack of evidence is not a reason to dismiss something as needed care and that second-guessing ordered care based on "evidence" could be a slippery slope.
Do omissions in care **apply to structural,** as well as process-related, care issues? Does the **responsible party** matter (e.g., governing body, insurance company)?	• The panel agreed that omissions apply to structural issues, and there was minimal discussion of this topic. • Regarding responsible parties, panelists wondered if some level of reasonableness must be applied. Could a nursing home be said to omit care if it does not give flu vaccines when the vaccine is unavailable because of failures in production? Technically, this is care that should be given but is not, and thus is an omission. However, panelists agreed that these issues still affect the response to omitted care and do not affect its fundamental definition.
Can the **resident or family member be the caus**e of an omission of care?	• Panelists debated the circumstances under which the resident or family member could be the cause of an omission of care, including by refusing care. Initially, some panelists noted that lack of compliance or refusal of care could be a cause of omissions. One member noted that residents have a right to refuse care or not to see the value of recommended care and worried about building in a preference for a medical model versus a resident preference model. Another argued that, if a resident refuses care, then that care should not be ordered or given; thus, it could be said that no omission occurred.
Does the **definition vary** by types of omissions of care, type of healthcare provider, and use of the definition?	• Although the reason for omissions may be different, the definition does not vary by type of care or provider.

At the second meeting, TEP members reviewed the draft definition, discussed the results of the environmental scan, and provided suggestions regarding useful data sources in identifying or addressing omissions of care (see section on findings for "Secondary Data Sources for Identifying Omissions," below). At this meeting, TEP members reviewed a version of the draft definition that reflected input from stakeholder participants. We also provided the panel with a summary of stakeholder input. The definition reviewed at this meeting read as follows:

> *"Omissions of care in nursing homes encompass situations when care—either medical or non-medical—is not provided for a resident that results in, or increases the risk of, an undesirable or adverse physical, emotional, or psychosocial outcome for the resident. This definition assumes resources are available to meet care needs."*

TEP members made several suggestions:

- As a result of stakeholder input, the definition included the sentence "This definition assumes resources are available to meet care needs." The panel recommended removing this line because the term "resources" was too vague. In addition, panelists concurred that lack of resources—whether accidental or by design—is a cause of omission and should not be part of the definition.

- Stakeholder participants had raised several issues related to terminology used to convey the concept of "care" in an earlier version of the definition. In particular, they objected to the initial use of the term "plan of care," which could be interpreted too narrowly as the formal care plan for a specific resident. TEP members made several suggestions for other ways to rephrase this particular concept, including "the care during the resident's stay." Ultimately, they recommended using the broadest phrasing in the definition and developing a glossary of terms to accompany the definition to further clarify meaning.

- AIR noted that the stakeholder participants and TEP found it useful to include examples to illustrate concepts and asked if the definition should be supported by examples. The panel discussed the risks and benefits of including examples. Risks included the potential to constrain people's vision of what kinds of care are included, while benefits included the ability to clarify what is and is not an omission. In addition, the panel thought that examples that spanned the breadth of possible domains of care and emphasized person-centeredness might help users grasp the meaning of the definition more fully.

- The panel discussed whether delays in the timing of care constitute an omission. One panel member described how care often has a regulatory or guideline-based timeframe, or "window of care." These timeframes might vary considerably depending on the type of care. Care delivered late in the window might be considered delayed but is not

omitted. However, these delays are not without consequence to residents and family, who might complain about a perceived slow response to a call button, for example.

- The panel discussed at some length the benefits and drawbacks of including in the definition the concept of risk of undesirable or adverse physical, emotional, or psychosocial outcome for the resident. While panelists thought that any care not delivered is *in principle* an omission, they acknowledged that such a broad definition *might be less useful or meaningful*. However, being more specific about risks or adverse outcomes is also very difficult and could lead to an unwieldy, complex definition because the impact of an omission for an individual resident could vary widely. Thus, attempting to qualify the definition to reflect severity of risk or adverse outcome would be problematic. The panel provided AIR with several suggestions for ways to rephrase this segment of the definition and to provide supporting information.

Stakeholder Contributions to the Definition and Supporting Documentation

At the first webinar for stakeholders, AHRQ and AIR provided background information on the project and presented the initial draft definition. Stakeholder participants were then invited to provide their perspectives, prompted by a set of questions, as summarized in exhibit 5. Overall, participants strongly agreed that the definition needed to address what omitted care is and is not. Participants did not broadly agree on whether the definition should address what an unacceptable outcome or harm is.

Exhibit 5. Summary of feedback from the stakeholder webinar

Discussion Prompt	Feedback Provided
What feedback do you have on a definition of "omissions of care" encompassing both medical care–and nonmedical care–related omissions?	Participants thought nonmedical care should be included and the definition should reflect person-centered care.
What feedback do you have about how important or impactful the omission of nonmedical care must be for the resident?	Participants noted that the overlap between medical and nonmedical care can be considerable and that resident preferences must be taken into account. For example, not feeding a resident could have both physical and psychological effects. Removing all choice regarding diet could have psychosocial effects for residents.
What input do you have on how great the magnitude of an increase in likelihood on harm/adverse event should be present before considering that an omission of care has happened?	Participants stressed that magnitude of risk could be very subjective. They noted that considering magnitude should be part of the response to omissions, rather than the definition.

Discussion Prompt	Feedback Provided
What feedback do you have on how strong the evidence base supporting the medical care that is omitted must be?	Participants pointed out that there is an abundance of good evidence and evidence-based standards for care; yet individualized care must also be considered.
What feedback do you have about including omissions of care that is known to not be helpful or to be harmful?	Participants noted that "harmful" may not be sufficiently clear, as some medically necessary treatments can be harmful (e.g., chemotherapy). Participants further questioned the notion that individual care providers should or could make their own judgments on this score.
What input do you have on excluding the reason or cause of the omission of care from the definition?	Participants agreed that consideration of cause only becomes relevant when considering how to apply a definition of omissions in practice. A broad definition that does not include reasons or causes may be difficult to use "to grade, scale, compare, or count the omissions." These features would become important when a response to omissions required understanding their attribution.
What feedback do you have about considering lack of resources, such as insufficient equipment, staff, suppliers, or medications as being an omission of care?	Some participants thought that, if facilities were never capable of providing the care, that should not be considered an omission. Others pointed out that a nursing home should not accept a resident it could not care for and should promptly transfer those whose needs it could no longer meet. Participants suggested that the definition should address this point.
How should omissions of care that are caused by non-healthcare individuals or governing bodies be handled in the definition?	Stakeholders agreed that all entities should be covered by the definition.
What input do you have about omissions of care applying or not applying to situations outside the control of the provider or healthcare organization?	Discussion focused on resource issues, such as ordered care that would not be covered by insurance. Participants noted, however, that facilities often absorb costs of needed care that is not reimbursed. They agreed that this was a matter of attribution rather than definition.
Should a definition of omissions of care apply only to healthcare providers, or can it extend to when the resident or family member was the cause of an omission of care?	Participants agreed that residents and family members should be included in the definition but noted that refusal of care should not be considered an omission.

Following the webinar, we distributed the revised definition and its developing supporting documentation five times via email to stakeholder participants. We also continued to share the drafts with all stakeholder organizations, inviting them to provide input if they wished. At each stage, we received written feedback from various stakeholder participants, including many who could not participate in the webinar. Toward the end of the project, we held a second webinar for stakeholder participants to review and comment on the definition. In the next section, we summarize the feedback received and how we responded.

Implementation of Feedback From TEP and Stakeholders

TEP and stakeholder participants provided detailed input on the formulation and improvement of the definition and the accompanying contextual documentation. This input included numerous suggestions or objections that contributed to the deliberate selection of each word used, as well as the precise ordering of concepts in the definition. Individual TEP members or stakeholder participants often provided multiple comments on different parts of the document. Exhibit 6 provides the volume of comments received in each round, excluding comments related to sentence composition, punctuation, or formatting.

Exhibit 6. Volume of comments in each round

Round	Number of Comments From TEP Members	Number of Comments From Stakeholder Participants[a]
1	6	29
2	9	19
3	7	37
4	12	45
5	8	21

[a] Includes people representing perspectives for resident and family advocacy, clinical and nonclinical care delivery, health information technology, nursing home administration, and quality of care planning or support.

In addition to providing detailed feedback on the wording of the definition, TEP members and stakeholders drew attention to a variety of issues that the AIR team endeavored to respond to in each revision of the definition and supporting materials, as summarized in exhibit 7.

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Exhibit 7. Implementation of TEP and stakeholder participant feedback

Content Area	Aspect of Definition	Feedback	Actions Taken
Definition content	Various forms of the phrase "plan of care" Included in early versions of the definition	TEP and stakeholder participants raised questions and concerns about how this phrase would be interpreted and worried that it would result in restricting the concept of care to written care plans for each resident.	• Eliminated term "plan" from the definition. • Added explanation of terms section. • Defined what "care" encompasses.
Definition content	What care encompasses	TEP and stakeholder participants offered varying feedback on the terms used to describe care in the definition. For example, suggestions included "medical, nonmedical, and nursing." Some stakeholder participants recommended not specifying at all, but most thought it was necessary to affirm that omissions apply to nonclinical care.	• Revised to "clinical and nonclinical care" to concisely reflect the diverse array of potential care provided in nursing homes. • Refined the explanation of terms to reflect diversity of care.
Definition content	Outcomes	TEP and stakeholder participants provided suggestions for improving the segment of the definition that addresses outcomes. There was broad agreement that the severity of risk or outcome should not be part of the definition, but a few stakeholder participants expressed concern about excluding it. Conversely, one stakeholder thought that no outcomes should be mentioned at all so that the definition would be as broad as possible.	• Revised "unwanted outcome" through several drafts and multiple alternate suggestions before selecting "undesirable or adverse." • Added additional monitoring or intervention as a potential undesirable outcome. • Revised domain terminology through several drafts before selecting "physical, emotional, or psychosocial." • Excluded the severity of outcome or magnitude of risk from the definition, while noting in the supporting content that these considerations are crucial for determining responses to omissions.

Content Area	Aspect of Definition	Feedback	Actions Taken
Definition content	Person-centered approach	TEP and stakeholder participants thought there should be an emphasis on person-centered or resident-centered care and that care concordance with health and well-being should be referenced.	• Both goal-oriented and person-centered care were included in the definition section.
Intended use	Perspectives on the intended uses	TEP and stakeholder participants contributed ideas for intended uses, such as integration into clinical education and training. Participants raised concerns about the definition's applicability to performance measurement or noted its duplication or variance with legal definitions of negligence. This feedback occurred across multiple rounds of comment, even after an explanation of intended uses was added to the supporting content area of the document.	• Added explanation of the intended uses. • Added supporting information on intended uses. • Added statement that the definition was not designed for regulatory or performance measurement/ reporting purposes. • Added information about the level of concern regarding use for regulatory or performance measurement purposes to the final report and dissemination plan.
Supporting content	Perspectives on the challenges of applying the definition consistently and the value of case scenarios for understanding the definition	TEP and stakeholder participants frequently referenced scenarios in considering how the definition did or did not apply to specific situations in nursing homes. They suggested adding illustrative examples and a glossary of terms to help users understand and interpret the definition. Participants also shared perspectives on practical considerations for operationalizing the definition in nursing homes.	• Added a section outlining principles for operationalizing the definition for quality purposes. • Added a section with examples illustrating use of the definition. • Added explanation of terms used in the definition. • Added references to the potential role for health information technology as a way to promote recordkeeping.

Content Area	Aspect of Definition	Feedback	Actions Taken
Supporting content	Causes and attribution	Participants raised a variety of concerns related to causes and attribution of omissions of care. Although there was broad agreement that it was helpful to separate cause and attribution from the definition, a few participants thought excluding those components made the definition less actionable. Participants thought the definition would be more useful if a list of possible causes were provided for users. Participants suggested phrasing causes (as possible) in terms of how nursing homes could improve.	• Added content on attribution, including explanation for its separation from the definition itself. • Added a section summarizing common causes of omissions applicable to nursing homes. • Revised list of causes of omissions to focus on the opportunity for improvement, rather than on a failure or insufficiency. • Added content addressing resident refusal of care.
Supporting content	Attribution to residents	TEP and stakeholder participants provided mixed feedback on including residents/family as a potential cause of omissions, citing concerns with obtaining, documenting, and honoring resident preferences. There was broad agreement that, when residents decline care, this should not be considered an omission.	• Noted explicitly that, when residents refuse care, this is not an omission, provided that the benefits and risks of refusing care are explained to the resident. • Added content addressing cognitive capacity. • Added content and an example addressing repeated refusals of care.

Content Area	Aspect of Definition	Feedback	Actions Taken
Supporting content	Definition of "care—either clinical or nonclinical—not provided"	TEP and stakeholder participants made numerous suggestions to improve or clarify this segment of the definition; thus, the phrase went through multiple versions. Suggestions included "medical or nonmedical," adding words such as "nursing," "not identified," or "not delivered competently," or "not provided in accordance with practice guidelines."	• Adopted the broadest, most inclusive phrase suggested so that the definition would encompass all forms of care and highlight person-centered, goal-concordant care. • Did not incorporate suggestions that shifted the definition toward including commissions of care or causes/attributions.
Supporting content	Examples of omissions	TEP and stakeholder participants made numerous suggestions regarding useful examples and provided feedback on the clarity and scope of these vignettes.	• Implemented and iteratively improved the examples of omissions.
Supporting content	Usability	TEP members noted that the supporting content was ultimately quite lengthy but also broad and conceptual. They thought that nursing homes would value direct, step-by-step implementation directions.	• Developed an Executive Summary aimed at providing a concise version of the definition and supporting content, and addressing ways different stakeholders could start implementing it. • Added this feedback to the dissemination plan.

Review of Resources, Tools, and Training

In this section, we present descriptions of resources, tools, and trainings that nursing homes could use in addressing omissions of care. The results are divided into two sections: first, a list of resources that are available free of charge (exhibit 8) and, second, a list of items that are copyrighted, proprietary, or fee based (exhibit 9). Each list is subdivided into sections according to the target harm or outcome on which the resource, tool, or training focuses.

Exhibit 8. Freely available resources, tools, training by targeted harm or adverse outcome

Target harm/adverse outcome: medication omissions and adverse drug events

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
Medication Management Technologies for Long-Term and Post-Acute Care: A Primer and Provider Selection Guide	Helps prevent omissions.	This guide describes medication management and issues related to medication management commonly experienced by older adults in a variety of care settings. The guide provides an overview of different medication strategies that mitigate these issues and discusses the potential role of various medication management technologies, citing evidence of efficacy or cost-effectiveness if found.	All care settings	Healthcare providers, residents	https://www.leadingage.org/white-papers/medication-management-technologies-long-term-and-post-acute-care-primer-and-provider
ARMOR Tool	Helps prevent and detect omissions.	The Assess, Review, Minimize, Optimize, and Reassess (ARMOR) screening tool provides a systematic, gradual approach for addressing polypharmacy in geriatric care facilities, particularly long-term care.	Geriatric care settings	Medical directors, clinicians, nurses, and pharmacists	https://www.managedhealthcareconnect.com/content/armor-a-tool-evaluate-polypharmacy-elderly-persons
AGS (American Geriatrics Society) 2015 Beers Criteria Toolkit	Helps prevent and detect omissions.	The AGS designed this guide to help heathcare providers enhance quality of care for older adults by limiting their exposure to potentially inappropriate medications. The guide explains the evidence-based criteria for minimizing inappropriate medication use and provides teaching slides, handouts, pocket cards, and other tools to use in clinical settings or give to residents and family.	Geriatric care settings	Nurses, pharmacists, physicians	https://geriatricscareonline.org/SearchResult/index/index/search_term/Beer%20criteria/clearSession/1

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
AGS Deprescribing Toolkit	Helps detect omissions.	This toolkit provides advice and tools for discontinuing unnecessary or potentially harmful medications.	Geriatric care settings	Nurses, pharmacists, physicians	https://geriatricscareonline.org/ProductAbstract/ags-deprescribing-toolkit/TK013/?param2=search
STOPP/START Medication Criteria Modified for US Nursing Home Setting	Helps prevent and detect omissions.	This intervention tool was developed in Ireland and modified for U.S. nursing homes, using data from electronic nursing home databases. The screening tool of older person's prescription (STOPP) evaluates prescriptions for potentially inappropriate medications or polypharmacy based on evidence-based criteria and the screening tool to alert doctors to right treatment (START) provides recommended treatments for specific conditions. The tool includes information on potential prescribing omissions.	Geriatric care settings	Medical directors, clinicians, nurses, and pharmacists	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5370573

Target harm/adverse outcome: falls and pressure ulcers

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
The Centers for Disease Control and Prevention's (CDC's) STEADI (Stopping Elderly Accidents, Deaths & Injuries) Initiative	Helps prevent and detect omissions.	The STEADI Algorithm for Fall Risk Screening, Assessment and Intervention helps facilities implement the American and British Geriatrics Societies' clinical practice guideline for fall prevention. STEADI consists of three core elements: Screen, Assess, and Intervene to reduce fall risk. The initiative includes online continuing education information about falls; screening tools; standardized gait and balance assessment tests (with instructional videos); educational materials for providers, residents, and caregivers; information on medications linked with falls; and clinical decision support for EHR systems and resident education.	All care settings	Healthcare providers, staff, patients, families	https://www.cdc.gov/steadi/index.html
The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities	Helps prevent and detect omissions.	This program aims to reduce omissions of care related to lack of person-centered care through resident engagement and staff education regarding fall care processes. This resource provides planning tools, checklists, resident screening and assessment tools, educational materials, instructions and tools for tracking and responding to falls, communication guidelines, monitoring and reporting methods, and advice for dealing with special circumstances, such as a resident with a history of falls.	Nursing homes	Staff and residents	https://www.ahrq.gov/professionals/systems/long-term-care/resources/injuries/fallspx/fallspxman1.html

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
On-Time Pressure Ulcer Prevention Self-Assessment Worksheet for Pressure Ulcer	Helps prevent and detect omissions and respond to them.	This form-based worksheet contains four sections: Screening for Pressure Ulcer Risk, Pressure Ulcer Prevention Plan, Communication Practices, and Investigations/Root Cause Analysis of Pressure Ulcer Development. The tool is designed to help staff understand current pressure ulcer prevention practices.	Nursing homes	All healthcare team members	https://www.amtwoundcare.com/uploads/2/0/3/7/20373073/on-time_pressure_ulcer_prevention_worksheet.pdf
AHRQ's Safety Program for Nursing Homes: On-Time Prevention	Helps prevent and detect omissions and respond to them.	This program focuses on pressure ulcer prevention, pressure ulcer healing, avoidable hospitalizations, and fall prevention by using medical records to identify residents who are at risk for adverse events. Reports allow staff to monitor and intervene early, thus avoiding potential omissions. This intervention also uses a facilitator—a staff member responsible for incorporating information on risks and adverse events into care planning and encouraging communication among staff.	Nursing homes	All healthcare team members	https://www.ahrq.gov/professionals/systems/long-term-care/resources/ontime/index.html

Target harm/adverse outcome: documentation omissions and errors

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
Medical Errors in Nursing: Preventing Documentation Errors Tip Sheet	Helps prevent omissions.	This tip sheet provides a list of common documentation errors and documentation "Dos and Don'ts." It can be used as a training tool or as a checklist for monitoring documentation quality. The web page for the tip sheet also provides details on common documentation problems, such as missing, unclear, or illegible data, as well as failure to document omissions of care and the reasons for the omission.	All care settings	Nurses, certified nursing assistants, medical technicians	https://www.medcomrn.com/index.php/articles/prevent-documentation-errors-nursing/
Nursing Home Documentation Form	Helps prevent and detect omissions.	Developed by researchers, this one-page form is designed for use when a clinician visits a resident. It groups documentation components into boxes to record information and prompts providers to conduct common assessments (e.g., geriatric depression scale). This form was tested by the authors, who indicated that it had improved efficiency and quality of care.	Nursing homes	All healthcare team members	http://www.aafp.org/fpm/2012/0300/p19.html

Target harm/adverse outcome: communication omissions and errors

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
TeamSTEPPS Toolkit	Helps prevent omissions.	This resource is designed to increase communication and teamwork among healthcare providers, which are known to be crucial for reducing omissions of care. The TeamSTEPPS program includes materials specifically adapted for long-term care, as well as resources designed for general audiences. The toolkit includes materials such as a comprehensive training curriculum, guides for trainers and trainees, a suite of training videos and slide decks, and a suite of tools for implementing and monitoring TeamSTEPPS in a facility.	All care settings	All healthcare team members	https://www.ahrq.gov/teamstepps/longtermcare/index.html
SBAR Toolkit: Situation-Background-Assessment-Recommendation (requires registration)	Helps prevent and detect omissions.	The Institute for Healthcare Improvement's suite of SBAR (Situation-Background-Assessment-Recommendation) tools encompasses evidence-based techniques for team communication about a patient's condition. The toolkit includes two components: (1) SBAR Guidelines that explain in detail how to implement the SBAR technique; and (2) a worksheet/script a provider can use to document needed information in readiness for communication. A complementary SBAR communication tool is also available.	All care settings	All healthcare team members	http://www.ihi.org/resources/Pages/Tools/SBARToolkit.aspx
Nursing Teamwork Survey (NTS) Tool	Helps detect omissions.	The NTS is an instrument that assesses individual nursing team members' perceptions of teamwork to help healthcare facilities ensure adequate staffing.	Inpatient care settings	Nursing staff	https://www.researchgate.net/publication/40687638_The_Development_and_Testing_of_the_Nursing_Teamwork_Survey

Target harm/adverse outcome: infections and antimicrobial stewardship

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
CDC Core Elements for Antibiotic Stewardship in Nursing Homes	Helps prevent and detect omissions.	The Core Elements program provides concise advice for establishing and maintaining an antimicrobial stewardship program. This program includes content on establishing leadership and setting policy, acquiring drug and infectious disease expertise, educating staff, and selecting measures for monitoring infections and antibiotic use.	Nursing homes	All healthcare team members	https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html
IOU Toolkit: Improving Outcomes of UTI	Helps prevent and detect omissions.	This toolkit includes standard physician order forms for a suspected urinary tract infection (UTI), forms for monitoring urinary symptoms, case-based educational materials, frequently asked questions on antibiotic treatment for uncomplicated cystitis, and a trifold pocket card guide to help clinicians differentiate between and treat UTI and cystitis. The toolkit also includes a paper describing the development of consensus guidelines for the empiric treatment of simple cystitis in long-term care residents.	Long-term care settings	Clinicians	https://paltc.org/content/iou-toolkit

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
AHRQ Nursing Home Guide to Antimicrobial Stewardship	Helps prevent and detect omissions and respond to them.	This comprehensive guide to antimicrobial stewardship in nursing homes provides toolkits to help facilities establish, carry out, and monitor antimicrobial stewardship activities. Toolkits provide step-by-step advice and ready-to-use forms and materials to establish a stewardship program, educate staff, facilitate documentation and communication regarding suspected infections, track and monitor infections and antibiotic use, help clinicians choose appropriate antibiotics, and educate residents and their families.	Nursing homes	All healthcare team	https://www.ahrq.gov/nhguide/index.html

Target harm/adverse outcome: all causes of harm

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
All Cause Harm Prevention in Nursing Home Change Package Guide	Helps prevent omissions and respond to them.	The Change Package describes successful practices of high-performing nursing homes (i.e., how they prevent harm while respecting residents' rights and preferences) and strategies to prevent specific adverse events.	Nursing homes	Nursing home administrators, staff, residents, families	https://qioprogram.org/all-cause-harm-prevention-nursing-homes
AGS Multimorbidity Toolkit	Helps prevent omissions and respond to them.	The AGS's Multimorbidity Toolkit provides evidence-based information, training, and tools to improve care for residents who are complex or have multiple morbidities. These residents are at high risk for experiencing omissions of care.	Geriatric care settings	Medical directors, clinicians, nurses	https://geriatricscareonline.org/toc/multimorbidity-toolkit/TK011

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
Care Dependency Scale (CDS)	Helps prevent and detect omissions and respond to them.	The CDS instrument supports a comprehensive professional evaluation of residents' needs in nursing homes in order to determine appropriate care. The CDS questionnaire consists of 15 items regarding the physical and psychosocial needs of nursing home residents.	Nursing homes	Nursing home administrators, staff, residents, families	https://www.umcg.nl/SiteCollectionDocuments/research/institutes/SHARE/assessment%20tools/CDS%20manual%20english.pdf
Nursing Home Incident Reporting Manual	Helps detect omissions.	This is an example of State-level tools available in many U.S. States. The objective of this manual, developed by the New York State Department of Health, is to provide guidance to all skilled nursing facility staff responsible for reporting incidents, such as alleged mistreatment, neglect, and abuse; injuries of unknown source; and misappropriation of resident property. It is a resource meant to clarify and guide staff regarding what incidents are reportable and how they should be reported.	Nursing homes	Nursing home administrators, staff, residents, families	https://www.health.ny.gov/professionals/nursing_home_administrator/docs/incident_reporting_manual.pdf
Long-Term Care Improvement Guide	Helps prevent omissions and respond to them.	This guide provides concrete strategies for implementing a resident-directed, relationship-centered philosophy in an organization or community.	Long-term care facilities	All healthcare team members	https://planetree.org/wp-content/uploads/2015/05/LTC%20Improvement%20Guide%20For%20Download.pdf

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
Patient-Centered Care Improvement Guide	Helps prevent omissions and respond to them.	This guide helps organizations become more person centered. It includes a self-assessment tool for identifying and prioritizing opportunities for implementing person-centered approaches, a framework for organizational culture change, information about common barriers to implementation of person-centered care, strategies for successful implementation, and examples of best practices.	All care settings	All healthcare team members	https://www.nursinghometoolkit.com/additionalresources/Patient-CenteredCareImprovementGuide.pdf

Target harm/adverse outcome: care transitions and patient safety

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
Technical Series on Safer Primary Care: Transitions of Care	Helps prevent omissions.	This World Health Organization resource defines transitions of care before examining approaches to improve safety during transitions. It describes how effective transitions of care require attention to both clinical and nonclinical issues, such as the patient's cognitive and functional status, housing, transport and support from families, caregivers, and social services. Key areas for improvement include an increased focus on the needs of patients and their families and caregivers, improved communication with patients and between healthcare providers across settings, and the need for recognition of care transition as an integral component of care coordination.	All care settings	Healthcare providers	http://apps.who.int/iris/bitstream/10665/252272/1/9789241511599-eng.pdf?ua=1

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
A Good Welcome: The First 24 Hours Tip Sheet	Helps prevent omissions.	This resource was developed by Pioneer Network's National Learning Collaborative. It provides strategies to support individualized care during the resident's first 24 hours in a nursing home.	Nursing homes	All healthcare team members	https://www.pioneernetwork.net/wp-content/uploads/2016/12/A-Good-Welcome-The-First-24-Hours-Tip-Sheet.pdf
Nursing Home Survey on Patient Safety Culture Toolkit	Helps prevent and detect omissions and respond to them.	This toolkit allows facilities to evaluate staff- and resident-reported perceptions and incidents related to patient safety. These surveys may be useful in identifying omissions and related adverse events and can also be used concurrently to evaluate discrepancies between staff and resident evaluations.	Nursing homes	All healthcare team members	https://www.ahrq.gov/sops/surveys/nursing-home/index.html
AHRQ Quality Indicators Toolkit	Helps prevent and detect omissions and respond to them.	AHRQ quality indicators include patient safety measures that focus on avoidable errors. These measures, which use administrative data and were designed to measure hospital care, can be used in other settings to identify adverse events or the potential for adverse events that may need further evaluation.	Hospitals	All healthcare team members	https://www.qualityindicators.ahrq.gov/Resources/Toolkits.aspx

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
CUSP toolkit	Helps prevent and detect omissions and respond to them.	The Comprehensive Unit-based Safety Program (CUSP) is an intervention designed to encourage providers to implement best practices in patient safety. CUSP provides a comprehensive curriculum, training videos and slides, role descriptions, sample agendas, and tools such as checklists, surveys, and advice for observing and monitoring care. These tools include sections that specifically capture omissions of care or lack of assessment.	All care settings	Physicians	https://www.ahrq.gov/professionals/education/curriculum-tools/cusptoolkit/index.html
Common Formats for Event Reporting in Nursing Homes Tool	Helps respond to omissions.	This resource allows care providers to report patient safety events as soon after an incident as possible. Types of events include: (1) incidents, which are errors or events that adversely affect the resident; (2) near-misses, which are errors or events that had the potential to affect the resident; and (3) unsafe conditions, which are events that increase risk for adverse events. Care providers can report incidents, near-misses, or unsafe conditions for problems related to devices or medical supplies, falls, infections, medications, and pressure ulcers. This resource has the potential to link adverse events (incidents and near-misses) with their possible causes (unsafe conditions and omissions of care).	Nursing homes	Healthcare providers	https://pso.ahrq.gov/common
System Strategies To Improve Patient Safety and Error Prevention	Helps prevent omissions and respond to them.	A system of strategies developed at the Institute of Medicine to establish a culture of safety, improve handover processes, use adverse event and error-reporting systems, and improve communication and task performance.	Hospitals	Physicians and staff	https://www.ncbi.nlm.nih.gov/books/NBK214937/

Name	Potential Use for Omissions	Description	Intended Care Setting	Target Users	Link
INTERACT Toolkit	Helps prevent omissions.	Intervention to Reduce Acute Care Transfers (INTERACT) includes clinical and educational tools to help long-term care facilities manage acute changes in resident condition.	Nursing homes, long-term care facilities	All healthcare team members	http://www.pathway-interact.com/
A Toolkit for Clinicians Rounding in Long-Term Care Facilities	Helps prevent omissions.	Developed by researchers, this toolkit is intended to prevent limitations to a thorough clinical evaluation that result from a lack of appropriate equipment in a nursing home. The toolkit provides an inventory list for creating a medium-sized bag containing everything clinicians need for frequent tasks and a pocket-card to support routine communication with residents about their daily care and quality of life.	Nursing homes, long-term care facilities	Physicians	https://www.aafp.org/fpm/2012/1100/p14.html
Institute for Healthcare Improvement (IHI) Skilled Nursing Facility Trigger Tool for Measuring Adverse Events	Helps detect omissions and respond to them.	Based on the IHI Global Trigger Tool methodology, this tool provides a way to accurately identify adverse events and measure adverse event incidence over time in skilled nursing facilities (SNFs). It includes step-by-step instructions for using this methodology to identify adverse events in SNFs and determine levels of associated harm; detailed information on designing a Trigger Tool review; a list of SNF-specific triggers and definitions; examples of adverse events that occur in SNFs; and an extensive Frequently Asked Questions section.	Skilled nursing facilities	All healthcare team members	https://oig.hhs.gov/compliance/compliance-resource-portal/files/IHI%20Guidance%20Document%20-%20Skilled%20Nursing%20Facility%20Trigger%20Tool.pdf

Exhibit 9. Proprietary and fee-based resources, tools, training by targeted harm or adverse outcome

Target harm/adverse outcome: medication omissions and adverse drug events

Name of Tool	Potential Use for Omissions	Description of Tool	Intended Care Setting	Target Users	Link
How-to Guide: Prevent Adverse Drug Events—Medication Reconciliation (fee based)	Helps prevent and detect omissions.	This guide describes evidence-based care components for preventing adverse drug events by implementing medication reconciliation at admission, transfer, and discharge; describes how to implement these interventions; and recommends measures to track improvement. The guide includes a Medication Reconciliation Flowsheet to help staff with medication reconciliation processes and a Medication Reconciliation Form to track a patient's medications on admission, transfer, and discharge.	All care settings	Nurses, pharmacists, physicians	http://app.ihi.org/LMS/Content/2cf9e482-3e91-4218-afe3-22f77b5025bc/Upload/HowtoGuidePreventADEs.pdf

Target harm/adverse outcome: falls and pressure ulcers

Name of Tool	Potential Use for Omissions	Description of Tool	Intended Care Setting	Target Users	Link
Robust Process Improvement Tool Kit: The Fall Risk Assessment Tool (proprietary)	Helps prevent omissions.	Robust Process Improvement (RPI®) is a blended performance improvement model for hospitals that incorporates Lean Six Sigma and formal change management—methods that address efficiency, empowerment, quality, and the behavioral side of change. The fall risk assessment tool includes implementation and integration of a standardized cognitive assessment tool to better understand and rate fall risk.	Hospitals	Nurses	https://www.jointcommission.org/assets/4/6/Falls_10_reasons_chart.pdf

Name of Tool	Potential Use for Omissions	Description of Tool	Intended Care Setting	Target Users	Link
Targeted Solutions Tool® (TST®): Preventing Falls (proprietary)	Helps prevent and detect omissions and respond to them.	Developed by the Joint Commission's Center for Transforming Health Care, the online Preventing Falls Targeted Solutions Tool® (TST®) takes the user through a step-by-step process for measuring performance, identifying barriers to excellent performance, and implementing the center's solutions for addressing specific barriers and preventing falls. TST uses the Joint Commission's Robust Process Improvement methods, which are also proprietary.	All care settings	Healthcare organizations	https://www.centerfortransforminghealthcare.org/what-we-offer/targeted-solutions-tool/preventing-falls-tst
Clinical Practice Guidelines for Pressure Ulcers Online Courses (fee based)	Helps prevent omissions.	Provided by AMDA—The Society for Post-Acute and Long-Term Care Medicine, these online continuing medical education courses for health care providers focus on pressure ulcers. The topics include prevention, treatment, nutritional aspects of care, and risk management.	Nursing homes, long-term care facilities	Healthcare providers	https://paltc.org/topic/pressure-ulcers

Target harm/adverse outcome: documentation errors

Name of Tool	Potential Use for Omissions	Description of Tool	Intended Care Setting	Target Users	Link
Errors and Omission Tracking Tool (fee based for PointClickCare users)	Helps detect omissions and respond to them.	The PointClickCare EHR platform provides tools to track errors and omissions of care. The tools organize resident data electronically, and auditing can be performed on a daily basis. Data can be electronically captured and autopopulated into a look-back, creating more efficient coding and accurate documentation. Tools are included to assist with scheduling, management, and review of Minimum Data Set (MDS) assessments.	Nursing homes	All healthcare team members	https://pointclickcare.com/senior-healthcare-software-solutions/errors-and-omission-tracking/

Target harm/adverse outcome: communication errors

Name of Tool	Potential Use for Omissions	Description of Tool	Intended Care Setting	Target Users	Link
Hand-Off Communications TST (fee based)	Helps detect omissions and respond to them.	The Hand-Off TST is an online tool that measures the effectiveness of handoffs within an organization or to another facility and provides evidence-based solutions. The tool uses the Joint Commission's Robust Process Improvement methods, which are also proprietary.	All care settings	Healthcare organizations	https://www.centerfortransforminghealthcare.org/what-we-offer/targeted-solutions-tool/hand-off-communications-tst

Target harm/adverse outcome: care transitions and patient safety

Name of Tool	Potential Use for Omissions	Description of Tool	Intended Care Setting	Target Users	Link
Know-it-All™ Before You Call Data Collection System in the PALTC & Assisted Living Setting Tool (fee based)	Helps prevent and detect omissions.	This tool allows staff to gather resident information, such as medical history and records, before contacting a physician or other healthcare provider about any change in condition. Consisting of a series of data collection cards, the tools help nursing staff evaluate residents and communicate relevant details about a resident's condition, thereby supporting high-quality decision making.	Nursing homes, long-term care facilities	Nursing staff	https://paltc.org/product-store/know-it-all%E2%84%A2-you-call-data-collection-system-paltc-assisted-living-setting
Know-It-All When You're Called Diagnosing System Guide (fee based)	Helps prevent omissions.	This is a companion guide designed to help healthcare providers identify change of condition when contacted by facilities using the Know-It-All tool. It includes information about data to expect from the nurse, suggestions of geriatric diagnoses related to the information given, a followup process for various time points, and information to facilitate making the "stay or go" decision.	Nursing homes, long-term care facilities	Physicians	https://paltc.org/product-store/know-it-all%E2%84%A2-when-you%E2%80%99re-called-diagnosing-system

Secondary Data Sources for Identifying Omissions

During the reviews of literature and resources, we extracted information about data sources used to capture omissions of care. TEP members also suggested data sources that have been or could be used to prevent, detect, or monitor omissions of care in nursing homes. To present this information, we divided the data sources into two groups. The first group includes data sources that were well documented in the literature and for which there was enough information on key features, such as strengths and limitations. The second group includes other potential data sources that we could not consistently evaluate for these key features because, for example, these data sources are less frequently used or more recently developed.

Commonly Used Data Sources

Data collected at nursing homes can be used by staff to detect, monitor, report, and address omissions of care. In the environmental scan, we observed that studies focused on omissions of care relied heavily on questionnaires, many of which focused on nursing practices, staffing practices, or safety culture. In addition, studies often used medical and administrative records, including staffing records, which looked at data such as absenteeism. A few studies used other data sources, such as claims, discharge summaries, or interviews.

Many of the resources and tools described in the previous section generate data that could be used to support comprehensive monitoring of omissions for quality purposes. For example, nursing homes that use risk management, trigger, or quality reporting tools may already be extracting or collecting secondary data that could be used for omissions. For brevity's sake, we have limited repetition of information about these items in this section.

Looking across articles for all adverse events included in the environmental scan, we found the most commonly used data source was the Minimum Data Set (MDS). Other commonly used data sources included claims data, medical charts, Interventions to Reduce Acute Care Transfers (INTERACT) data, and national survey data sources such as the National Survey of Residential Care Facilities and the Medicare Current Beneficiary Survey. Many other data sources were particular to a single type of adverse event. For example, sources of mortality data or hospitalization data were used only in studies assessing omissions for those specific events.

Several measures of nursing home quality are available (e.g., deficiency citations in the Online Survey, Certification, and Reporting [OSCAR] data; quality measures from the Centers for Medicare & Medicaid Services [CMS]; and Nursing Home Compare—but these do not directly measure individual resident care), as are staff-reported assessments of care omissions, available through surveys such as the Missed Nursing Care (MISSCARE) Survey. Clinical intervention programs, such as INTERACT, are useful in that they capture omissions of care and can be linked to claims data to evaluate adverse events, but data from INTERACT are not widely available.

Resident assessment data: Minimum Data Set and Care Area Assessment (MDS/CAA). The Resident Assessment Instrument provides standard forms for MDS/CAA, along with standardized guidelines for completing the assessment. They are completed on admission and then at least quarterly for all residents in nursing homes. The highly structured nature of MDS/CAA data permits relative ease in reporting, particularly for sites that maintain data within an EHR. By comparing change over time, nursing homes can use the data to detect adverse events, such as declining cognitive status, that may signal the presence of omissions of care. Similarly, lack of change may also signal omissions. For example, if the CAA data reflect continued triggers for the same area of care, such as the need for a return to community referral, care omissions could be a factor. See exhibit 10 for an overview of this data source.

By comparing reports of rates or extracted lists of residents meeting specific criteria with data from other sources, nursing homes may be able to detect omissions of care. For example, if the resident has indicated that it is very important that a family member be involved in care decision making but other records do not reflect that person's involvement, this discrepancy could indicate an omission of care. Comparison of MDS data with other documentation may also reveal discrepancies in reported care that may indicate omissions. For example, if the MDS/CAA indicates a need for physical therapy but none is recorded in the medical chart, this discrepancy could indicate an omission.

Exhibit 10. Overview of MDS/CAA data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	- Omission of obtaining, documenting, and honoring resident preferences or providing person-centered care - Omission of needed services or interventions, such as help with ADLs or clinical evaluation for depressed mood - Omission of preventive care, such as care to prevent falls - Omission of needed medical therapies, such as medications for hypertension - Omission of care planning or referral, such as for hospice or return to community - Omission of staff communication or teamwork - Omission of documentation or need for improved documentation clarity or comprehensiveness
Can be used to support identification of these adverse outcomes associated with omissions of care	- Cognitive decline - Avoidable hospitalization - Death - Delirium - Depression - Disability

Key Aspect	Characteristics of This Type of Data
	• Falls
	• Decline in functional status
	• Incontinence
	• Infection
	• Pressure ulcers
	• Untreated pain
Strengths of the data	• Comprehensive in scope
	• Structured format
	• Available for all residents
	• Collected continuously on a set schedule
	• Overall moderate reliability, validity, and positive predictive value of clinical and medication data[12]
Limitations of the data	• Reliance on facility staff judgment and proxy assessments of resident experience
	• Inconsistency in the way the assessment process is completed due to inconsistency of clinical or care staff who participate in the assessments
	• Possibly incomplete data
	• Possibility that data collected periodically may not be sufficiently up to date

Medical records. Medical records are another common source of secondary data for identifying or reporting omissions of care. Medical records include data sources such as the medical chart, physician orders, prescription records, care plans, and a variety of associated tools or documents (e.g., SBARs or notes about communication with family members). Medical records indicate what care was needed, what was provided, and what the outcomes were.

Although many nursing homes have adopted electronic medical records systems, many others continue to use paper records. Nursing homes that do use electronic systems vary in their capacity to use them for data analysis and reporting. Thus, the utility of medical records for identifying omissions will vary by facility depending on the ease with which staff can extract and analyze the required data. A detailed methodology for using medical records to assess adverse events' preventability and degree of harm is described in the OIG report on adverse events in skilled nursing facilities.[5] See exhibit 11 for an overview of this data source.

Data needed to identify omissions for individual residents may reside in multiple records systems, including those held by external physicians or hospitals, which nursing home staff may not be able to access. Recently, one researcher described the complexity of long-term-care setting record keeping and data sharing in connection with a study of a new data access model aimed at improving communication and record sharing during transitions.[13] The study not only

illustrated how obstacles and failures in data sharing or data access may themselves constitute omissions of care but also highlighted how fractured and inconsistent data storage and transfer methods are. In any given interaction, clinicians may be using multiple electronic and paper systems, including fax or email.

The volume of medical records is another crucial factor. Medical records for nursing home patients may be extensive, containing hundreds of pages. Regardless of format, this volume creates challenges for efficiently pinpointing, extracting, and reporting desired data.

Exhibit 11. Overview of medical records data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	• Omitted documentation of status, signs, and symptoms • Omitted therapies or interventions for a wide variety of conditions or needs • Omitted communication among staff, with physicians, or with family members • Omitted surveillance for risk factors or for followup • Omitted care planning, including advance care plans • Omitted psychosocial care
Can be used to support identification of these adverse outcomes associated with omissions of care	• Missed or incorrect diagnoses • Medical errors • Use of incorrect or unnecessary therapies or interventions • A wide variety of health-related outcomes such as infection, injury, hospitalization, or death
Strengths of the data	• Available for all residents • Covers a wide spectrum of relevant data • Continuously collected and up to date • Can make data reporting less burdensome
Limitations of the data	• Can be burdensome to use paper records for data reporting • Possibly inconsistent records in terms of content or quality • May be difficult or time-consuming to extract needed data • May have medical records held at the nursing home that do not reflect relevant content stored by treating physicians, such as specialists

INTERACT data. INTERACT tools are designed to support nursing homes in identifying, documenting, and communicating changes in resident condition with the specific aim of reducing avoidable hospitalizations, as well as improving the quality and efficiency of necessary hospital transfers. Nursing homes that use these tools collect and report a variety of information that can also be used to identify and report omissions of care. For example,

INTERACT includes early warning tools for documenting outcomes (e.g., changes in weight or level of need for assistance) that may signal omissions of care. INTERACT data can also be linked or compared with data from other sources to develop a more complete picture of provided care and resident outcomes. See exhibit 12 for an overview of this data source.

Exhibit 12. Overview of INTERACT data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	• Omissions in communication or teamwork between providers • Omitted surveillance or resident assessment • Need for followup on change in condition • Omitted medication reconciliation
Can be used to support identification of these adverse outcomes associated with omissions of care	• Avoidable hospitalization • Malnutrition • Unmet needs for care or therapy • Decline in physical or mental status
Strengths of the data	• Specifically designed to prevent events associated with omissions of care
Limitations of the data	• Nursing homes not using the tools or using them inconsistently • Nursing homes not using all tools needed to generate helpful data

Staffing records. These records include staff work schedules, credentials, and certifications, and records of training provided or completed. Because many omissions of care are linked with staffing levels and staff training, facility staffing records may prove valuable in detecting omissions. Resident outcomes can be compared with staffing records as a way to understand whether staffing may be contributing to care omissions.

Similarly, staffing records can be used in conjunction with the MDS, staff surveys, quality measures, or survey and certification data to detect possible omissions. For example, MDS data can be used to ascertain the workload represented by the resident population's need for specific types of care, such as assistance with ADLs. This burden can then be compared with staffing levels to determine whether sufficient staff are allocated to providing needed ADL assistance.[14] See exhibit 13 for an overview of this data source.

Exhibit 13. Overview of staffing data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	• Omitted resident assessment or surveillance • Omitted support of ADLs • Omitted environmental control to prevent infection • Omitted communication or teamwork • Omitted record keeping
Can be used to support identification of these adverse outcomes associated with omissions of care	• Preventable events, such as falls and infections • Unmet needs • Decreased resident well-being, including psychosocial well-being • Medical errors
Strengths of the data	• Nursing homes already collecting and reporting relevant data to CMS
Limitations of the data	• Staffing data of limited value by themselves

Electronic prescribing or medication administration systems. Although many nursing homes do not have electronic systems to manage prescribing or medication administration, many do. Depending on the system, these electronic records can be used, without labor-intensive medical chart extraction, for auditing medication use, detecting missed doses of medication, and detecting doses that are delivered late.[15] Systems can generate automatic alerts for specific types of omissions or adverse events. Staff can create operational-, quality committee-, or administrative-level reports. For example, operational uses might include daily reports or dashboards that report real-time results, while quality uses might call for monthly reports. See exhibit 14 for an overview of this data source.

Exhibit 14. Overview of electronic prescribing/medication administration data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	• Omitted or late doses of medication • Omitted medication reconciliation • Omitted risk assessments recommended for specific medications • Omitted monitoring for side effects or changes in resident condition, such as deterioration or improvement
Can be used to support identification of these adverse outcomes associated with omissions of care	• Medication errors • Adverse drug reactions or interactions

Key Aspect	Characteristics of This Type of Data
Strengths of the data	• Reduced labor associated with extracting information from medical records • Built-in alerting and reporting and ability to inform quality indicators • Reporting available at various levels, including by resident, department, or clinical area
Limitations of the data	• Designed primarily for hospitals and may not track all needed types of data for nursing homes

Administrative claims data. Across the literature, claims data were infrequently used. However, claims information can be used to generate reports of rates of care that may help facilities identify omissions more quickly than medical record review. For example, claims for reimbursement for immunizations could be used to help identify residents who did not receive needed vaccines. See exhibit 15 for an overview of this data source.

Exhibit 15. Overview of administrative claims data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	• Omitted therapies or treatments • Omitted physical activity or ADL-related programs • Omitted screenings or assessments • Omitted use of assistive devices, such as walkers and hearing aids
Can be used to support identification of these adverse outcomes associated with omissions of care	• A wide variety of health-related outcomes that necessitate treatment, such as infection, injury, and hospitalization • Unmet needs • Incorrect or unnecessary treatment
Strengths of the data	• Available for all residents • Up to date
Limitations of the data	• Only capture information about reimbursable care activities • Depending on number and variety of payers, may be difficult for nursing homes to retrieve and use • Require specialized skills to use

Surveys. A wide variety of surveys may be used to gather information that may be useful for identifying and reporting omissions or assessing factors associated with systemic omissions (e.g., staff satisfaction). Nursing homes that are using or are willing to use these instruments may obtain useful insights and points of comparison across time.

Similarly, national surveys and their results may be helpful as benchmarks or for ascertaining where common problems lie and formulating strategies for detecting and addressing them in individual facilities. However, these instruments are of limited use for day-to-day detection and reporting of facility-level omissions. See exhibit 16 for an overview of this data source.

The following survey instruments have been used in studies of omissions of care in nursing homes:

- AHRQ Nursing Home Survey on Patient Safety Culture, which captures opinions about facility teamwork, staffing, training, compliance with procedures, communications, and safety

- MISSCARE Nursing Survey, which captures staff self-report about missed care in nursing homes

- Job satisfaction surveys, such as the Nursing Home Employee Satisfaction Survey (CMS)

- Basel Extent of Rationing of Nursing Care (BERNCA) survey, which captures nurse self-report on ability to perform activities in patient care and support, including monitoring and safety

- Next Step In Care: Nursing Home Self-Assessment Survey on Patient Transitions and Family Caregivers, which captures staff self-report on a variety of practices, processes, and experiences related to transitions to or from the nursing home

- Safety Attitudes Questionnaire (SAQ), designed for hospitals, which captures staff report on teamwork, working conditions, safety climate, job satisfaction, stress, and views on management

- Practice Environment Scale of the Nursing Work Index (PES-NWI), designed for hospitals, which captures reports of staffing and resource sufficiency, teamwork and communications, and leadership.

Finally, large-scale national surveys or nationwide studies have been used for research purposes or benchmarking. Examples include:

- CDC's National Survey of Residential Care Facilities, which collected a variety of data in 2010;

- National Study of Long-Term Care Providers, which collects data and reports on utilization, facility capacity, staffing, services provided, and patient population characteristics; and

- American Health Care Association's Skilled Nursing Staffing Survey, which collects data and reports on staff turnover, retention, and vacancy rates.

Exhibit 16. Overview of survey data

Key Aspect	Characteristics of This Type of Data
Can be used to support identification of these omissions	Varies according to survey content, but could include: • Omitted therapies or treatments • Omitted doses of medication • Omitted physical activity or ADL-related care • Omitted psychosocial care • Omitted monitoring, screening, or resident assessment • Omitted communication, teamwork, or documentation
Can be used to support identification of these adverse outcomes associated with omissions of care	• A wide variety of health-related outcomes that necessitate treatment, such as infection, injury, and hospitalization • Unmet needs • Isolation
Strengths of the data	• Can capture data that are not available otherwise • Facilitate comparison among nursing homes or establishment of benchmarks
Limitations of the data	• May present cost or logistical obstacles for individual facilities • Largely depend on self-report by staff, residents, or family • May not be able to link survey results with specific facilities, events, or residents • May not include questions on important topics for nursing homes if developed for other settings • May not include individuals representative of the broader population

Other Data Sources Facilities Could Use

Through the literature review and interactions with TEP and stakeholder participants, we identified several other potential data sources nursing homes could use. Although these data sources are known to be useful, we did not have the same level of detail about types of omissions, outcomes, strengths, and limitations as we did for other data sources.

Observations or interviews with residents, family members, clinicians, or staff. Often used in research and by State surveyors, direct observations and interviews can be a rich source of information about omissions of care.[16] Direct observations can be used to monitor whether care activities are being carried out as needed or assess the sufficiency of allocations of staff and time to carry out care. Interviews can be useful in detecting and understanding what omissions are commonly occurring in a nursing home because of systemic or habitual practices.

Similarly, interviews are useful during root cause analysis of substantial omissions. Interviewers can elicit information about the full spectrum of factors pertinent to an omission—the who, what, why, when, and how. These data collection and assessment methods are uniquely capable of capturing data that are not recorded in written or electronic sources.

Customized checklists. Nursing homes can create their own quality checklists to prevent, detect, and monitor omissions. Checklists can be used to prevent omissions of care by providing a structured reminder of what must be done; these could apply to care that is routinely given or could be created for an individual resident's specific needs. As an alternative, checklists could be created for situations in which omissions tend to occur, such as busy days on which multiple residents are admitted or discharged. Routine review of checklists by a designated staff member enables detection of omissions. Checklists can also be used to generate data for monitoring performance.

Measures of care quality, safety, or individual health status. Care quality, safety, or health status measures can be calculated using data from EHRs or claims data, or based on structured assessments by a staff member, resident, or family member. Measures can be used to evaluate performance—typically, by using an aggregate rate to capture specific points of care, such as numbers of infections or rate of antibiotic prescribing. They also can be used to provide actionable data about individuals (for example, a list of residents with a specific medical condition who should have a prescription but do not).

As part of detecting or addressing omissions, patient-reported outcome measures (e.g., for fatigue or pain), provider assessments using indexes such as the AHRQ Harm Scale, or health status metrics generated from secondary data (e.g., the Frailty Index) can be used to support assessment of magnitude of harm or risk of unwanted outcomes for individual residents.

Bunce and colleagues (2017) observed that clinicians found individual-level data more useful and actionable for quality purposes than aggregate, facility-level performance indicators.[17] These data permitted clinicians to determine how to respond, as well as to ascertain whether other contextual information explained an omission. In the aggregate, these reports also helped clinicians and organizations understand what other contextual information, such as resident preferences or a clinical judgment, should be recorded and where. Over time, such understandings can drive overall improvements in data collection and reporting.

Discharge records, care coordination communications, and transition-related documentation. Communications and records associated with care transitions both to and from nursing homes may be useful in identifying or preventing omissions of care. Some efforts, such as INTERACT, aim to standardize processes and records for transitions and coordination of care, but in general, facilities develop their own protocols for record keeping and communication related to intake and discharge. In addition, the kinds of records nursing homes receive from other

providers who refer or receive residents will vary. To make use of these data sources, nursing homes would need to evaluate the data they typically receive or provide and determine whether they can be used to monitor omissions of care.

Regulatory survey reports and complaint records. Regulatory nursing home survey reports and records of complaints submitted to State survey and certification agencies may provide valuable insight into omissions of care. In addition to detecting care omissions during routine visits, surveyors may uncover and report information about omissions of care during complaint investigations, such as through interviews with staff or residents.

Nursing home quality assurance and performance improvement (QAPI) or other committee meetings. Nursing homes may have committees charged with addressing issues related to omissions of care. For example, QAPI committees may collect and analyze information that could be used to identify omissions of care. Meetings that openly address quality matters; address root causes of medical errors; or review events such as infections, injuries, and deaths in the facility may surface information about omissions of care that are not recorded in medical or other records. Nursing homes can consider how committees that uncover such information can document and communicate it so they can use it to address omissions of care.

Resident experience surveys. Resident and family experience or customer satisfaction surveys are available for nursing homes, including the three Consumer Assessment of Healthcare Providers and Systems (CAHPS) Nursing Home Surveys, available from AHRQ. Some surveys are companion surveys to instruments that nursing home staff complete (e.g., the Next Step In Care (www.nextstepincare.org) includes surveys for nursing homes and for family caregivers). Some surveys, such as CoreQ (www.coreq.org), are very brief and capture overall satisfaction, while others include many detailed questions about care processes and communications.

Brief measures, when collected consistently, can help nursing homes detect variations in care satisfaction that may signal that omissions are occurring. More comprehensive surveys, such as the CAHPS surveys, can help pinpoint specific issues, such as omissions of basic care such as bathing or keeping the resident's environment clean.

Risk management and auditing systems. Integrated systems that collect, extract, or manage data for rapid reporting and risk management have begun to appear for nursing homes. These systems are designed to extract data from available sources or accept staff reports of adverse events and near-misses. Some tools are offered as part of an EMR system, while others are available as standalone systems that draw data from a variety of sources. Nursing homes that are part of a larger health system or chain may have access to a custom data management and reporting system that captures information about falls, medication events, and the like. Although many nursing homes may not currently have these systems, they are likely to become more common.

Key features of these systems include automated alerts, such as pop-ups or email notifications, that are intended to improve response to risks and events. As patient care grows increasingly complex, such systems offer ways to manage the large quantity of documentation, communication, and reporting necessary to achieve high-quality care. At the same time, these systems may help reduce duplication of effort, improve compliance with record keeping, enhance data accuracy and comprehensiveness, and make data auditing more feasible and less time consuming.

- **System embedded in an EMR.** PointClickCare (https://pointclickcare.com/) is an EMR system used by many nursing homes nationwide. It offers risk management and auditing tools with integration of data from sources such as INTERACT or embedded decision support tools such as SBARs. The risk mitigation tool includes an application for collecting incident-related information in a way that makes it easier to aggregate, analyze, and use data to understand trends. In addition, incident reporting can be automatically linked to forms required for site policies or State regulations. These tools are thought to help with identification and reporting for compliance, as well as quality response.

- **Standalone system.** PatientPattern (https://patientpattern.com/) is a fee-based application that permits nursing homes to process and display data from a number of different sources, including the MDS and claims and reimbursements, and provides risk assessment and management features. For example, the platform includes a frailty index, provides metrics in comparison with national averages, lists resident names in tiles color coded for level of risk for unfavorable outcomes, and allows facilities to click through to lists of associated residents. PatientPattern also provides a text-based and graphical bedside tool, which enables staff to access, analyze, and display MDS data, medical chart data, and information specific to a given resident, such as family contacts.

Gaps and Future Research

Over the course of the study, we identified several gaps or needs that could be amenable to future research or action by AHRQ or others in the nursing home safety field.

1. Future research to develop tools and resources to help nursing homes implement the definition. TEP members and stakeholder participants noted a variety of areas in which nursing homes—and potentially other audiences—would benefit from more focused, prescriptive information about ways to use the definition and the catalog of resources. TEP members noted that nursing homes respond best to implementable interventions and immediately usable toolkits. In its current form, the definition requires that users appropriately translate it into practice.

Potential next steps: AHRQ or others could consider ways to develop streamlined, tool-based materials to convey and support use of the definition or create a catalog of resources by nursing homes. Researchers who use the definition in their work could share tools or instructional materials they develop for nursing homes. Developers of existing resources could update their products to incorporate the definition, as applicable.

2. Gap in understanding how omissions of care occur and how they can be prevented or addressed. As reflected in the current body of literature, understanding of omissions is framed largely within the context of narrower examinations of specific patient safety outcomes. To a lesser extent, this understanding is also framed by broader examinations of nursing home staffing and administration, care coordination, and resident experience. Within these studies, care omissions are often not the primary research focus and may be cited as a contributing factor without much information about their precise nature or the way they occurred.

Similarly, resources and tools for nursing homes typically focus on a single health outcome or area of practice, such as falls or infections. This focus obscures common elements, such as consistent documentation practices and effective communication methods, that may be applicable across all types of care for preventing or detecting omissions. Thus, the field may benefit from research to evaluate existing resources for these common features, which could then be assembled into a single toolkit. The field may also benefit from studies with a primary focus on omissions of care in nursing homes.

Potential next steps: AHRQ and others could directly engage in research and development to fill these gaps. As an alternative, AHRQ and others could develop a unified research agenda, uniform variables or recommended measures, or other strategies to promote consistency in the way omissions of care are captured and reported in research studies that focus primarily on other outcomes.

3. Gap in understanding of the ways nursing homes may use data sources and systems for detecting and monitoring omissions. Researchers have used a wide variety of data sources to detect and monitor omissions of care. TEP and stakeholder participants also suggested several nontraditional data sources, such as internal meetings, that could be used. Information about the way data sources were used, however, is embedded in research articles that may not be readily available to relevant audiences, such as nursing home staff, because of paywalls.

Research articles also may not include enough detail about methods and processes to enable others to use the data. For example, authors may reference combining data from MDS and a staff survey but not explain how this task was accomplished.

Finally, in this study, we did not examine whether there was sufficient information to evaluate the comparative utility of different data sources used for monitoring omissions of care, but such information would be invaluable to those conducting quality planning or research.

Potential next steps: AHRQ or another funder could commission a study focused on examining or testing the utility of different data sources for monitoring omissions. AHRQ and others could assemble information on ways to use and combine different data sources, with attention to useful data sources nursing home stakeholders might be less familiar with. AHRQ or another organization could develop merged datasets to support research on omissions of care in nursing homes.

4. Gap in understanding of the psychosocial risks and harms of omissions of care in nursing homes and the relative contributions of different omissions to poor outcomes. The environmental scan revealed a strong emphasis on patient safety and medical care outcomes related to omissions of care. Discussions among TEP members and stakeholder participants confirmed that the relationship between omissions of care and psychosocial outcomes is less well understood and represents a gap in knowledge.

In addition, existing research typically documents a relationship between care omissions and adverse safety outcomes but does not assess what contribution different types of omissions make to those outcomes. From a quality point of view, this situation is problematic because it provides no information about where to apply attention when planning quality improvements. For example, omissions in communication, documentation, resident assessment, and direct care could all contribute to falls in nursing homes. We have limited understanding of whether there is an order or relative magnitude of contribution among these factors, however. If omissions of communication were known to be minor contributors while omissions of documentation were major contributors, this information could help facilities understand where best to intervene.

Potential next steps: Further research is needed to understand the relationship between omissions of care and psychosocial outcomes for residents. Additional research could attempt to untangle the specific contributions different types of omissions make to adverse resident outcomes.

5. The definition's alignment with statutory requirements was not assessed. Stakeholder participants raised numerous concerns about whether the definition would enhance or undermine definitions embedded, explicitly or implicitly, in the various statutory requirements that apply to nursing homes.

For this Task Order, excluding these considerations was deliberate and intended to support the development of a definition that could serve multiple audiences, in addition to nursing homes. The result of this deliberate choice, however, is a gap in understanding of how the definition aligns with regulatory requirements.

Potential next steps: To support uptake of the definition among nursing home operators, AHRQ and others could address the alignment between statutory requirements and the definition.

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