Journal of HOSPITAL MEDICINE www.journalofhospitalmedicine.com

ORIGINAL RESEARCH

Short-Term Outcomes of Seniors Aged 80 Years and Older With Acute Illness: Hospitalist Care by Geriatricians and Other Internists Compared

Yew Yoong Ding, MBBS, FRCP, MPH[1,2]*, Yan Sun, MSc, PhD[2], Jam Chin Tay, MBBS, MMed(Int Med), FRCP[3], Wai Fung Chong, SRN, MBA, MPH[2]

[1]Department of Geriatric Medicine, Tan Tock Seng Hospital, Singapore; [2]Health Services & Outcomes Research, National Healthcare Group, Singapore; [3]Department of General Medicine, Tan Tock Seng Hospital, Singapore.

BACKGROUND: Although acute geriatric units have improved the outcomes of hospitalized seniors, it is uncertain as to whether hospitalist care by geriatricians outside of these units confers similar benefit.

OBJECTIVE: To determine whether hospitalist care by geriatricians reduces short-term mortality and readmission, and length of stay (LOS) for seniors aged 80 years and older with acute medical illnesses compared with care by other internists.

DESIGN: Retrospective cohort study using administrative and chart review data on demographic, admission-related, and clinical information of hospital episodes.

SETTING: General internal medicine department of an acute-care hospital in Singapore from 2005 to 2008.

PATIENTS: Seniors aged 80 years and older with specific focus on 2 subgroups with premorbid functional impairment and acute geriatric syndromes.

INTERVENTION: Hospitalist care by geriatricians compared with care by other internists.

MEASURES: Hospital mortality, 30-day mortality or readmission, and LOS.

RESULTS: For 1944 hospital episodes (intervention: 968, control: 976), there was a nonsignificant trend toward lower hospital mortality (15.5% vs 16.9%) but not 30-day mortality or readmission, or LOS for care by geriatricians compared with care by other internists. A marginally stronger trend toward lower hospital mortality for care by geriatricians among those with acute geriatric syndromes (20.2% vs 23.1%) was observed. Similar treatment effects were found after adjustment for demographic, admission-related, and clinical factors.

CONCLUSIONS: For seniors aged 80 years and over with acute medical illness, hospitalist care by geriatricians did not significantly reduce short-term mortality, readmission, or LOS, compared with care by other internists. *Journal of Hospital Medicine* 2014;9:634–639. © 2014 Society of Hospital Medicine

Care for hospitalized seniors in acute geriatric units including acute care for the elderly (ACE) units have been shown to reduce function impairment and nursing home admission and possibly mortality, length of stay (LOS), and readmission.[1–6] These units are run by specialized multidisciplinary teams with direct responsibility for the care of seniors with acute medical illnesses and are often led by geriatricians.[1] However, it is unclear whether these benefits are also achieved by hospitalist care by geriatricians working alongside other internists in general internal medicine units[7] and hospitalist care models.[8] Questions on effectiveness are relevant given the shortage of geriatricians in most healthcare systems and the escalating numbers of seniors requiring acute care. Many of these seniors have cognitive impairment, delirium, and functional decline, and longer hospital stays.[9] Beyond care settings, it is likely that specific subgroups of seniors benefit more from care delivered by geriatricians and their multidisciplinary teams. Patient characteristics defining these subgroups constitute potential targeting criteria, and these include advanced age, functional impairment, and geriatric syndromes.[10] However, to date, supporting evidence that these subgroups accrue greater benefit from care by geriatricians is lacking.[1]

Over this backdrop, our primary study aim was to determine whether hospitalist care by geriatricians for seniors aged 80 years and older in general internal medicine units improves short-term outcomes compared with care by other internists in the setting of a busy acute-care hospital. The secondary aim was to determine whether subgroups with premorbid functional impairment and with acute geriatric syndromes receive greater benefit from this care. Our hypotheses were that hospitalist care by geriatricians reduces hospital mortality, 30-day mortality or readmission, and hospital LOS compared with care by other internists, and that these improvements are greater for the 2 subgroups.

*Address for correspondence and reprint requests: Yew Y. Ding, MBBS, Department of Geriatric Medicine, Tan Tock Seng Hospital, 11 Jalan Tan Tock Seng, Singapore 308433; Telephone: +6563577844; Fax: +6563577837; E-mail: dyyttsh@gmail.com

Additional Supporting Information may be found in the online version of this article.

Received: March 30, 2014; **Revised:** June 10, 2014; **Accepted:** June 28, 2014
2014 Society of Hospital Medicine DOI 10.1002/jhm.2238
Published online in Wiley Online Library (Wileyonlinelibrary.com).

METHODS

Design

This is a retrospective cohort study employing secondary analysis of merged data from clinical records, hospital administrative information, and the national death registry. The local institutional review board approved waiver of consent and other study procedures.

Setting and Patients

Hospital episodes of seniors aged 80 years and over admitted to the 350-bed general internal medicine department of an acute-care hospital in Singapore across calendar years 2005 to 2008 comprised the sampling frame. The choice of the study period was influenced by 2 factors. First, geriatricians consistently provided hospitalist care in the general internal medicine department at the study hospital up to 2008 but not after that. Second, administrative data were judged to be less reliable prior to 2005. Those with human immunodeficiency virus disease or acquired immune deficiency syndrome were excluded. Equal numbers of hospital episodes with attending physicians as geriatricians and other internists, and from each calendar year, were randomly sampled for analysis.

Intervention

Hospitalist care by geriatricians was compared with care by other internists who comprised a mix of generalists (with advanced internal medicine training) and subspecialists (including gastroenterologists, endocrinologists, and rheumatologists). Geriatricians and other internists were first certified in internal medicine in a 3-year training program, before proceeding to either their respective subspecialty training for 3 years or additional training in advanced internal medicine for 2 years. At the general internal medicine department of the study hospital, 10 to 12 internists provided hospitalist care at any time. Of them, 1 to 2 would be geriatricians. All were hospital-based physicians.

All attending physicians provided hospitalist care for adult patients at general internal medicine wards and led teams of medical residents drawn from a common departmental pool. Nurses, including those with added certification in gerontology, and allied health professionals were generally similar across these wards. In addition, nurse specialists in dementia and continence were accessible for specific consultation. Geriatricians and other internists were rotated to these wards in accordance with monthly rosters that did not have any systematic assignment criteria. They and their team of 2 to 3 residents would typically care for 20 to 30 patients at any time.

In both intervention and control groups, interdisciplinary rounds were not carried out. Rather, ad hoc discussions between physicians and other attending healthcare professionals including physiotherapists, occupational therapists, speech therapists, dieticians, pharmacists, social workers, and case managers took place. Different patients would have varying permutations of these professionals involved in their care at different times during the course of their hospital episode.

Variables

Outcome variables measured were hospital mortality, 30-day mortality or readmission, and LOS. The latter 2 outcomes were only for hospital admissions of patients who survived and were discharged. Besides attending physicians' specialty, other explanatory variables included demography, living arrangement, hospitalization in the prior 30 days, Elixhauser comorbidity conditions,[11] modified Severity of Illness Index (SII),[12] premorbid functional impairment measured by basic activities of daily living (BADL), acute geriatric syndromes (delirium, falls, impaired mobility), and calendar year. The modified SII is based on 4 clinical parameters items (systolic blood pressure, body temperature, heart rate, and respiratory rate) at admission and was extracted from the clinical charts. It was scaled 0 to 4, with higher scores indicating more severe acute illness. Information on premorbid functional status was extracted from the section of the clinical charts that was mandatory for attending doctors to complete. In a previous study of older hospitalized patients in the general internal medicine department of the study hospital, agreement between data on premorbid functional status from chart review and interview was good.[13] Finally, the presence of acute geriatric syndromes at admission was determined by their documentation in the clinical charts.

Statistical Analysis

Sample size calculation indicated that 1812 patients (906 in each of intervention and control groups) were sufficient to detect a difference of 5% in hospital mortality between the intervention and control groups (15% vs 20%) with 80% power and alpha of 0.05. With anticipated loss of 8% due to unavailability of clinical charts for review, 2000 hospital episodes were sampled (1000 for each group, of which 250 were from each calendar year).

The 3 unadjusted outcome measures for the intervention and control groups constituted the main results. To adjust for any observed differences between the intervention and control groups, logistic regression was performed for hospital mortality and 30-day mortality or readmission as binary outcomes. Generalized linear models with gamma family and log link were used for the continuous variable of LOS because of its expected right-skewed distribution. Through these regression analyses, outcome measures were adjusted for age, gender, nursing home residence, hospitalization in the prior 30 days, premorbid functional status, comorbidity, severity of illness, and

TABLE 1. Comparison of Baseline Characteristics of the Intervention and Control Groups

	Care Led by Geriatricians (n = 968)	Care Led by Other Internists (n = 976)	*P* Value
Age, mean (SD), y	86.0 (5.1)	85.8 (5.1)	0.52
Male, n (%)	377 (39.0)	361 (37.0)	0.37
Living arrangement, n (%)			0.09
Alone	19 (2.0)	21 (2.2)	
With other people	690 (71.3)	730 (74.8)	
Nursing home	255 (26.3)	214 (21.9)	
Missing	4 (0.4)	11 (1.1)	
Admission source, n (%)			0.91
Emergency department	943 (97.4)	950 (97.3)	
Others	25 (2.6)	26 (2.7)	
Hospital admissions in the prior 30 days, n (%)	214 (22.1)	210 (21.5)	0.75
Year, n (%)			1.00
2005	244 (25.2)	242 (24.8)	
2006	237 (24.5)	243 (24.9)	
2007	241 (24.9)	244 (25.0)	
2008	246 (25.4)	247 (25.3)	
Premorbid basic activities of daily living, n (%)			0.28
Independent	317 (32.7)	345 (35.3)	
Assisted or dependent	625 (64.6)	613 (62.9)	
Missing	26 (2.7)	18 (1.8)	
Elixhauser comorbidity count, mean (SD)	3.2 (1.6)	3.2 (1.7)	0.58
Modified Severity of Illness Index, n (%)			0.30
1 or 2	541 (55.9)	568 (58.2)	
3 or 4	427 (44.1)	408 (41.8)	
Diagnosis-Related Group category, n (%)			0.88
Circulatory	110 (11.4)	110 (11.3)	
Digestive	55 (5.7)	60 (6.1)	
Endocrine, nutritional and metabolic diseases, and immunological	60 (6.2)	54 (5.5)	
Genitourinary	146 (15.1)	172 (17.6)	
Mental and nervous	16 (1.7)	16 (1.6)	
Musculoskeletal	9 (0.9)	10 (1.0)	
Respiratory	364 (37.6)	356 (36.5)	
Others	208 (21.5)	198 (20.3)	
Acute geriatric syndromes, n (%)			
Mobility impairment	75 (7.7)	79 (8.1)	0.78
Falls	82 (8.5)	99 (10.1)	0.21
Delirium	290 (30.0)	279 (28.6)	0.51

NOTE: **Abbreviations:** SD, standard deviation.

acute geriatric syndromes. In addition, clustering of hospital episodes within calendar years was addressed using fixed effects with dummy variables. These analyses were repeated for the 2 subgroups of those with premorbid functional impairment (defined as assisted or dependent BADL) and with acute geriatric syndromes (delirium, falls, impaired mobility, incontinence, and impaired self-care). Listwise deletion was used to address missing values for explanatory variables where they occurred in <5% of hospital episodes analyzed. Clustering due to physicians was not addressed, as only information on whether the attending physician was a geriatrician or another internist was available in the study dataset rather than individual physician identifiers.

As additional analyses to adjust for difference in Diagnosis-Related Groups (DRG) between intervention and control groups, we identified DRG codes that accounted more than 20 hospital episodes. Remaining DRG codes were aggregated into a single category designated as "others." We then included these DRG codes as additional dummy variables in the regression models to observe the extent to which odds ratios for the treatment effect of geriatricians providing hospitalist care were changed.

Statistical analyses were performed using Stata version 13.1 (StateCorp, College Station, TX) with significance taken at the 5% level.

RESULTS

Among 1944 hospital episodes with data available for analysis, 968 received care by geriatricians and 976 by other internists. Death and readmission information at 30 days postdischarge was available for all. Seniors were predominantly female. About one-quarter of seniors were nursing home residents. Only one-third had premorbid functional independence. They had a mean number of 3 out of 30 Elixhauser comorbid conditions. Circulatory, respiratory, and genitourinary disorders accounted for more than half of primary diagnoses. The most common acute geriatric syndrome at presentation was delirium, which occurred in 3 out of every 10 seniors. More importantly, intervention and control groups only had minor differences on baseline characteristics, including nursing home residence, which was slightly more common in the intervention group (Table 1). Missing values occurred only for the explanatory variables, living arrangement, and premorbid basic activities of daily living in 0.4% to 2.7% of included hospital episodes.

There were no significant differences in hospital mortality, 30-day mortality or readmission, and LOS between hospital episodes with care by geriatricians and other internists for the whole group and the 2 subgroups (Table 2). However, nonsignificant reduction in hospital mortality was observed for the whole group (15.5% vs 16.9%, $P = 0.40$), with greater magnitude for the subgroup with acute geriatric syndromes (20.2% vs 23.1%, $P = 0.31$).

When adjusted for age, gender, premorbid functional status, comorbidity, severity of illness, acute geriatric syndromes, hospitalization in the prior 30 days, and calendar year, care by geriatricians was associated with nonsignificant trends toward lower hospital mortality, with odds ratios between 0.80 and 0.89. However, 30-day mortality or readmission and LOS for the intervention and control groups were generally equivalent (Table 3). There are only minor differences between the odds ratios and their 95% confidence intervals for regression analyses without and with additional adjustment for DRG codes (results not shown). Thus, they do not change the study results in any significant way.

DISCUSSION

Geriatricians provide direct acute hospital care for seniors either in dedicated acute geriatric units

TABLE 2. Main Outcomes for the Whole Study Population and the Two Subgroups

	All		Those With Premorbid Functional Impairment		Those With Acute Geriatric Syndromes	
	Care Led by Geriatricians	Care Led by Other Internists	Care Led by Geriatricians	Care Led by Other Internists	Care Led by Geriatricians	Care Led by Other Internists
Hospital mortality, n (%)	150/968 (15.5)	165/976 (16.9), $P = 0.40$	125/625 (20.0)	137/613 (22.4), $P = 0.31$	79/392 (20.2)	92/398 (23.1), $P = 0.31$
30-day mortality or readmission, n (%)	206/818 (25.2)	200/811 (24.7), $P = 0.81$	147/500, (29.4)	144/476, (30.3), $P = 0.77$	88/313, (28.1)	83/306, (27.1), $P = 0.78$
Mean length of stay, days (SD)	9.7 (10.2), n = 818	9.7 (10.9), n = 811, $P = 0.87$	11.1 (10.7), n = 500	11.1 (12.3), n = 476, $P = 0.93$	11.4 (12.5), n = 321	10.8 (13.0), n = 312, $P = 0.57$

NOTE: **Abbreviations:** SD, standard deviation.

including ACE units[14] or alongside generalists or subspecialty physicians in general internal medicine units. Through an unique opportunity to study the latter arrangement, we found that hospitalist care by geriatricians for seniors aged 80 years and older in general internal medicine units did not improve their short-term outcomes vis-à-vis care by other internists. These findings are in contrast to those of studies on acute geriatric units. This is the first report on the effectiveness of hospitalist care for seniors provided by geriatricians. Although not a randomized controlled trial, our study is in essence a natural experiment which does not impose any major inclusion restrictions other than age of 80 years and above. Internal validity was enhanced by intervention and control groups being similar on individual-level characteristics, whereas external validity was boosted by an all-comers approach to enrollment.

It is pertinent to ask why hospitalist care by geriatricians in a general internal medicine department did not benefit seniors with advanced age, many of whom have functional impairment and multimorbidity. After all, improved care and outcomes seem plausible for these seniors who appear to be more vulnerable. We propose 4 possible explanations. First, unmeasured differences between intervention and control groups could have led to unobserved confounding. However, this is less likely given the nonsystematic assignment of attending physicians to different wards and similarity of intervention and control groups on a broad range of baseline characteristics. Second, care processes in wards allocated to geriatricians may not differ very much from those in other wards. Irrespective of ward, care delivered by medical residents and other healthcare professionals were also expected to be similar. Unlike acute geriatric units where comprehensive geriatric assessment (CGA) by a multidisciplinary team is thought to be responsible for the improved outcomes,[12] the influence of geriatricians outside of these units may not necessarily achieve the same level of geriatric care.[15,16] This is precisely the challenge encountered by geriatricians in their care of acutely ill older patients in settings other than acute geriatric units, Third, diffusion of geriatric care practices across general internal medicine wards over the past decade at our hospital may have resulted in narrowed differences in the care processes particularly relevant to seniors, such as those related to functional retraining, swallowing assessment, and discharge planning, although we do not have any specific data to confirm this. These differences may in turn not be wide enough for hospitalist care by geriatricians to influence these short-term outcomes positively. Last, our study was not designed to measure patient-reported outcomes such as functional status, mood, quality of life, and satisfaction, which may arguably be more responsive to geriatric intervention.

It might be noted that the average LOS for hospital episodes in this study was almost 10 days, which is longer than that typically seen in North America. There are 2 possible reasons for this. First, these are hospital episodes of very old patients, and longer LOS among survivors is expected. Second, post-acute care was not as well developed in Singapore during the

TABLE 3. Adjusted Outcomes for the Whole Study Population and the Two Subgroups Using Logistic Regression for Hospital Mortality and 30-Day Mortality or Readmission and Generalized Linear Regression for Length of Hospital Stay

Care by Geriatricians (Ref: Care by Other Internists)	All	Those With Premorbid Functional Impairment	Those With Acute Geriatric Syndromes
Hospital mortality: odds ratio (95% confidence interval)	0.89 (0.69 to 1.16), n = 1,886, $P = 0.40$	0.85 (0.64 to 1.13), n = 1,233, $P = 0.27$	0.80 (0.55 to 1.16), n = 764, $P = 0.24$
30-day mortality or readmission: odds ratio (95% confidence interval)	1.05 (0.82 to 1.33), n = 1,580, $P = 0.71$	0.94 (0.71 to 1.25), n = 973, $P = 0.69$	1.03 (0.70 to 1.50), n = 600, $P = 0.89$
Length of stay: log days (95% confidence interval)	−0.03 (−0.14 to 0.07), n = 1,580, $P = 0.52$	−0.03 (−0.16 to 0.10), n = 973, $P = 0.68$	0.00 (−0.18 to 0.18), n = 600, $P = 1.00$

NOTE: Treatment effects were adjusted for age, gender, nursing home residence, hospitalization in the prior 30 days, premorbid functional status, comorbidity, severity of illness, acute geriatric syndromes, and calendar year.

study period. Since then, the system of community hospitals has expanded, thereby allowing earlier transfer to these facilities for post-acute care and shorter LOS at acute-care hospitals.

There are a number of limitations of our study. First, this is an observational study where treatment assignment is not allocated. Although a randomized controlled trial may be the ideal design to evaluate treatment effects, operational and ethical considerations at a busy acute-care hospital render this very challenging to conduct. As mentioned, nonsystematic assignment of attending physicians to different wards and lack of important baseline differences between intervention and control groups support the notion that important unmeasured differences are less likely. Second, and as alluded to, we did not measure relevant patient-reported outcomes. Nonetheless, we argue that survival is still important to many seniors, particularly those without advanced illness, whereas readmission avoidance and shorter hospital stay matter almost universally. Third, clinical charts were unavailable for data extraction in almost 3% of hospital episodes. In addition, there were missing values in 2 explanatory variables in <3% of available clinical charts. These missing values were handled by listwise deletion in the regression analyses. Doing so carries with it the risk of introducing bias in the estimation of the treatment effect of care by geriatricians. However, given the relatively small proportions of missing charts and values, it is less likely that any bias would have changed the study conclusions. Fourth, we did not account for clustering at the physician level, which would have widened the confidence intervals for the odds ratios. However, because all treatment effects on the 3 outcomes were clearly not statistically significant, widening of confidence intervals would not have changed the results and study conclusions. Finally, this is a single institution study in a single health system. Thus, caution is necessary when attempting to extrapolate its results. On the other hand, the major strength of this study is its real-world setting, which allows the results to be more generalizable to other hospital systems with similar organization and practice of general internal medicine.

Our findings need to be placed in the context of emerging innovative models of care for hospitalized seniors, which directly or indirectly involve geriatricians. Besides traditional ACE units, which have fixed geographical locations within a hospital, a mobile acute care of the elderly service achieved shorter LOS and reduced cost than the established ACE unit with similar mortality and readmission rates.[17] Others include a proactive geriatrics consultation model in collaboration with hospitalists.[18] Another variant of the ACE unit is the hospitalist-run acute care for the elderly (hospitalist-ACE) service, which improved care processes without improving clinical outcomes or increasing cost.[19] Clearly, there needs to be better collaboration between hospitalists and geriatricians to improve care of acutely ill seniors.[20] Ultimately, any form of direct geriatrician care for seniors needs to be complimented by indirect care through hospital-wide systems such the Hospital Elder Life Program. This model of care aims to prevent cognitive and functional decline in hospitalized seniors by combining CGA with protocol-driven interventions ranging from orientation, visitation, feeding assistance, early mobilization, and visual and hearing adaptations.[21,22]

In conclusion, hospitalist care for seniors aged 80 years and above by geriatricians based in general internal medicine units is not more effective than care by other internists, at least where reducing short-term mortality and readmission and LOS are concerned. This is particularly applicable to hospital systems where geriatric care elements have already been widely adopted beyond the confines of acute geriatric units. However, these findings do not by any means indicate that hospitalist care provided by geriatricians is altogether not more beneficial for these seniors than care by other internists in general internal medicine units. Rather, further research on patient-reported outcomes can clarify more fully the geriatrician's true role in this setting.

Disclosures

This study was wholly funded by the National Healthcare Group Small Innovative Grants. The funders did not play any other role in this study. The authors report no conflicts of interest.

References

1. Baztán JJ, Suárez-García FM, López-Arrieta J, Rodríguez-Mañas L, Rodríguez-Artalejo F. Effectiveness of acute geriatric units on functional decline, living at home, and case fatality among older patients admitted to hospital for acute medical disorders: meta-analysis. *BMJ*. 2009;338:b50.
2. Stuck AE, Siu AL, Wieland GD, Rubenstein LZ, Adams J. Comprehensive geriatric assessment: a meta-analysis of controlled trials. *Lancet*. 1993;342(8878):1032–1036.
3. Cohen HJ, Feussner JR, Weinberger M, et al. A controlled trial of inpatient and outpatient geriatric evaluation and management. *N Engl J Med*. 2002;346(12):905–912.
4. Ellis G, Whitehead MA, Robinson D, O'Niell D, Langhorne P. Comprehensive geriatric assessment for older adults admitted to hospital: meta-analysis of randomised controlled trials. *BMJ*. 2011;343:d6553.
5. Saltvedt I, Mo ES, Fayers P, Kaasa S, Sletvold O. Reduced mortality in treating acutely sick, frail older patients in a geriatric evaluation and management unit. A prospective randomized trial. *J Am Geriatr Soc*. 2002;50(5):792–798.
6. Fox MT, Persaud M, Maimets I, et al. Effectiveness of acute geriatric unit care using acute care for elders components: a systematic review and meta-analysis. *J Am Geriatr Soc*. 2012;60:2237–2245.
7. Onafowokan A, Mulley GP. Age-related geriatric medicine or integrated medical care? *Age Ageing*. 1999;28:245–247.
8. Wachter RM. An introduction to the hospitalist model. *Ann Intern Med*. 1999;130(4 pt 2):338–342.
9. Landefeld CS. Care of hospitalized older patients: opportunities for hospital-based physicians. *J Hosp Med*. 2006;1:42–47.
10. Warshaw GA, Bragg EJ, Fried LP, Hall WJ. Which patients benefit the most from a geriatrician's care? Consensus among directors of geriatrics academic programs. *J Am Geriatr Soc*. 2008;56(10):1796–1801.
11. Elixhauser A, Steiner C, Harris DR, et al. Comorbidity measure for use with administrative data. *Med Care*. 1998;36:8–27.
12. Wong WC, Sahadevan S, Ding YY, Tan HN, Chan SP. Resource consumption in hospitalised, frail older patients. *Ann Acad Med Singapore*. 2010;39:830–836.
13. Tan WS, Ding YY, Chong WF, Tay JC, Tan JYL. Impact of data source and time reference of functional status on hospital mortality prediction. *BMC Health Serv Res*. 2012;12:115.
14. Landefeld CS, Palmer RM, Kresevic DM, Fortinsky RH, Kowal J. A randomized trial of care in a hospital medical unit especially designed to improve the functional outcomes of acutely ill older patients. *N Engl J Med*. 1995;332:1338–1344.

15. Parker SG, Fadayevatan R, Lee SD. Acute hospital care for frail older people. *Age Ageing*. 2006;35:551–552.
16. Ellis G, Langhorne P. Comprehensive geriatric assessment for older hospital patients. *Br Med Bull*. 2005;71:45–59.
17. Farber JI, Korc-Grodzicki B, Du Q, et al. Operational and quality outcomes of a mobile acute care for the elderly service. *J Hosp Med*. 2011;6:358–363.
18. Sennour Y, Counsell SR, Jones J, Weiner N. Development and implementation of a proactive geriatrics consultation model in collaboration with hospitalists. *J Am Geriatr Soc*. 2009;57:2139–2145.
19. Wald HL, Glasheen JJ, Guerrasio J, et al. Evaluation of a hospitalist-run acute care for the elderly service. *J Hosp Med*. 2011; 6:313–321.
20. Wald H, Huddleston J, Kramer A. Is there a geriatrician in the house? Geriatric care approaches in hospitalist programs. *J Hosp Med*. 2006;1:29–35.
21. Inouye SK, Bogardus ST Jr, Baker DI, et al. The Hospital Elder Life Program: A model of care to prevent cognitive and functional decline in hospitalized older patients. *J Am Geriatr Soc*. 2000;48:1697–1706.
22. Reuben DB. Organizational interventions to improve health outcomes of older persons. *Med Care*. 2002;40:416–428.