Quality Indicators for Geriatric Emergency Care

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Abstract

Objectives: Emergency departments (EDs), similar to other health care environments, are concerned with improving the quality of patient care. Older patients comprise a large, growing, and particularly vulnerable subset of ED users. The project objective was to develop ED-specific quality indicators for older patients to help practitioners identify quality gaps and focus quality improvement efforts.

Methods: The Society for Academic Emergency Medicine (SAEM) Geriatric Task Force, including members representing the American College of Emergency Physicians (ACEP), selected three conditions where there are quality gaps in the care of older patients: cognitive assessment, pain management, and transitional care in both directions between nursing homes and EDs. For each condition, a content expert created potential quality indicators based on a systematic review of the literature, supplemented with expert opinion when necessary. The original candidate quality indicators were modified in response to evaluation by four groups: the Task Force, the SAEM Geriatric Interest Group, and audiences at the 2007 SAEM Annual Meeting and the 2008 American Geriatrics Society Annual Meeting.

Results: The authors offer 6 quality indicators for cognitive assessment, 6 for pain management, and 11 for transitions between nursing homes and EDs.

Conclusions: These quality indicators will help researchers and clinicians target quality improvement efforts. The next steps will be to test the feasibility of capturing the quality indicators in existing medical records and to measure the extent to which each quality indicator is successfully met in current emergency practice.

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SAEM Geriatric Task Force members are listed in Appendix A.

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The quality of health care is increasingly scrutinized.[1] Indeed, the principal message of the Institute of Medicine (IOM) reports ''To Err Is Human'' and ''Crossing the Quality Chasm'' was that there are substantial problems with the quality of health care delivered in the United States.[2–4] Similar to other medical specialties, emergency medicine (EM) practice is subject to errors and quality concerns.[3] The specialty of EM is characterized by high acuity, high stress, increasing patient volume, and rapid decision-making often with incomplete information. These factors, among many others, create obstacles to providing high-quality care in emergency departments (EDs).[5]

A prerequisite for assessing (and, where needed, improving) the quality of emergency medical care is the ability to measure quality of care. An initial step in this process is the development of care standards.[6] Quality indicators involve operational definitions to assess whether care is delivered well or poorly.[6] Unlike practice guidelines that strive to characterize the nuances of best possible care, quality indicators set a minimum standard for the care expected from clinicians and health systems.[7] Care that does not meet well-constructed quality indicators generally represents low-quality care.

In addition to the organization of care, quality indicators may be based on *processes* of care (e.g., timely administration of aspirin to a patient with an acute myocardial infarction [MI]) or *outcomes* of care (e.g., living or dying after an MI).[8] Process-defined quality indicators represent actions of providers, while outcome indicators represent the results of the care processes plus the effects of many other factors.[9] Most health care quality experts favor process-based quality indicators for four reasons. First, processes of care are often more efficiently measured. Care processes occur at the time of care delivery, while the interval between care and outcomes may be long.[8,10] Second, process indicators usually are more sensitive measures of quality, because a poor outcome does not occur every time there is a deficiency in a process of care.[8] Third, process-defined quality indicators do not require risk adjustment to the extent that outcome indicators do.[11] Fourth, process-of-care indicators typically are amenable to direct action by providers, while outcomes deficits often are more difficult to address. Thus, process-defined quality indicators can drive quality improvement efforts by helping direct attention to specific, correctable areas that need improvement.[10,12,13] An ideal set of indicators would be linked to patient outcomes through high-quality research;[8,12] however, few important care processes have had each aspect rigorously studied.[6,14] Quality indicators, therefore, are typically developed with the contribution of expert opinion.[6,12]

Quality indicators should target care that has been documented to need improvement. The Assessing Care of Vulnerable Elders (ACOVE) investigators found that vulnerable older persons had substantial deficiencies in care, particularly in areas that require specialized geriatric care techniques.[15] Older patients are particularly vulnerable in the emergency medical system.[5] EDs are major health care providers for seniors; yet, there has been little development of quality measures for this group of patients. The objective of this project was to develop EM-specific quality indicators for older patients. We used an approach similar to that used by the ACOVE project to develop quality measures dedicated to the needs of older patients seeking care in EDs.

METHODS

Selection of Conditions to Address with Quality Indicators

The Society for Academic Emergency Medicine (SAEM) and the American College of Emergency Physicians (ACEP) created the SAEM Geriatric Task Force (Appendix A) in part to improve the care delivered to older ED patients. The Task Force identified common conditions for which older adults (defined as those aged 65 years and older for the purposes of this project) seek care in the ED and for which there are important quality gaps. With the understanding that there are many areas for which quality must be improved, the goal was to select a small number of important areas to initiate the identification of quality indicators for the emergency care of older adults. The target conditions were chosen based on literature review and expert consensus among Task Force members. The Task Force selected cognitive assessment, palliative care and pain management, and transitional care in both directions between a nursing home and an ED as the initial set of conditions faced by older ED visitors for which quality indicators would be valuable. Palliative care was later removed, as the Center to Advance Palliative Care has a project with this focus.

The Task Force identified a content expert for each target condition (cognitive impairment, FMH; pain, UH; and transitional care, KMT). The content experts created potential quality indicators using IF-THEN statements, following the ACOVE quality indicator approach.[7] The IF statement determines whether a patient is eligible for the quality indicator, and THEN describes the care process that should or should not be performed. A quality indicator is considered to have been *satisfied* if the medical record indicates that a patient is offered or receives the care required by the quality indicator (e.g., timely administration of aspirin for an acute MI). The quality indicator is *excluded* from application to the patient if a patient has a documented contraindication to the indicator (e.g., allergy to aspirin). The quality indicator is *not met* if 1) the medical record does not indicate that the patient was offered the care required by the indicator, 2) he or she has no documented contraindication, and 3) his or her refusal is not documented in the medical record. The quality indicators in this project were designed to be used with ED medical records as the data source. The transitional care quality indicators were designed to use nursing home medical records as well.

Initial Development of Quality Indicators

The three content experts conducted systematic reviews for their target condition. They searched for relevant English language articles in MEDLINE, the Cumulative Index to Nursing & Allied Health Literature (CINAHL), and The Cochrane Library using appropriate subject

headings and text words for each condition. Search terms are provided in Appendix B. For each search, all titles and abstracts (if available) were reviewed to screen for potentially relevant articles. Full texts of potentially relevant articles were examined for possible inclusion. Content experts also examined all references within relevant articles. After critically reviewing all applicable articles, each content expert developed a critical summary of the literature and a preliminary list of quality indicators.

Serial Revisions of Quality Indicators

Four groups sequentially evaluated the proposed quality indicators: the full SAEM Geriatric Task Force, the SAEM Geriatric Interest Group, an audience at the 2007 SAEM Annual Meeting, and audience members at a workshop at the 2008 American Geriatrics Society (AGS) annual meeting. The quality indicators were modified after each evaluation, based on consideration of each group's responses. First, the literature summaries and proposed quality indicators were distributed to the 23 members of the 2006–2007 Task Force. Recipients were instructed to critically review the preliminary quality indicators and provide feedback to the Task Force chair (LWG) or the appropriate content expert, but to avoid replying to all of the Task Force members so that all comments would be independent. All feedback received by the chair was forwarded to the appropriate content expert.

The content experts revised the quality indicators in response to Task Force members' suggestions. The revised indicators were distributed to the 30 members of the SAEM Geriatric Interest Group. Again, recipients were asked to reply only to the chair or the content expert. The indicators were revised based on the new comments.

Third, the revised working set of cognitive assessment and transitional care quality indicators was presented at an interactive didactic session at the 2007 SAEM Annual Meeting. The audience of 36 people included emergency physicians (EPs), nurses, and family physicians. The session's goal was to draw on the expertise of this group to refine the quality indicators for use by clinicians, researchers, educators, and administrators. The session began with a background presentation on the nature of quality indicators. The content experts presented their sets of proposed quality indicators and the basis for inclusion of each. A discussion with the audience followed each presentation. The quality indicators were revised based on these discussions.

The final step was to present the three sets of quality indicators at a workshop during the 2008 AGS Annual Meeting. There were 74 persons in the audience, including geriatricians, EPs, nurses, social workers, and nonphysician gerontologists. Similar to the SAEM meeting, each set of quality indictors was presented separately and feedback from the audience was elicited. The group discussion informed modification of quality indicators, resulting in the final version presented in this article. The process for developing quality indicators for pain management was the same as that for cognitive impairment and transitional care, except they were not presented at the SAEM meeting.

RESULTS

In the sections that follow, the quality indicators for the three conditions are reported separately. For each condition, we provide a brief description of the pertinent literature, the quality indicators, and the rationale for each indicator or each set of related quality indicators.

• Cognitive Assessment

More than a quarter of older ED patients are cognitively impaired.[16–19] Cognitive impairment may be broadly categorized as delirium or cognitive impairment without delirium.[18,19] Approximately 10% of older ED patients suffer from delirium,[17–21] while another 16%–22% have cognitive impairment without delirium.[17–19] However, cognitive impairment is recognized only 28%–38% of the time by EPs.[18,19] Identification of delirium is especially poor (16% to 36% of cases).[19–21]

Delirium is a potentially life-threatening medical emergency associated with an increased risk of morbidity and mortality.[22] Patients with unrecognized delirium who are discharged home from the ED are three times more likely to die within 3 months than counterparts in whom delirium is identified by the EP.[23] Even in the absence of delirium, awareness of a patient's cognitive status is important to ED care, because cognitive impairment without delirium may affect a patient's ability to relay an accurate medical history and carry out discharge instructions if discharged home from the ED.

Quality Indicators for Cognitive Assessment.

Quality Indicator 1: Cognitive Assessment

1. IF an older adult presents to an ED, THEN the ED provider should carry out and document a cognitive assessment (such as an indication of level of alertness and orientation or an indication of abnormal or intact cognitive status) or document why a cognitive assessment did not occur.

Rationale. Cognitive impairment is common among older ED patients,[16–19] and cognitive screening is feasible[16,19] and reasonably accurate[24] in the ED setting, yet cognitive impairment is identified infrequently by EPs.[18–21]

Quality Indicator 2: Assessment of Patients with Cognitive Impairment in the ED

2. IF an older adult presents to an ED and is found to have cognitive impairment, THEN an ED care provider should document whether there has been an acute change in mental status from baseline (or document an attempt to do so).

Rationale. Acute change in mental status is a key feature of delirium, a potentially life-threatening medical emergency.[22] Patients with delirium generally have underlying acute medical conditions that require rapid diagnosis and treatment.[25]

Quality Indicators 3 and 4: ED Care of Patients with Acute Cognitive Impairment Who Are Discharged Home

IF an older adult presenting to an ED is found to have cognitive impairment that is a change from baseline and is discharged home, THEN the ED provider should document the following:

3. Support in the home environment to manage the patient's care.
4. A plan for medical follow-up.

Rationale. Patients with cognitive impairment may have difficulty understanding and complying with ED discharge instructions. Support in the home environment is likely to be needed to maximize compliance with the ED care plan. Support may also be needed to assist in monitoring the response (or lack thereof) to treatment. Given the increased mortality risk in patients who are discharged home with delirium,[21,23] strong consideration should be given to hospitalizing these patients unless a single precipitant has been identified that can be adequately treated in the home setting with appropriate social support and medical follow-up.[19,25]

Quality Indicator 5: Detecting Whether Cognitive Abnormalities Were Previously Recognized

5. IF an older adult presenting to an ED is 1) found to have an abnormal mental status, 2) has no change in mental status from baseline, and 3) is discharged home, THEN the ED provider should document whether there has been previous recognition or diagnosis of an abnormal mental status by another health care provider (or document an unsuccessful attempt to determine this).

Rationale. More than 70% of older ED patients with baseline abnormal mental status have no prior history of impaired cognition.[18,19,25] These patients may benefit from medical and social referrals for more formal cognitive assessment.

Quality Indicator 6: ED Care of Patients with Baseline Abnormal Mental Status Who Are Discharged to Home

6. IF an older adult presenting to an ED 1) is found to have an abnormal mental status that had not been previously recognized or diagnosed by another health care provider, 2) has no change in mental status from baseline, and 3) is discharged home, THEN a referral for outpatient evaluation of the cognitive impairment should be documented.

Rationale. More than 70% of ED patients with cognitive impairment without delirium have no known prior history of cognitive impairment.[18,19,26] Although such patients may benefit from medical and social referrals, ED physicians rarely refer these patients for further evaluation.[18] For the small proportion with a potentially reversible etiology, early referral for evaluation and treatment can halt progression of cognitive decline and help preserve cognitive and functional status.[27] Even for patients with Alzheimer's disease, early diagnosis and initiation of treatment may prolong functional independence.[27]

• Pain Management

Pain, the ''fifth vital sign,''[28,29] is one of the most common chief complaints in EDs.[30,31] Among ED patients with pain, nearly three-quarters present with moderate or severe pain.[32,33] Unrelieved acute pain in older adults is associated with poorer clinical outcomes.[34–36] For example, continued hip fracture pain is associated with longer hospital stays, missed or shortened physical therapy sessions, and delays in ambulation[37] and a ninefold increase in the risk of delirium.[38]

Several organizations, including the AGS, the American Pain Society, the Joint Commission, the IOM, and the Agency for Healthcare Research and Quality (AHRQ), have issued standards regarding timely, tailored, and adequate pain assessment and treatment.[1,4,39–46] However, pain care remains inconsistent and inadequate in many health care settings including the ED,[47–50] and there has been minimal decrease in overall pain intensity scores nationally.[48,51]

Advanced age is the strongest predictor of receiving no analgesic for painful conditions in EDs.[52] Older adults are less likely to receive pain medication than younger adults with similar conditions involving cancer,[53] trauma,[54] hip fracture,[55–57] and orthopedic injuries.[58] Indeed, among older ED patients with isolated long-bone or hip fractures, more than one-third receive no analgesia in the ED,[52,56,59] and only 57% receive opioid medication.[56]

Quality Indicators for Pain Management.

Quality Indicators 1–3: Pain Assessment

1. IF an older adult presents to the ED, THEN a formal assessment for the presence of acute pain should be documented within 1 hour of arrival to the ED.
2. IF an older adult remains in the ED for more than 6 hours, THEN a second pain assessment should be documented within 6 hours of arrival in the ED.
3. IF an older adult receives pain treatment while in the ED, THEN a pain reassessment should be documented prior to discharge home from the ED.

Rationale. Several prominent organizations have issued standards regarding pain assessment and treatment.[1,4,39–46] The standards for pain care include pain assessments in all patients, the documentation of regular reassessments, and attention to pain symptom management during discharge planning.[60,61] If pain is not assessed appropriately, then appropriate treatment cannot be determined.

Quality Indicator 4: Pain Management

4. IF an older adult presents to the ED and has moderate to severe pain (i.e., a numeric rating scale score of 4 or higher out of 10), THEN pain treatment should be initiated (or the provider should document why treatment was not initiated).

Rationale. Older ED patients are less likely to receive pain medication than younger adults with similar conditions.[53–58] More than one-third of older patients with conditions such as isolated long-bone or hip fractures receive no pain medication during ED visits.[52,56,59]

Quality Indicator 5: Use of Meperidine

5. IF an older adult receives analgesic medication while in the ED, THEN meperidine should be avoided.

Rationale. In two studies of older adults who received opioids in an ED, 33% to 72% received meperidine.[52,56] For older adults, meperidine is associated with increased risk of delirium, fractures, and even death.[62–65]

Quality Indicator 6: Opioid Analgesia and Bowel Regimen

6. IF an older adult receives an opioid analgesia prescription upon discharge from the ED, THEN a bowel regimen should also be provided (or the provider should document why a bowel regimen was not given).

Rationale. Constipation is a frequent side effect of opioid medications and one of the most common factors that adversely affect the quality of life for older adults.[66] Prophylaxis from this effect is particularly important for the geriatric population.[63,67]

• Transitional Care

Each year, there are 2.7 million ED visits by residents of nursing homes or other institutions.[30] However, nursing homes and EDs operate independently, providing care without complete information on the patient's condition or medical history or expectations of the other site of care.[68] Ten percent of nursing home residents are transported to EDs without any documentation, and essential information typically is missing in the other 90%.[69,70] Correspondingly, according to nursing home providers, nursing home residents often return from EDs without written documentation.[71]

With the goal of improving communication between sites of care, several investigators have introduced standardized transfer forms in interventional studies. The transfer forms significantly increased the communication of important clinical information;[72,73] however, nursing home staff completed the forms for fewer than half of transfers.[72,73] Even when the forms were used, much of the requested information still was not recorded,[72–74] and the exact reason for the ED visit remained missing or unclear in most cases.[75] Considered together, these results indicate that improvements in quality during transitions of care will involve more than the simple introduction of a transfer form.

Patient care in one site affects the care that should take place in the other.[68] Accordingly, we developed transitional care quality indicators that address the care nursing home residents should receive before, during, and after the ED visit.

Quality Indicators for Transitional Care.

Quality Indicators 1–4: Critical Data for the Nursing Home-to-ED Transfer

IF a nursing home resident is transferred to an ED, THEN the nursing home should provide the following written information on the transfer paperwork:

1. Reason for transfer;
2. Code status (i.e., resuscitation status);
3. Medication allergies;
4. Contact information for the nursing home, the primary care or on-call physician, and the resident's legal health care representative or closest family member.

Alternatively, access to this information in an electronic medical record would satisfy these quality indicators (and the subsequent quality indicators as well).

Rationale. Important written information is typically missing in the transfer paperwork when nursing home residents are transported to EDs.[69,70,73] Although these four quality indicators do not specify all information needed by emergency providers, the objective was to list the minimal information that is essential for emergency decision-making and treatment in EDs and ambulances and contact information for individuals that emergency providers may need to speak to urgently.

Quality Indicator 5: Medication List

5. IF a nursing home resident is transferred to an ED, THEN the nursing home should provide a medication list in the transfer paperwork.

Rationale. Among nursing home residents who present with at least some transfer documentation, one-quarter arrive without a list of medications.[69] Absence of a medication list places the patient at risk for drug interactions and other medication errors.[76]

Quality Indicator 6: Tests Requested by Nursing Home Providers

6. IF a nursing home provider requests that specific tests be performed in the ED, THEN the EP should document performance of the requested tests (or document in the medical record why the tests were not performed).

Rationale. Residents who suffer acute illnesses or injuries are generally transported to EDs, in part, because urgent diagnostic testing is not available in most nursing homes.[77,78] If emergency providers do not perform requested tests, then the patient may be at risk of repeat ED visits or hospital admissions.[68]

Quality Indicator 7: Communication between Nursing Home and ED Providers

7. IF a nursing home resident will be released from an ED back to the nursing home, THEN the EP should document communication with a nursing home provider or the primary care or on-call physician prior to discharge from the ED (or document attempts to do so).

Rationale. Direct communication between providers is essential to ensure high-quality transfers of care.[79,80] Emergency providers must communicate across care sites to develop a shared care plan and to initiate planning for the next setting before the transfer occurs.[68,80]

Quality Indicators 8 and 9: Critical Data for the ED-to-Nursing Home Transfer

IF a nursing home resident is discharged from the ED back to the nursing home, THEN the ED should provide the following written information in the transfer paperwork:

8. ED diagnosis;
9. Tests performed with results (and tests with pending results).

Rationale. According to nursing home providers, nursing home residents often return from EDs without any written information.[71] Although these quality indicators do not specify all data needed by nursing home

providers, the goal is to provide important information about the ED visit.

Quality Indicators 10 and 11: Care Provided after ED Visits

10. IF a nursing home resident is discharged from the ED back to the nursing home and physician follow-up is recommended, THEN the patient should receive the follow-up (or the medical record should indicate why the follow-up did not occur).
11. IF a nursing home resident is discharged from the ED back to the nursing home and the ED provider prescribes or recommends a medication, THEN the nursing home should administer the medication (or document in the medical record why the medication was not administered).

Rationale. EPs discharge nursing home residents with the expectation that their care plans will be carried out. Uneasiness about what will be accomplished in nursing homes may lead to unnecessary hospitalizations of nursing home residents.[68]

DISCUSSION

This article presents the results of a rigorous process to develop quality indicators for cognitive assessment, pain management, and transitional care in both directions between nursing homes and EDs. We linked supporting evidence and expert opinion to specify the minimum care standards for these vulnerable ED patients. Quality indicators are most useful when they are measures of minimally acceptable care; that is, when failure to carry out the care specified by a quality indicator would be poor-quality care in nearly all instances. Such standardized clinical measures are needed both to improve quality and to facilitate assessment of progress during quality improvement efforts.[1]

Most currently available measures of quality in EM focus on the maximum acceptable interval before an intervention takes place, such as the time to percutaneous coronary intervention or thrombolysis for patients with acute MI.[81] Although timeliness is a necessary component of quality care, it is only one aspect of quality.[81] In addition to time-dependent measures of quality, Lindsay and colleagues[82] identified 29 indicators for emergency care for asthma, pneumonia, acute MI, chest pain, thromboembolic disease, and ankle/foot trauma. The indicators they developed differ in many respects from the ones we addressed. 1) Their quality indicators are a blend of outcome- and process-based measures, with several requiring risk adjustment. We prefer process-of-care quality indicators for the reasons provided in the introduction. 2) It is unclear whether their clinical indicators specify the ''low bar'' for emergency care. Ours were developed to define a minimum standard of care. 3) Their indicators were developed for application with administrative databases. As advised by the authors of the ACOVE project,[7] ours were developed to use medical records, which generally are substantially richer data sources than administrative databases, particularly for older patients.

Although the quality indicators identified through this project have face validity, the next phase will be to determine the feasibility of capturing them in existing medical records, followed by research to measure the extent to which each quality indicator is successfully met in current emergency practice, whether they are associated with important clinical outcomes, and whether there is variation across EDs (e.g., community-based EDs vs. academic EDs). Another future step will be to determine the extent to which quality improvement efforts based on each of these indicators are associated with improved clinical outcomes in a variety of ED settings. As more information becomes available, the quality indicators identified in this project may need to be refined, and more will be developed in other domains of geriatric emergency care. These findings can then lead to development of quality-of-care interventions to improve care in areas of concern.

Notably, no individual physician could be responsible for performing all of the care processes specified in the quality indicators.[7] Indeed, many of the care processes might be carried out by a nurse or other ED staff member. For example, in most EDs, a triage nurse carries out the initial pain assessment of older adults who present for care. Similarly, a cognitive assessment could be performed by a physician, midlevel provider (i.e., physician assistant or nurse practitioner), nurse, or properly trained social worker.

The initial set of unadjudicated indicators was developed by individuals with recognized expertise in the respective areas, leaving open the possibility of bias. To lessen this potential bias, we drew on the expertise of several groups of knowledgeable providers to develop and refine the quality indicators. In addition, although the EPs who contributed to these indicators (including the SAEM audience) were mostly academic physicians with particular interest in geriatric emergency care, the AGS session attendees were a mix of academic and community-based practitioners. Substantial time was allotted for discussion, and audience members during both group sessions (SAEM and AGS meetings) freely offered modifications to the indicators and suggested additional indicators. Importantly, there was general agreement between the two meetings with respect to the indicators and what constitutes a minimum standard of care. Bias could have resulted from a few assertive attendees whose opinions may have influenced others. However, the speakers moderated the sessions mindful of this potential bias and worked to ensure that everyone was provided with the opportunity to comment. In addition to the chance to voice opinions, we invited audience members to speak to us individually after the sessions or to provide written comments. Furthermore, vetting these indicators with several separate groups served to balance any potential bias from any one group or particularly assertive respondents. Finally, we developed quality indicators for three areas in the emergency care of seniors where quality improvement is needed; other aspects of geriatric emergency care will require further identification

of quality gaps and development of suitable quality indicators.

CONCLUSIONS

We developed three sets of quality indicators for emergency medical care that are now ready for feasibility testing. These quality indicators will provide focus and direction to help identify gaps in emergency care of older adults. They will help researchers and quality improvement experts target quality improvement efforts.

The SAEM Geriatric Task Force included experts in geriatric emergency care representing both the Society for Academic Emergency Medicine and the American College of Emergency Physicians. Task Force members are listed in Appendix A.

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Appendix A

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Appendix B

Search terms for cognitive assessment included delirium, dementia, altered mental status, confusion, acute confusion, cognitive impairment, cognitive dysfunction, cognitive assessment, cognitive disorders, elderly, and aged. Search terms for pain care included pain care, pain management, pain treatment, analgesia, medications, opiate, and opioid. Search terms for transitional care included nursing homes, long-term care, transportation of patients, patient transfer, and transitional care. Additional search terms for all three targeted conditions included emergency medicine; emergency service, hospital; emergency department; and emergency room.