

REVIEWS

A Patient-Centered Research Agenda for the Care of the Acutely Ill Older Patient

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Hospitalists and other acute-care providers are limited by gaps in evidence addressing the needs of the acutely ill older adult population. The Society of Hospital Medicine sponsored the Acute Care of Older Patients Priority Setting Partnership to develop a research agenda focused on bridging this gap. Informed by the Patient-Centered Outcomes Research Institute framework for identification and prioritization of research areas, we adapted a methodology developed by the James Lind Alliance to engage diverse stakeholders in the research agenda setting process. The work of the Partnership proceeded through 4 steps: convening, consulting, collating, and prioritizing. First, the steering committee convened a partnership of 18 stakeholder organizations in May 2013. Next, stakeholder organizations surveyed members to identify important unanswered questions

in the acute care of older persons, receiving 1299 responses from 580 individuals. Finally, an extensive and structured process of collation and prioritization resulted in a final list of 10 research questions in the following areas: advanced-care planning, care transitions, delirium, dementia, depression, medications, models of care, physical function, surgery, and training. With the changing demographics of the hospitalized population, a workforce with limited geriatrics training, and gaps in evidence to inform clinical decision making for acutely ill older patients, the identified research questions deserve the highest priority in directing future research efforts to improve care for the older hospitalized patient and enrich training. *Journal of Hospital Medicine* 2015;00:000-000. © 2015 Society of Hospital Medicine

Older adults with high levels of medical complexity occupy an increasing fraction of beds in acute-care hospitals in the United States.^{1,2} By 2007, patients age 65 years and older accounted for nearly half of adult inpatient days of care.¹ These patients are commonly cared for by hospitalists who number more than 40,000.³ Although hospitalists are most often trained in internal medicine, they have typically received limited formal geriatrics training. Increasingly, access to experts in geriatric medicine is limited.⁴ Further, hospitalists and others who practice in acute care are limited by the lack of research to address the needs of the older adult population, specifically in the diagnosis and management of conditions encountered during acute illness.

To better support hospitalists in providing acute inpatient geriatric care, the Society of Hospital Medicine (SHM) partnered with the Association of Specialty Professors to develop a research agenda to

bridge this gap. Using methodology from the James Lind Alliance (JLA) and the Patient Centered Outcomes Research Institute (PCORI), the SHM joined with older adult advocacy groups, professional societies of providers, and funders to create a geriatric-focused acute-care research agenda, highlighting 10 key research questions.⁵⁻⁷ The goal of this approach was “to produce and promote high integrity, evidence-based information that comes from research guided by patients, caregivers, and the broader health-care community.”⁸ In this article, we describe the methodology and results of this agenda-setting process, referred to as the Acute Care of Older Patients (ACOP) Priority Setting Partnership.

METHODS

Overview

This project focused on topic generation, the first step in the PCORI framework for identification and prioritization of research areas.⁵ We employed a specific and defined methodology to elicit and prioritize potential research topics incorporating input from representatives of older patients, family caregivers, and healthcare providers.⁶

To elicit this input, we chose a collaborative and consultative approach to stakeholder engagement, drawing heavily from the published work of the JLA, an initiative promoting patient-clinician partnerships

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in health research developed in the United Kingdom.⁶ We previously described the approach elsewhere.⁷

The ACOP process for determining the research agenda consisted of 4 steps: (1) convene, (2) consult, (3) collate, and (4) prioritize.⁶ Through these steps, detailed below, we were able to obtain input from a broad group of stakeholders and engage the stakeholders in a process of reducing and refining our research questions.

Convene

The steering committee (the article's authors) convened a stakeholder partnership group that included stakeholders representing patients and caregivers, advocacy organizations for the elderly, organizations that address diseases and conditions common among hospitalized older patients, provider professional societies (eg, hospitalists, subspecialists, and nurses and social workers), payers, and funders. Patient, caregiver, and advocacy organizations were identified based on their engagement in aging and health policy advocacy by SHM staff and 1 author who had completed a Health and Aging Policy Fellowship (H.L.W.).

The steering committee issued e-mail invitations to stakeholder organizations, making initial inquiries through professional staff and relevant committee chairs. Second inquiries were made via e-mail to each organization's volunteer leadership. We developed a webinar that outlined the overall research agenda setting process and distributed the webinar to all stakeholders. The stakeholder organizations were asked to commit to (1) surveying their memberships and (2) participating actively in prioritization by e-mail and at a 1-day meeting in Washington DC.

Consult

Each stakeholder organization conducted a survey of its membership via an Internet-based survey in the summer of 2013 (see Supporting Information, Appendix A, in the online version of this article). Stakeholder organizations were asked to provide up to 75 survey responses each. Though a standard survey was used, the steering committee was not prescriptive in the methodology of survey distribution to accommodate the structure and communication methods of the individual stakeholder organizations. Survey respondents were asked to identify up to 5 unanswered questions relevant to the acute care of older persons and also provide demographic information.

Collate

In the collating process, we clarified and categorized the unanswered questions submitted in the individual surveys. Each question was initially reviewed by a member of the steering committee, using explicit criteria (see Supporting Information, Appendix B, in the online version of this article). Questions that did not

meet all 4 criteria were removed. For questions that met all criteria, we clarified language, combined similar questions, and categorized each question. Categories were created in a grounded process, in which individual reviewers assigned categories based on the content of the questions. Each question could be assigned to up to 2 categories. Each question was then reviewed by a second member of the steering committee using the same 4 criteria. As part of this review, similar questions were consolidated, and when possible, questions were rewritten in a standard format.⁶

Finally, the steering committee reviewed previously published research agendas looking for additional relevant unanswered questions, specifically the New Frontiers Research Agenda created by the American Geriatrics Society in conjunction with participating subspecialty societies,⁹ the Cochrane Library, and other systematic reviews identified in the literature via PubMed search.¹⁰⁻¹⁵

Prioritize

The resulting list of unanswered questions was prioritized in 2 phases. First, the list was e-mailed to all stakeholder organizations. The organizations were asked to vote on their top 10 priorities from this list using an online ballot, assigning 10 points to their highest priority down to 1 point for their lowest priority. In so doing, they were asked to consider explicit criteria (see Supporting Information, Appendix B, in the online version of this article). Each organization had only 1 ballot and could arrive at their top 10 list in any manner they wished. The balloting from this phase was used to develop a list of unanswered questions for the second round of in-person prioritization. Each priority's scores were totaled across all voting organizations. The 29 priorities with the highest point totals were brought to the final prioritization round because of a natural cut point at priority number 29, rather than number 30.

For the final prioritization round, the steering committee facilitated an in-person meeting in Washington, DC in October 2013 using nominal group technique (NGT) methodologies to arrive at consensus.¹⁶ During this process stakeholders were asked to consider additional criteria (see Supporting Information, Appendix B, in the online version of this article).

RESULTS

Table 1 lists the organizations who engaged in 1 or more parts of the topic generation process. Eighteen stakeholder organizations agreed to participate in the convening process. Ten organizations did not respond to our solicitation and 1 declined to participate.

Seventeen stakeholder organizations obtained survey responses from a total of 580 individuals (range, 3-150 per organization), who were asked to identify important unanswered questions in the acute care of older persons. Survey respondents were typically female

TABLE 1. Stakeholder Organizations Participating in the Acute Care of Older Persons Priority Setting Partnership

Organization (N = 18)	Consultation % of Survey Responses (N = 580)	Prioritization Round 1	Prioritization Round 2
Alzheimer's Association	7.0%	Yes	Yes
American Academy of Neurology	3.4%	Yes	Yes
American Association of Retired Persons	0.8%	No	No
American College of Cardiology	11.4%	Yes	Yes
American College of Emergency Physicians	1.3%	No	No
American College of Surgeons	1.0%	Yes	Yes
American Geriatrics Society	7.6%	Yes	Yes
American Hospital Association	1.7%	Yes	No
Centers for Medicare & Medicaid Services	0.8%	Yes	Yes
Gerontological Society of America	18.9%	Yes	Yes
National Alliance for Caregiving	1.0%	Yes	Yes
National Association of Social Workers	5.9%	Yes	Yes
National Coalition for Healthcare	0.6%	No	No
National Institute on Aging	2.1%	Yes	Yes
National Partnership for Women and Families	0.0%	Yes	Yes
Nursing Improving Care for Healthsystem Elders	28.6%	Yes	No
Society of Critical Care Medicine	12.0%	Yes	Yes
Society of Hospital Medicine	4.6%	Yes	Yes

(77%), white (85%), aged 45 to 65 years (65%), and identified themselves as health professionals (90%). Twenty-six percent of respondents also identified as patients or family caregivers. Their surveys included 1299 individual questions.

Figure 1 summarizes our collation and prioritization process and reports the numbers of questions resulting at each stage. Nine hundred nineteen questions were removed during the first review conducted by steering committee members, and 31 question categories were identified. An additional 305 questions were removed in the second review, with 75 questions remaining. As the final step of the collating process, literature review identified 39 relevant questions not already suggested or moved forward through our consultation and collation process. These questions were added to the list of unanswered questions.

In the first round of prioritization, this list of 114 questions was emailed to each stakeholder organization (Table 1). After the stakeholder voting process was completed, 29 unanswered questions remained (see Supporting Information, Appendix C, in the online version of this article). These questions were refined and prioritized in the in-person meeting to create the final list of 10 questions. The stakeholders present in the meeting represented 13 organizations (Table 1). Using the NGT with several rounds of small group breakouts and large group deliberation, 9 of the top 10 questions were selected from the list of 29. One additional highly relevant question that had been removed earlier in the collation process regarding workforce was added back by the stakeholder group.

This prioritized research agenda appears in Table 2 and below, organized alphabetically by topic.

1. Advanced care planning: What approaches for determining and communicating goals of care across and within healthcare settings are most effective in promoting goal-concordant care for hospitalized older patients?
2. Care transitions: What is the comparative effectiveness of transitional care models on patient-centered outcomes for hospitalized older adults?
3. Delirium: What practices are most effective for consistent recognition, prevention, and treatment of delirium subtypes among hospitalized older adults?
4. Dementia: Does universal assessment of hospitalized older adults for cognitive impairment (eg, at presentation and/or discharge) lead to more appropriate application of geriatric care principles and improve patient-centered outcomes?
5. Depression: Does identifying depressive symptoms during a hospital stay and initiating a therapeutic plan prior to discharge improve patient-centered and/or disease-specific outcomes?
6. Medications: What systems interventions improve medication management for older adults (ie, appropriateness of medication choices and dosing, compliance, cost) in the hospital and post-acute care?
7. Models of care: For which populations of hospitalized older adults does systematic implementation of geriatric care principles/processes improve patient-centered outcomes?
8. Physical function: What is the comparative effectiveness of interventions that promote in-hospital mobility, improve and preserve physical function, and reduce falls among older hospitalized patients?
9. Surgery: What perioperative strategies can be used to optimize care processes and improve outcomes in older surgical patients?
10. Training: What is the most effective approach to training hospital-based providers in geriatric and palliative care competencies?

Table 2 also contains a capsule summary of the scope of the problem addressed by each research priority, a capsule summary of related work in the content area (what is known) not intended as a systematic review, and proposed dimensions or sub-questions suggested by the stakeholders at the final prioritization meeting

DISCUSSION

Older hospitalized patients account for an increasing number and proportion of hospitalized patients,^{1,2} and hospitalists increasingly are responsible for inpatient care for this population.³ The knowledge required for hospitalists to deliver optimal care and improve outcomes has not kept pace with the rapid

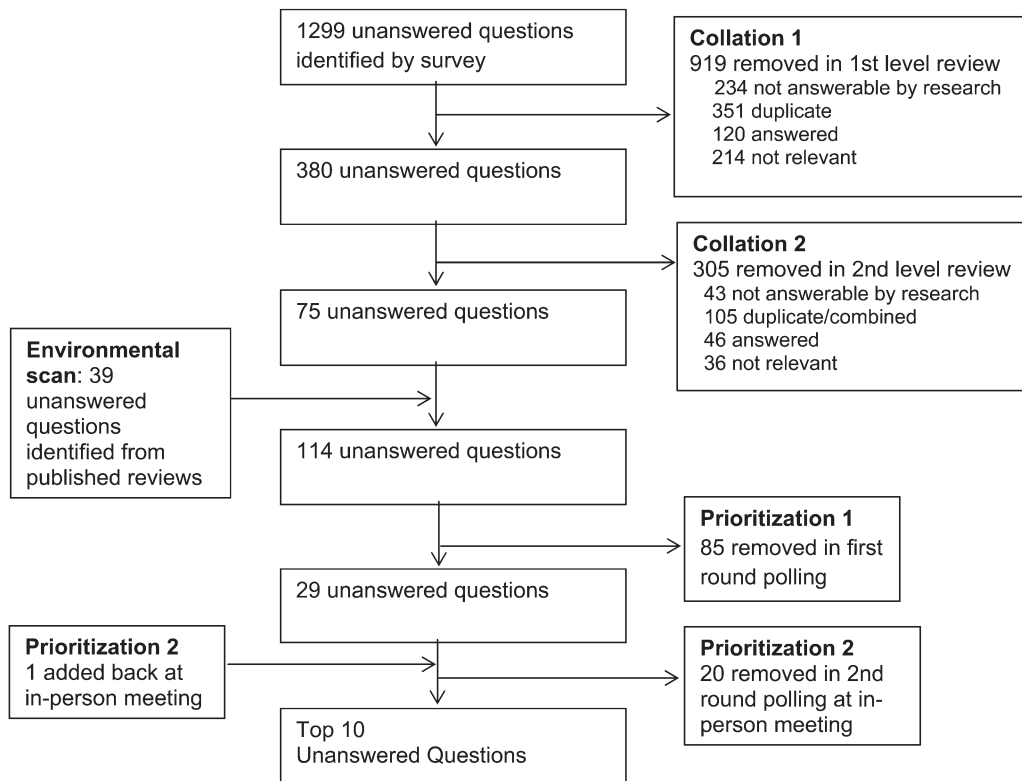


FIG. 1. Flow diagram to develop top 10 unanswered questions from stakeholder survey results. The 1299 unanswered questions were reduced to a final list of 10 high-priority research topics through a 2-step collation process and a 2-step prioritization process as depicted in the flow diagram.

growth of either hospitalists or hospitalized elders. Through a rigorous prioritization process, we identified 10 areas that deserve the highest priority in directing future research efforts to improve care for the older hospitalized patient. Assessment, prevention, and treatment of geriatric syndromes in the hospital account for almost half of the priority areas. Additional research is needed to improve advanced care planning, develop new care models, and develop training models for future hospitalists competent in geriatric and palliative care competencies.

A decade ago, the American Geriatric Society and the John A. Hartford Foundation embarked upon a research agenda aimed at improving the care of hospitalized elders cared for by specialists (ie, *New Frontiers in Geriatrics Research: An Agenda for Surgical and Related Medical Specialties*).⁹ This effort differed in many important ways from the current prioritization process. First, the *New Frontiers* agenda focused upon specific diseases, whereas the *ACOP* agenda addresses geriatric syndromes that cut across multiple diseases. Second, the *New Frontiers* agenda was made by researchers and based upon published literature, whereas the *ACOP* agenda involved the input of multiple stakeholders. Finally, the *New Frontiers* prioritized a research agenda across a number of surgical specialties, emergency medicine, and geriatric rehabilitation. Hospital medicine, however, was still early in its development and was not considered a unique spe-

cialty. Since that time, hospital medicine has matured into a unique specialty, with increased numbers of hospitalists,³ increased research in hospital medicine,¹⁷ and a separate recertification pathway for internal medicine licensure.¹⁸ To date, there has not been a similar effort performed to direct geriatric research efforts for hospital medicine.

For researchers working in the field of hospital medicine, this list of topics has several implications. First, as hospitalists are commonly generalists, hospitalist researchers may be particularly well-suited to study syndromes that cut across specialties. However, this does raise concerns about funding sources, as most National Institutes of Health institutes are disease-focused. Funders that are not disease-focused such as PCORI, National Institute on Aging, National Institute of Nursing Research, and Agency for Healthcare Research and Quality, and private foundations (Hartford, Robert Wood Johnson, and Commonwealth) may be more fruitful sources of funding for this work, but funding may be challenging. Nonetheless, the increased focus on patient-centered work may increase funders' interest in such work. Second, the topics on this list would suggest that interventions will not be pharmacologic, but will focus on nonpharmacologic, behavioral, and social interventions. Similarly, outcomes of interest must expand beyond utilization metrics such as length of stay and mortality, to include functional status and symptom management, and goal-concordant care.

TABLE 2. Top Ten Unanswered Questions in the Acute Care of Older Persons

Topic	Scope of Problem	What is known	Unanswered Question	Proposed Dimensions
Advanced-care planning	Older persons who lack decision-making capacity often do not have surrogates or clear goals of care documented. ¹⁹ Advanced-care directives are associated with an increase in patient autonomy and empowerment, and although 15% to 25% of adults completed the documentation in 2004, ²⁰ a recent study found completion rates have increased to 72%. ²¹	Nursing home residents with advanced directives are less likely to be hospitalized. ^{22,23} Advanced directive tools, such as POLST, work to translate patient preferences to medical order. ²⁴ Standardized patient transfer tools may help to improve transitions between nursing homes and hospitals. ²⁵ However, advanced care planning fails to integrate into courses of care if providers are unwilling or unskilled in using advanced care documentation. ²⁶	What approaches for determining and communicating goals of care across and within healthcare settings are most effective in promoting goal-concordant care for hospitalized older patients?	<p>Potential interventions:</p> <ul style="list-style-type: none"> • Decision aids • Standard interdisciplinary advanced care planning approach • Patient advocates <p>Potential outcomes might include:</p> <ul style="list-style-type: none"> • Completion of advanced directives and healthcare power of attorney • Patient-centered outcomes* <p>Possible models:</p> <ul style="list-style-type: none"> • Established vs novel care-transition models • Disease-specific vs general approaches • Accountable care models • Caregiver and family engagement • Community engagement <p>Populations of interest:</p> <ul style="list-style-type: none"> • Patients with dementia • Patients with multimorbidity • Patients with geriatric syndromes • Patients with psychiatric disease • Racially and ethnically diverse patients <p>Outcomes:</p> <ul style="list-style-type: none"> • Readmission • Other adverse events • Cost and healthcare utilization • Patient-centered outcomes*
Care transitions	Hospital readmission from home and skilled nursing facilities occurs within 30 days in up to a quarter of patients. ^{27,28} The discharge of complex older hospitalized patients is fraught with challenges. The quality of the hospital discharge process can influence outcomes for vulnerable older patients. ²⁹⁻³² Studies measuring the quality of hospital discharge frequently find deficits in documentation of assessment of geriatric syndromes, ³³ poor patient/caregiver understanding, ^{34,35} and poor communication and follow-up with postacute providers. ³⁵⁻³⁸	As many as 10 separate domains may influence the success of a discharge. ³⁹ There is limited evidence, regarding quality-of-care transitions for hospitalized older patients. The Coordinated-Transitional Care Program found that follow-up with telecommunication decreased readmission rates and improved transitional care for a high-risk condition veteran population. ⁴⁰ There is modest evidence for single interventions, ⁴¹ whereas the most effective hospital-to-community care interventions address multiple processes in nongeriatric populations. ^{39,42,43}	What is the comparative effectiveness of the transitional care models on patient-centered outcomes for hospitalized older adults?	<p>Potential prevention and treatment modalities:</p> <ul style="list-style-type: none"> • Family education or psychosocial interventions • Pharmacologic interventions • Environmental modifications <p>Possible areas of focus:</p> <ul style="list-style-type: none"> • Special populations • Patients with varying stages of dementia • Patients with multimorbidity • Patients with geriatric syndromes • Observation patients <p>Diverse settings</p> <ul style="list-style-type: none"> • Emergency department • Perioperative • Skilled nursing/rehab/long-term acute-care facilities
Delirium	Among older inpatients, the prevalence of delirium varies with severity of illness. Among general medical patients, in-hospital prevalence ranges from 10% to 25%. ^{44,45} In the ICU, prevalence estimates are higher, ranging from 25% to as high as 80%. ^{46,47} Delirium independently predicts increased length of stay, ^{48,49} long-term cognitive impairment, ^{50,51} functional decline, ⁵¹ institutionalization, ⁵² and short- and long-term mortality. ⁵²⁻⁵⁴	Multicomponent strategies have been shown to be effective in preventing delirium. A systematic review of 19 such interventions identified the most commonly included such as: ⁵⁵ early mobilization, nutrition supplements, medication review, pain management, sleep enhancement, vision/hearing protocols, and specialized geriatric care. Studies have included general medical patients, postoperative patients, and patients in the ICU. The majority of these studies found reductions in either delirium incidence (including postoperative), delirium prevalence, or delirium duration. Although medications have not been effective in treating delirium in general medical patients, ⁴⁸ the choice and dose of sedative agents has been shown to impact delirium in the ICU. ⁵⁵⁻⁵⁸	What practices are most effective for consistent recognition, prevention, and treatment of delirium subtypes (hypoactive, hyperactive, and mixed) among hospitalized older adults?	<p>Outcomes to examine:</p> <ul style="list-style-type: none"> • Delirium incidence (including postoperative) • Delirium duration • Delirium/coma-free days • Delirium prevalence at discharge • Subsyndromal delirium

TABLE 2. Continued

Topic	Scope of Problem	What Is known	Unanswered Question	Proposed Dimensions
Dementia	13% to 63% of older persons in the hospital have dementia. ⁵⁹ Dementia is often unrecognized among hospitalized patients. ⁶⁰ The presence of dementia is associated with a more rapid functional decline during admission and delayed hospital discharge. ⁵⁹ Patients with dementia require more nursing hours, and are more likely to have complications ⁶¹ or die in care homes rather than in their preferred site. ⁵⁹	Several tools have been validated to screen for dementia in the hospital setting. ⁶² Studies have assessed approaches to diagnosing delirium in hospitalized patients with dementia. ⁶³ Cognitive and functional stimulation interventions may have a positive impact on reducing behavioral issues. ^{64,65}	Does universal assessment of hospitalized older adults for cognitive impairment (eg, at presentation and/or discharge) lead to more appropriate application of geriatric care principles and improve patient centered outcomes?	<p>Potential interventions:</p> <ul style="list-style-type: none"> • Dementia or delirium care • Patient/family communication and engagement strategies • Maintenance/recovery of independent functional status <p>Potential outcomes:</p> <ul style="list-style-type: none"> • Patient-centered outcomes* • Length of stay, cost, and healthcare utilization (including palliative care) • Immediate invasive vs early conservative treatments pursued <p>Possible areas of focus:</p> <ul style="list-style-type: none"> • Comprehensive geriatric and psychosocial assessment; • Inpatient vs outpatient initiation of pharmacological therapy • Integration of confusion assessment method into therapeutic approaches • Linkages with outpatient mental health resources
Depression	Depression is a common geriatric syndrome among acutely ill older patients, occurring in up to 45% of patients. ^{66,67} Rates of depression are similar among patients discharged following a critical illness, with somatic, rather than cognitive-affective complaints being the most prevalent. ⁶⁸ Depression among inpatients or immediately following hospitalization independently predicts worse functional outcomes, ⁶⁹ cognitive decline, ⁷⁰ hospital readmission, ^{71,72} and long-term mortality. ^{69,73} Finally, geriatric patients are known to respond differently to medical treatment. ^{74,75}	Although highly prevalent, depression is poorly recognized and managed in the inpatient setting. Depression is recognized in only ~50% of patients, with previously undiagnosed or untreated depression being at highest risk for being missed. ⁷⁶ The role of treatment of depression in the inpatient setting is poorly understood, particularly for those with newly recognized depression or depressive symptoms. Some novel collaborative care and telephone outreach programs have led to increases in depression treatment in patients with specific medical and surgical conditions, resulting in early promising mental health and comorbid outcomes. ^{77,78} The efficacy of such programs for older patients is unknown.	Does identifying depressive symptoms during a hospital stay and initiating a therapeutic plan prior to discharge improve patient-centered and/or disease-specific outcomes?	<p>Possible areas of focus:</p> <ul style="list-style-type: none"> • Use of healthcare information technology • Communication across sites of care • Reducing medication-related adverse events • Engagement of family caregivers • Patient-centered strategies to simplify regimens
Medications	Medication exposure, particularly potentially inappropriate medications, is common in hospitalized elders. ⁷⁹ Medication errors—of dosage, type, and discrepancy between what a patient takes at home and what is known to his/her prescribing physician—are common and adversely affects patient safety. ⁸⁰ Geriatric populations are disproportionately affected, especially those taking more than 5 prescription medications per day. ⁸¹	Numerous strategies including electronic alerts, screening protocols, and potentially inappropriate medication lists (Beers list, STOPP) exist, though the optimal strategies to limit the use of potentially inappropriate medications is not yet known. ⁸²⁻⁸⁴	What systems interventions improve medication management for older adults (ie, appropriateness of medication choices and dosing, compliance, cost) in hospital and post-acute care?	<p>Potential populations:</p> <ul style="list-style-type: none"> • Patients of the emergency department, critical care, perioperative, and targeted medical/surgical units <p>Examples of care principles:</p> <ul style="list-style-type: none"> • Geriatric assessment, early mobility, medication management, delirium prevention, advanced-care planning, risk-factor modification, caregiver engagement <p>Potential outcomes:</p> <ul style="list-style-type: none"> • Patient-centered outcomes* • Cost
Models of care	Hospitalization marks a time of high risk for older patients. Up to half die during hospitalization or within the year following the hospitalization. There is high risk of nosocomial events, and more than a third experience a decline in health resulting in longer hospitalizations and/or placement in extended-care facilities. ^{73,85,86}	Comprehensive inpatient care for older adults (acute care for elders units, geriatric evaluation and management units, geriatric consultation services) were studied in 2 meta-analyses, 5 RCTs, and 1 quasisystematic study and summarized in a systematic review. ⁸⁷ The studies reported improved quality of care (1 of 1 article), quality of life (3 of 4), functional autonomy (5 of 6), survival (3 of 6), and equal or lower healthcare utilization (7 of 8).	For which populations of hospitalized older adults does systematic implementation of geriatric care principles/processes improve patient-centered outcomes?	<p>Potential interventions:</p> <ul style="list-style-type: none"> • Intensive physical therapy • Incidental functional training • Restraint reduction • Medication management <p>Potential outcomes:</p> <ul style="list-style-type: none"> • Discharge location • Delirium, pressure ulcers, and falls
Physical function	Half of older patients will lose functional capacity during hospitalization. ⁸⁸ Loss of physical function, particularly of lower extremities, is a risk factor for nursing home placement. ^{89,90} Older hospitalized patients spend the majority (up to 80%) of their time lying in bed, even when they are capable of walking independently. ⁹¹	Loss of independence with ADL capabilities is associated with longer hospital stays, higher readmission rates, and higher mortality risk. ⁹² Excessive time in bed during a hospital stay is also associated with falls. ⁹³ Often, hospital nursing protocols and physician orders increase in-hospital immobility in patients. ^{91,94} However, nursing-driven mobility protocols can improve functional outcomes of older hospitalized patients. ^{95,96}	What is the comparative effectiveness of interventions that promote in-hospital mobility, improve and preserve physical function, and reduce falls among older hospitalized patients?	

TABLE 2. Continued

Topic	Scope of Problem	What is known	Unanswered Question	Proposed Dimensions
Surgery	An increasing number of persons over age 65 years are undergoing surgical procedures. ⁹⁷ These persons are at increased risk for developing delirium/cognitive dysfunction, ⁹⁸ loss of functional status, ⁹⁹ and exacerbations of chronic illness. ⁹⁷ Additionally, pain management may be harder to address in this population. ¹⁰⁰ Current outcomes may not reflect the clinical needs of elder surgical patients. ¹⁰¹	Tailored drug selection and nursing protocols may prevent delirium. ⁹⁸ Postoperative cognitive dysfunction may require weeks for resolution. Identifying frail patients preoperatively may lead to more appropriate risk stratification and improved surgical outcomes. ⁹⁹ Pain management strategies focused on mitigating cognitive impact and other effects may also be beneficial. ¹⁰⁰ Development of risk-adjustment tools specific to older populations, as well as measures of frailty and patient-centered care, have been proposed. ¹⁰¹	What perioperative strategies can be used to optimize care processes and improve outcomes in older surgical patients?	<p>Potential strategies:</p> <ul style="list-style-type: none"> • Preoperative risk assessment and optimization for frail or multimorbid older patients • Perioperative management protocols for frail or multimorbid older patients <p>Potential outcomes:</p> <ul style="list-style-type: none"> • Postoperative patient centered outcomes* • Perioperative cost, healthcare utilization
Training	Adults over age 65 years comprise 13.2% of the US population, but account for >30% of hospital discharges and 50% of hospital days. ^{96,102,103} By 2030, there will only be 1 geriatrician for every 3798 Americans >75 years. ⁴ Between 1997 and 2006, the odds that a hospitalist would treat a hospitalized Medicare patient rose 29% per year. ³	Train the trainer programs for physicians include the CHAMP, the AGESP, and the PAGE. Education for nurses include the NICHE. Outcomes include improved self-confidence, attitudes, teaching skills, and geriatric care environment. ¹⁰⁴⁻¹⁰⁶	What is the most effective approach to training hospital-based providers in geriatric and palliative care competencies?	<p>Potential interventions:</p> <ul style="list-style-type: none"> • Mentored implementation • Train the trainer • Technical support

NOTE: Abbreviations: ADL, activities of daily living; AGESP, Advancement of Geriatrics Education Scholars Program; CHAMP, Curriculum for the Hospitalized Aging Medical Patient; ICU, intensive care unit; NICHE, Nurses Improving the Care of Health System Elders; PAGE, Program for Advancing Geriatrics Education; POLST, physician orders for life sustaining treatment; RCT, randomized controlled trial; STOPP, Screening Tool of Older People's Potentially Inappropriate Prescriptions.

*Patient-centered outcomes might include quality of life, symptoms, cognition, and functional status.

Therefore, research in geriatric acute care will necessarily be multidisciplinary.

Although these 10 high-priority areas have been selected, this prioritized list is inherently limited by our methodology. First, our survey question was not focused on a disease state, and this wording may have resulted in the list favoring geriatric syndromes rather than common disease processes. Additionally, the resulting questions encompass large research areas and not specific questions about discrete interventions. Our results may also have been skewed by the types of engaged respondents who participated in the consultation, collating, and prioritization phases. In particular, we had a large response from geriatric medicine nurses, whereas some stakeholder groups provided no survey responses. Thus, these respondents were not representative of all possible stakeholders, nor were the survey respondents necessarily representative of each of their organizations. Nonetheless, the participants self-identified as representative of diverse viewpoints that included patients, caregivers, and advocacy groups, with the majority of stakeholder organizations remaining engaged through the completion of the process. Thus, the general nature of this agenda helps us focus upon larger areas of importance, leaving researchers the flexibility to choose to narrow the focus on a specific research question that may include potential interventions and unique outcomes. Finally, our methodology may have inadvertently limited the number of patient and family caregiver voices in the process given our approach to large advocacy groups, our desire to be inclusive of healthcare professional organizations, and our survey methodology. Other methodologies may have reached more patients and caregivers, yet many healthcare professionals have served as family caregivers to frail elders requiring hospitalization and may have been in an ideal position to answer the survey.

In conclusion, several forces are shaping the future of acute inpatient care. These include the changing demographics of the hospitalized patient population, a rapid increase in the proportion of multimorbid hospitalized older adults, an inpatient workforce (hospitalists, generalists, and subspecialists) with potentially limited geriatrics training, and gaps in evidence-based guidance to inform diagnostic and therapeutic decision making for acutely ill older patients. Training programs in hospital medicine should be aware of and could benefit from the resulting list of unanswered questions. Our findings also have implications for training to enrich education in geriatrics. Moreover, there is growing recognition that patients and other stakeholders deserve a greater voice in determining the direction of research. In addition to efforts to improve patient-centeredness of research, these areas have been uniquely identified by stakeholders as important, and therefore are in line with newer priorities of PCORI. This project fol-

lowed a road map resulting in a patient-centered research agenda at the intersection of hospital medicine and geriatric medicine.⁷ In creating this agenda, we relied heavily on the framework proposed by PCORI. We propose to pursue a dissemination and evaluation strategy for this research agenda as well as additional prioritization steps. We believe the adoption of this methodology will create a knowledge base that is rigorously derived and most relevant to the care of hospitalized older adults and their families. Its application will ultimately result in improved outcomes for hospitalized older adults.

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