Title

Complexity in Graduate Medical Education: A Collaborative Education Agenda for Internal Medicine and Geriatric Medicine

Journal

Journal of General Internal Medicine, 29(6)

ISSN

0884-8734

Authors

Chang, Anna
Fernandez, Helen
Cayea, Danelle
et al.

Publication Date

2014-06-01

DOI

10.1007/s11606-013-2752-2

Peer reviewed

Complexity in Graduate Medical Education: A Collaborative Education Agenda for Internal Medicine and Geriatric Medicine

Anna Chang, MD[1], Helen Fernandez, MD, MP[2], Danelle Cayea, MD, MS[3], Shobhina Chheda, MD, MPH[4], Miguel Paniagua, MD, FACP[5], Elizabeth Eckstrom, MD, MPH[6], and Hollis Day, MD, MS[7]

[1]Division of Geriatrics, Department of Medicine, University of California San Francisco, San Francisco, CA, USA; [2]Brookdale Department of Geriatrics and Palliative Medicine, Icahn School of Medicine at Mount Sinai, New York, NY, USA; [3]Division of Geriatric Medicine and Gerontology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [4]Division of General Internal Medicine, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, WI, USA; [5]Division of General Internal Medicine, Saint Louis University School of Medicine, St Louis, MO, USA; [6]Division of General Internal Medicine & Geriatrics, Oregon Health & Science University, Portland, OR, USA; [7]Division of General Internal Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA.

Internal medicine residents today face significant challenges in caring for an increasingly complex patient population within ever-changing education and health care environments. As a result, medical educators, health care system leaders, payers, and patients are demanding change and accountability in graduate medical education (GME). A 2012 Society of General Internal Medicine (SGIM) retreat identified medical education as an area for collaboration between internal medicine and geriatric medicine. The authors first determined a short-term research agenda for resident education by mapping selected internal medicine reporting milestones to geriatrics competencies, and listing available sample learner assessment tools. Next, the authors proposed a strategy for long-term collaboration in three priority areas in clinical medicine that are challenging for residents today: (1) team-based care, (2) transitions and readmissions, and (3) multi-morbidity. The short-term agenda focuses on learner assessment, while the long-term agenda allows for program evaluation and improvement. This model of collaboration in medical education combines the resources and expertise of internal medicine and geriatric medicine educators with the goal of increasing innovation and improving outcomes in GME targeting the needs of our residents and their patients.

KEY WORDS: medical education; graduate; assessment/evaluation; geriatrics; aging; care transitions; comorbidity.
J Gen Intern Med 29(6):940–6
DOI: 10.1007/s11606-013-2752-2

INTRODUCTION

Internal medicine residents today face complex challenges in providing optimal care for their older and chronically ill patients while learning the art, science, and systems of medicine. Some residents practice in clinical settings that have yet to utilize the expertise of teams of complementary health professionals or implement integrated electronic health records. There is continuous pressure for health care systems to improve quality and safety while decreasing costs and resources.[1,2] Stakeholders are looking for patient outcomes data as benchmarks of the return on investment in graduate medical education (GME), and as predictors of the quality of medical care provided by the physicians of our future.[2,3]

Studies show that internal medicine residents do not achieve patient care outcomes comparable to some high-performing physicians in practice today. For example, in a study comparing resident clinics to physician practices identified through the American Board of Internal Medicine (ABIM) practice improvement module, the resident clinic had screening rates of 19 % and 18 % for falls and cognitive impairment, respectively, compared to practicing physician screening rates of 61 % and 52 % for the same conditions.[4] Patients in resident clinics are almost twice as likely as patients seeing practicing physicians to have poor diabetes control (HbA1c>9; 25 % vs. 13 %) and poor blood pressure control (BP≥140/90; 41 % vs. 27 %).[5] Complex patient population and practice characteristics of resident clinics likely contribute to these suboptimal outcomes, and different physician practices may not have the resources to achieve the rates reported by these practicing physicians. Nevertheless, educators recognize the need to improve residents' learning environments, to optimize patient outcomes during training and ensure they are prepared to attain benchmarks exceeding those demonstrated by practicing physicians today.[6]

GME systems change is widespread and happening now. The Accreditation Council for Graduate Medical Education (ACGME) requires educational milestones reporting in the Next Accreditation System (NAS).[3] This mandate follows a rich evolution through various competency-based education frameworks. In 2009, curricular developmental milestones

Published online February 21, 2014

were introduced to provide granular detail for focused assessment and feedback.[7] In 2012, the Alliance for Academic Internal Medicine (AAIM) developed internal medicine resident entrustable professional activities (EPAs), which provides context for faculty to perform meaningful assessment of trainees.[8] In 2013, an expert panel defined 22 internal medicine resident reporting milestones, which are outcomes that document developing competence over the course of training.[9] Educators in the 380 programs training 22,500 internal medicine residents now need to identify ways to assess residents' ability to care for patients with consistent quality in the context of evolving and complex education systems.[10]

This paper describes a proposed strategy for collaboration between internal medicine and geriatric medicine to advance resident assessment and evaluation. It defines a medical education research agenda that includes a short-term strategy focused on learner assessment within evolving frameworks, and a long-term strategy for program evaluation and improvement in three priority areas for clinical care and education. If successful, this model could be used to advance educational collaborations between internal medicine and other subspecialty fields.

WHY A COLLABORATIVE MEDICAL EDUCATION AGENDA?

Collaboration beyond single-institution or single-organization efforts, while challenging, is critical to success in major GME transformation occurring in every residency program today. Benefits include increasing efficiency of effort (i.e. every program does not start from scratch or duplicate existing efforts), garnering the strengths of each to share lessons learned (e.g., for faculty development), and increasing satisfaction and patient outcomes. Challenges include limited available time for collaboration, and differences of priorities and culture. The effort to define EPAs for internal medicine residents in patient-centered medical homes is an example of collaboration crossing traditional discipline and organization silos that led to individual brainstorming and then team synthesis that resulted in a shared strategy.[11] Residency programs are ready for significant change, as demonstrated by recent intensification of the number of workshops, manuscripts, and informal conversations exploring effective methods to address the significant GME systems change being mandated today. An intentional collaboration can unite clinician-educators from different fields to focus on shared challenges with expanded impact.

A collaborative strategy that engages clinician-educators from medicine and geriatrics will strengthen internal medicine residency training. Geriatricians already collaborate with internal medicine clinicians in educating residents and caring for older adults.[12,13] Lessons learned from three decades of education scholarship disseminated in geriatrics meetings and journals may help internal medicine educators leading change in GME. One example is the list of 22 geriatrics competencies for internal medicine residents,[14] and the corresponding assessment tools.[15] Another example is the investment in faculty development by the John A. Hartford Foundation, the Josiah Macy Jr. Foundation, and the Donald W. Reynolds Foundation. The four-school Reynolds Faculty Development to Advance Geriatrics Education Program consortium trained 82 fellows and 899 faculty scholars in 6 years to develop innovative curricula for thousand of learners.[16] This model of a coordinated, multi-institution faculty development strategy can reduce individual effort at each institution. Finally, both fields have made significant progress with clinical systems innovations, such as the Patient-Centered Medical Home (PCMH), Geriatric Resources for Assessment and Care of Elders (GRACE), Guided Care, and Hospital at Home; representing a few of the innovative practice models that our residents may encounter as independent practitioners.[17–20] While collaboration between geriatrics and internal medicine is not the only solution, it can show how significant advances can be achieved more effectively as a team.

THE PROCESS

In 2011, the Society of General Internal Medicine (SGIM) convened a collaborative retreat to establish research agendas in multiple arenas at the intersection of geriatric medicine and general internal medicine. The participants identified medical education research as an area for further collaboration, and chose this team as leaders from the two fields that could develop the agenda. The authors first reviewed guidelines from organizations and stakeholders in internal medicine resident education, focusing on the care of complex older adults. Next, authors reviewed recent literature for bridging areas across GME, general internal medicine, and geriatric medicine. The aim was to optimize education of internal medicine residents for safe, high quality care of their complex and chronically ill patients. The authors did initial brainstorming individually and in small groups to highlight relevant topic areas based on personal knowledge and review of the literature. Consensus about focus areas was reached, and authors conducted a search for available learner assessment tools. Subsequently, using an iterative process including review and revision based on advice from experts in each field, authors determined the following framework for a collaborative medical education research agenda: (1) A **short-term collaboration strategy** focused on learner assessment, providing immediately applicable tools for educators today; and (2) a **long-term**

collaboration strategy, to define three high-impact areas for program evaluation in clinical education that leverages expertise from internal medicine and geriatrics.

THE SHORT-TERM STRATEGY: IMPLEMENTATION AND ASSESSMENT

In Table 1, we map selected internal medicine resident reporting milestones to geriatrics internal medicine resident competencies and available practical learner assessment tools that can be adapted and combined. The list provides examples and is not exhaustive, but educators can use this strategy to assess resident competency through multiple lenses.[36]

Example. Table 1 begins in column 1 with the reporting milestone "Develops and achieves comprehensive management plan for each patient," in which a resident ready for unsupervised practice is someone who "appropriately modifies care plans

Table 1. Learner Assessment Tools for Selected Internal Medicine Resident Reporting Milestones Mapped to Geriatrics Competencies: the Short-Term Collaboration Agenda

Internal medicine resident reporting milestone [37] [Milestone #]	Internal medicine geriatrics competency [14] [Competency #]	Sample learner assessment tools
Develops and achieves comprehensive management plan for each patient. [#2]	• Yearly screening of all ambulatory elders for falls or fear of falling. If positive, assess gait and balance instability, evaluate for potentially precipitating causes (medications, neuromuscular conditions, and medical illness), and implement interventions to decrease risk of falling. [#23]	• Falls clinical evaluation exercise mini-clinical evaluation exercise (Mini-CEX)[21] Competency-based test of inpatient geriatric management skills.[22]
	Prescribe appropriate drugs and dosages, considering: (a) age-related changes in renal and hepatic function, body composition, and central nervous system sensitivity; (b) common side effects in light of patient's comorbidities, functional status, and other medications; and (c) drug–drug interactions. [#1]	• Medication list review of an intern or resident's ten randomly selected primary care and hospital discharge patients. Using guidelines such as the 2012 American Geriatrics Society Beers criteria, evaluate for appropriate choice of medications, dosage, interactions, and management of side effects.[23,24]
	• Evaluate and formulate a differential diagnosis and workup for patients with changes in affect, cognition, and behavior (agitation, psychosis, anxiety, apathy) [#6]	• Mini-Cog Mini-CEX, with hospitalized patients with confusion.[25] • Mini-mental state exam Mini-CEX, with ambulatory patients with memory changes.[26] • The "three D's" of cognitive impairment: an interactive card-sorting exercise, peer assessment in small groups[27] • Systems-based approach to delirium for multiple learners, applied to hospitalized patients with delirium.[28]
	• Discuss and document advance care planning and goals of care with all patients with chronic or complex illness, and/or their surrogates [#13]	• Using the 2012 AGS guidelines and prognostication tools for caring for older adults with multi-morbidity, ask residents to discuss their process for incorporating prognosis into the decision-making process.[29,30]
Requests and provides consultative care. [#5]	• In hospitalized patients with an indwelling bladder catheter, discontinue or document indication for use. [#19]	• Chart review for documentation of indication in 20 medicine consult service patients with indwelling urinary catheters.[31]
Transitions patients effectively within and across health delivery systems. [#11]	• In transfers between the hospital and skilled nursing or extended care facilities, ensure that: …for transfers from the hospital: a written summary of hospital course be completed and transmitted to the patient and/or family caregivers, as well as the receiving health care providers, that accurately and concisely communicates evaluation and management, clinical status, discharge medications, current cognitive and functional status, advance directives, plan of care, scheduled or needed follow-up, and hospital physician contact information. [#22]	• Aging Q3 curriculum to improve discharge summary quality.[32] • Discharge assessment tool (dCEX)[33]
	• In planning hospital discharge, work in conjunction with other health care providers to recommend appropriate services based on: the clinical needs, personal values and social and financial resources of the patients and their families; and the patient's eligibility for community-based services. [#21]	• Interprofessional team encounter: skills self-assessment and reflective writing assignment for internal medicine residents.[34] • Multisource feedback from patients, families, and team members multiple disciplines across sites over time.
Responds to each patient's unique characteristics and needs. [#14]	• Identify and assess barriers to communication such as hearing and/or sight impairments, speech difficulties, aphasia, limited health literacy, and cognitive disorders. When present, demonstrate ability to use adaptive equipment and alternative methods to communicate. [#8]	• Communication skills CEX: videotaped interview of a geriatric patient[35]

CEX clinical evaluation exercise;AGS American Geriatrics Society

based on patient's clinical course, additional data, and patient preferences."[9] This maps in column 2 to geriatrics internal medicine resident competency #23, stating that residents will "yearly screen all ambulatory elders for falls or fear of falling. If positive, assess gait and balance…"[14] Lastly, column 3 suggests two learner assessment tools that can contribute to determining a resident's ability to meet these educational goals. The first is a falls clinical evaluation skills observation tool, and the second is test of clinical management knowledge. Though these assessments alone will not fully satisfy the ability to report on this milestone, they are context-specific tools for authentic learner assessment, capitalizing on the strengths of the EPA framework (not shown in table).[37]

As we implement milestones and assessments in competency-based education to determine residents' ability to practice without supervision, many unanswered questions remain. How many and which assessment tools are needed to ensure each milestone has been accomplished? What are the qualities of our assessment tools (e.g., generalizability, reliability, validity, feasibility, variability)? Which tools best track learner progress over time, or point to need for remediation? And finally, what impact does this educational system have on patient outcomes?

THE LONG-TERM STRATEGY: RESEARCH QUESTIONS IN THREE PRIORITY AREAS

While implementing a short-term strategy of assessing residents in educational milestones, educators also need to develop a long-term strategy for improving the GME learning environment and increasing the focus on patient outcomes. Three priority areas, (1) team-based care, (2) transitions and readmissions, and (3) multi-morbidity, present significant challenges for residents, and exemplify areas where geriatric medicine and internal medicine share complementary expertise.

PRIORITY AREA 1: TEAM-BASED CARE

Rationale. While suboptimal communications among patient care team members result in harm,[38] team-based care can improve health care processes and outcomes.[39] Residents report communication issues as one of the most frequent contributors to errors and near-miss events in patient care.[40] Effective multidisciplinary teams improve patient outcomes in chronic disease management, such as reducing readmissions from heart failure, and improving blood pressure control in those with hypertension.[41,42] Since a physician needs more than 20 hours per day to provide recommended care to a panel of primary care patients, working with an interprofessional team is essential to patient care today.[43]

Collaboration. The Geriatric Resources for Assessment and Care of Elders (GRACE) model of primary care is a team-based home-care strategy for older adults with chronic conditions that improves quality of care and decreases acute care episodes.[19] It relies on teamwork among the primary care physician, nurse practitioner, and social worker, and could be a model for team-based patient care in residencies. The social worker could share conflict resolution strategies while negotiating a management plan with patients and families. The nurse practitioner could discuss safety concerns or blood pressure follow-up management. The benefits of teams are familiar to internal medicine educators working in clinics pioneering patient-centered medical homes and patient-aligned care teams for veterans. Implementation of team-based care models in resident practices may help residents thrive in providing efficient and effective ambulatory care to complex patients, while acquiring essential skills for working in team-based health care environments of their future. One education research question in this area is: "What key leadership and communication skills are necessary for residents and practicing physicians working in teams to improve patient outcomes?" Table 2 lists additional research questions in the area of team-based care.

PRIORITY AREA 2: TRANSITIONS AND READMISSIONS

Rationale. Significant quality and safety gaps exist when patients transition between the hospital and other settings. Almost 20 % of Medicare beneficiaries are re-hospitalized within 30 days of discharge, and one-third within 90 days.[45] Adverse drug events, especially in the elderly, contribute to preventable readmissions to the hospital.[46]

Collaboration. Already a significant area for collaboration, the American College of Physicians (ACP), Society of Hospital Medicine (SHM), and SGIM Transitions of Care Consensus Conference brought together geriatricians and general medicine physicians in 2007 to develop guidelines for care transitions.[47] One early education initiative teaching internal medicine residents about preventable readmissions did not result in reduced readmissions,[48] and another showed a significant reduction in 30-day heart-failure readmissions.[49] Future collaboration could evaluate the impact of increased exposure to different levels of care outside of hospitals and clinics (e.g. nursing home, assisted

Table 2. Medical Education Research Questions in Three Priority Areas: the Long-Term Collaboration Agenda

Priority area	Internal medicine resident reporting milestone [37] [Milestone #]	Suggested research questions
1. Team-based care	Works effectively within an interprofessional team [#8]	• What key leadership and communication skills are necessary for residents and practicing physicians working in teams to improve patient outcomes? • What are effective methods to teach residents to lead and participate in interprofessional teams? • How can learning and quality patient care occur in practices that do not yet function as ideal teams? • How can teams improve their function by incorporating residents into their core fabric? • What learner assessment tools address the Institute of Medicine's (IOM) five values of high-functioning teams (honesty, discipline, creativity, humility, and curiosity)?[44] • What strategies engage team members of other health professions in resident learning, feedback, and assessment?
2. Transitions and readmissions	Transitions patients effectively within and across health delivery systems [#11]	• What knowledge and exposure do residents need to have about discharge settings (e.g. skilled nursing facilities) to safely manage hospital discharges? • What methods effectively include residents in a learning feedback loop that gives them information on patient events after discharge from hospital? • Which patient outcome measures assess the effectiveness of hand-off from the resident to the receiving medical provider? • In medication reconciliation during transitions, how can residents work most effectively with other professions (e.g. pharmacy, nursing?) • Can transitions education for residents reduce preventable readmissions?
3. Multi-morbidity	Develops and achieves comprehensive management plan for each patient [#2]	• Which patient outcomes could best be utilized as quality indicators of management of multi-morbidity in older adults? • What decision-support tools should be incorporated into the clinical practice of all residents to enhance learning and quality? • How do we teach and assess residents on complex clinical decision-making in multi-morbid patients where evidence lags behind practice? • What patient outcomes are linked to a resident's ability to filter, prioritize, and use vast amounts of data to improve the health of panels of multi-morbid patients? • Which tools assess a resident's ability to incorporate patient preferences and prognosis in the management of patients with multi-morbidity?

living, home), closer engagement with the patient's care needs and social context, and intensified focus on medication management during transitions. Sample strategies include the Coleman Care Transitions Intervention,[23] and the American Geriatrics Society's (AGS) updated Beers criteria of medications to avoid in older adults.[50] Focusing our educational efforts towards this high-risk area using these existing resources, we can begin to influence resident training in patient safety and quality of care during transitions. One sample education research question in this area is: "What knowledge and exposure do residents need to have about discharge settings (e.g. skilled nursing facilities) to safely manage hospital discharges?" Additional research questions are listed in Table 2.

PRIORITY AREA 3: MULTI-MORBIDITY

Rationale. A major challenge in clinical medicine is developing one rational patient management plan based on numerous single-disease clinical practice guidelines while being mindful of patient preferences.[29] In 2012, AGS convened an expert panel on the care of older adults with multi-morbidity, resulting in a set of guiding principles for care of multi-morbidity and chronic illness.[51] Since two-thirds of older adults have multiple chronic conditions, learning to develop an effective and manageable care strategy is important to the internal medicine resident's current and future practice.[51]

Collaboration. In the care of older adults, geriatricians apply the principles for multi-morbidity in individualized clinical decision-making. This strategy begins with the patient's primary concern; includes a review of the care plan; considers patient preferences, available medical evidence, prognosis, benefits and harms; and communicates options and treatment choices with the patient. The impact of collaboration could be that internal medicine residents, in utilizing this strategy in caring for their most complex patients, could find their professional satisfaction levels closer to those of geriatricians whose job satisfaction has been ranked among the highest of any medical specialty.[52] One sample research question in this area is: "Which patient outcomes could best be utilized as quality indicators of management of multi-morbidity in

older adults?" Additional relevant research questions are in Table 2.

CONCLUSION

As patient care and health systems become more complex, internal medicine residency programs face a critical moment of transformation. A collaborative agenda combining the resources and expertise of internal medicine and geriatric medicine educators could increase the likelihood that innovations will meet the needs of our residents and patients. The short-term strategy aims to advance learner assessment aligned with the current framework of reporting milestones, and the long-term strategy could improve residents' clinical learning environment and patient outcomes. This agenda is an important step towards advancing the process and outcomes for internal medicine resident education in this time of change.

Acknowledgements: *This individual paper had no funding support, and the authors thank the Association of Specialty Professors for the overall support of the SGIM symposium. This work has not been presented before.*

Conflict of Interest: *The authors have no conflicts of interest relevant to this work.*

Corresponding Author: *Anna Chang, MD; Division of Geriatrics, Department of MedicineUniversity of California San Francisco, 3333 California Street, Suite 380, San Francisco, CA 94118, USA (e-mail: anna.chang@ucsf.edu).*

REFERENCES

1. **Berwick DM, Hackbarth AD.** Eliminating waste in US health care. JAMA. 2012;307(14):1513–6.
2. **Iglehart JK.** Health reform, primary care, and graduate medical education. N Engl J Med. 2010;363(6):584–90.
3. **Nasca TJ, Philibert I, Brigham T, Flynn TC.** The next GME accreditation system–rationale and benefits. N Engl J Med. 2012;366(11):1051–6.
4. **Lynn LA, Hess BJ, Conforti LN, Lipner RS, Holmboe ES.** Clinic systems and the quality of care for older adults in residency clinics and in physician practices. Acad Med. 2009;84(12):1732–40.
5. **Lynn L, Hess BJ, Weng W, Lipner RS, Holmboe ES.** Gaps in quality of diabetes care in internal medicine residency clinics suggest the need for better ambulatory care training. Health Aff. 2012;31(1):150–8.
6. **Holmboe ES, Sherbino J, Long DM, Swing SR, Frank JR.** The role of assessment in competency-based medical education. Med Teach. 2010;32(8):676–82.
7. **Green ML, Aagaard EM, Caverzagie KJ, Chick DA, Holmboe E, Kane G, et al.** Charting the road to competence: Developmental milestones for internal medicine residency training. J Grad Med Educ. 2009;1(1):5–20.
8. **ten Cate O, Scheele F.** Competency-based postgraduate training: Can we bridge the gap between theory and clinical practice? Acad Med. 2007;82(6):542–7.
9. **Caverzagie KJ, Iobst WF, Aagaard EM, Hood S, Chick DA, Kane GC, et al.** The internal medicine reporting milestones and the next accreditation system. Ann Intern Med. 2013;158(7):557–9.
10. **Brotherton SE, Etzel SI.** Graduate medical education, 2011–2012. JAMA. 2012;308(21):2264–79.
11. **Chang A, Bowen JL, Buranosky RA, Frankel RM, Ghosh N, Rosenblum MJ, et al.** Transforming primary care training-patient-centered medical home entrustable professional activities for internal medicine residents. J Gen Intern Med. 2012 Sep 21.
12. **Landefeld CS, Callahan CM, Woolard N.** General internal medicine and geriatrics: Building a foundation to improve the training of general internists in the care of older adults. Ann Intern Med. 2003;139(7):609–14.
13. **Thomas DC, Leipzig RM, Smith LG, Dunn K, Sullivan G, Callahan E.** Improving geriatrics training in internal medicine residency programs: Best practices and sustainable solutions. Ann Intern Med. 2003;139(7):628–34.
14. **Williams BC, Warshaw G, Fabiny AR, Lundebjerg Mpa N, Medina-Walpole A, Sauvigne K, et al.** Medicine in the 21st century: Recommended essential geriatrics competencies for internal medicine and family medicine residents. J Grad Med Educ. 2010;2(3):373–83.
15. The portal of geriatrics online education [Internet]: ADGAP; 2013 [updated 2013; cited December 13, 2013]. Available from: http://www.pogoe.org/.
16. **Heflin MT, Bragg EJ, Fernandez H, Christmas C, Osterweil D, Sauvigne K, et al.** The Donald W. Reynolds consortium for faculty development to advance geriatrics education (FD AGE): A model for dissemination of subspecialty educational expertise. Acad Med. 2012;87(5):618–26.
17. **American Academy of Family Physicians.** Joint principles of the patient-centered medical home. Del Med J. 2008;80(1):21–2.
18. **Boyd CM, Boult C, Shadmi E, Leff B, Brager R, Dunbar L, et al.** Guided care for multimorbid older adults. Gerontologist. 2007;47(5):697–704.
19. **Counsell SR, Callahan CM, Buttar AB, Clark DO, Frank KI.** Geriatric resources for assessment and care of elders (GRACE): A new model of primary care for low-income seniors. J Am Geriatr Soc. 2006;54(7):1136–41.
20. **Leff B, Burton L, Mader SL, Naughton B, Burl J, Inouye SK, et al.** Hospital at home: Feasibility and outcomes of a program to provide hospital-level care at home for acutely ill older patients. Ann Intern Med. 2005;143(11):798–808.
21. **Gentili A.** Falls Clinical Evaluation Exercise (Mini-CEX). [Internet] POGOe - Portal of Geriatric Online Education; 2011; cited December 13, 2013. Available from: http://www.pogoe.org/productid/20915
22. **Cumbler E, Guerrasio J.** Competency-Based Test of Inpatient Geriatric Management Skills. [Internet] POGOe - Portal of Geriatric Online Education; 2009; cited December 13, 2013. Available from: http://www.pogoe.org/productid/20596
23. **Parry C, Min SJ, Chugh A, Chalmers S, Coleman EA.** Further application of the care transitions intervention: Results of a randomized controlled trial conducted in a fee-for-service setting. Home Health Care Serv Q. 2009;28(2–3):84–99.
24. AGS Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults [Internet]: The American Geriatric Society; 2012; cited December 13, 2013. Available from: http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2012
25. **Ehrlich A, Freeman K.** Clinical Evaluation Exercise (Mini-CEX) Mini-Cog. [Internet] POGOe - Portal of Geriatric Online Education; 2011; cited December 13, 2013. Available from: http://www.pogoe.org/productid/20814
26. C. Bree Johnston. MMSE CEX. [Internet] POGOe - Portal of Geriatric Online Education; 2009; cited December 13, 2013. Available from: http://www.pogoe.org/productid/20544
27. **Paniagua M, van Zuilen R, Silver I.** The "Three D's" of Cognitive Impairment: An Interactive Card-sorting Exercise. [Internet] MedEdPORTAL; 2006; cited December 13, 2013. Available from: www.mededportal.org/publication/243
28. **Roche V, Oksenberg L.** Systems-Based Approach to Delirium for Multiple Learners-Interactive Web Module. [Internet] POGOe - Portal of Geriatric Online Education; 2011; cited December 13, 2013. Available from: http://www.pogoe.org/productid/20815
29. **Marengoni A, Angleman S, Melis R, Mangialasche F, Karp A, Garmen A, et al.** Aging with multimorbidity: A systematic review of the literature. Ageing Res Rev. 2011;10(4):430–9.
30. Three or More – Managing Multiple Health Problems in Older Adults, Guiding Principles for the Care of Older Adults with Multimorbidity [Internet]: The American Geriatric Society; 2012; cited December 13, 2013. Available from: http://www.americangeriatrics.org/health_care_professionals/clinical_practice/multimorbidity

31. Catherine DuBeau. CHAMP (Curriculum for the Hospitalized Aging Medical Patient): Foley Catheter Use. [Internet] POGOe - Portal of Geriatric Online Education; 2009; cited December 13, 2013. Available from: http://www.pogoe.org/productid/18925
32. **Axon N, Moran W.** Aging Q3 Curriculum to Improve Discharge Summary Quality. [Internet] POGOe - Portal of Geriatric Online Education; 2012; cited December 13, 2013. Available from: http://www.pogoe.org/productid/21011
33. **Wang M.** Discharge Assessment Tool (dCEX). [Internet] POGOe - Portal of Geriatric Online Education; 2011; cited December 13, 2013. Available from: http://www.pogoe.org/productid/20808
34. **Thompson K.** Interprofessional Team Encounter: Skills Self-Assessment and Reflective Writing Assignment for Internal Medicine Residents. [Internet] POGOe - Portal of Geriatric Online Education; 2012; cited December 13, 2013. Available from: http://www.pogoe.org/productid/21208
35. **Ehrlich A, Greenberg D.** Communication Skills for Geriatrics Fellowship: Clinical Evaluation Exercise (CEX): Videotaped Interview of a Geriatric Patient. [Internet] POGOe—Portal of Geriatric Online Education; 2013; cited December 13, 2013. Available from: http://www.pogoe.org/productid/21024
36. **Caverzagie KJ.** Lens for assessment of competence. 2013; Society of General Internal Medicine Annual Meeting Workshop.
37. The alliance for academic internal medicine resident end-of-training entrustable professional activities [Internet]: The Alliance for Academic Internal Medicine; 2013; cited December 13, 2013]. Available from: http://www.im.org/AcademicAffairs/milestones/Pages/EndofTrainingEPAs.aspx.
38. **Salas E, Almeida SA, Salisbury M, King H, Lazzara EH, Lyons R, et al.** What are the critical success factors for team training in health care? Jt Comm J Qual Patient Saf. 2009;35(8):398–405.
39. **Zwarenstein M, Goldman J, Reeves S.** Interprofessional collaboration: Effects of practice-based interventions on professional practice and healthcare outcomes. Cochrane Database Syst Rev. 2009 Jul 8;(3):CD000072. doi(3):CD000072.
40. **Sutcliffe KM, Lewton E, Rosenthal MM.** Communication failures: An insidious contributor to medical mishaps. Acad Med. 2004;79(2):186–94.
41. **Sochalski J, Jaarsma T, Krumholz HM, Laramee A, McMurray JJV, Naylor MD, et al.** What works in chronic care management: The case of heart failure. Health Aff. 2009;28(1):179–89.
42. **Carter BL, Rogers M, Daly J, Zheng S, James PA.** The potency of team-based care interventions for hypertension. Arch Intern Med. 2009;169(19):1748.
43. **Saba GW, Villela TJ, Chen E, Hammer H, Bodenheimer T.** The myth of the lone physician: Toward a collaborative alternative. Ann Fam Med. 2012;10(2):169–73.
44. **Mitchell, Pamela, et al.** "Core principles & values of effective team-based health care." *Discussion Paper* (2012).
45. **Jencks SF, Williams MV, Coleman EA.** Rehospitalizations among patients in the medicare fee-for-service program. N Engl J Med. 2009;360(14):1418–28.
46. **Robinson S, Howie-Esquivel J, Vlahov D.** Readmission risk factors after hospital discharge among the elderly. Popul Health Manag. 2012;15(6):338–51.
47. **Snow V, Beck D, Budnitz T, Miller DC, Potter J, Wears RL, et al.** Transitions of care consensus policy statement: American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College of Emergency Physicians, and Society for Academic Emergency Medicine. J Hosp Med. 2009;4(6):364–70.
48. **Njeim M, Chiha M, Whitehouse S, Baker-Genaw K.** System-based approach to educating internal medicine residents on preventable hospital readmissions. J Grad Med Educ. 2012;4(4):505–9.
49. **Record JD, et al.** "Reducing heart failure readmissions by teaching patient-centered care to internal medicine residents". Arch of Intern Med. 2011;171(9):858.
50. **American Geriatrics Society.** Beers Criteria Update Expert Panel. American geriatrics society updated beers criteria for potentially inappropriate medication use in older adults. J Am Geriatr Soc. 2012;60(4):616–31.
51. American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity. Patient-centered care for older adults with multiple chronic conditions: A stepwise approach from the American Geriatrics Society: American Geriatrics Society expert panel on the care of older adults with multimorbidity. J Am Geriatr Soc. 2012 Oct;60(10):1957–68.
52. **Leigh JP, Tancredi DJ, Kravitz RL.** Physician career satisfaction within specialties. BMC Health Serv Res. 2009 Sep 16;9:166,6963-9-166.