BRIEF REPORT

Higher Quality, Lower Cost with an Innovative Geriatrics Consultation Service

Juliana M. Bernstein, MPAS, Peter Graven, PhD,† Kathleen Drago, MD,* Konrad Dobbertin, MPH,† and Elizabeth Eckstrom, MD, MPH**

OBJECTIVES: To design a value-driven, interprofessional inpatient geriatric consultation program coordinated with systems-level changes and studied outcomes and costs.
DESIGN: Propensity-matched case–control study of older adults hospitalized at an academic medical center (AMC) who did or did not receive geriatric consultation.
SETTING: Single tertiary-care AMC in Portland, Oregon.
PARTICIPANTS: Adults aged 70 and older who received an inpatient geriatric consultation (n=464) and propensity-matched controls admitted before development of the consultation program (n=2,381). Pre- and postintervention controls were also incorporated into cost difference-in-difference analyses.
MEASUREMENTS: Daily charges, total charges, length of stay (LOS), 30-day readmission, intensive care unit (ICU) days, Foley catheter days, total medication doses per day, high-risk medication doses per day, advance directive and Physician Orders for Life Sustaining Treatment (POLST) documentation, restraint orders, discharge to home, and mortality.
RESULTS: On average, individuals who received a geriatric consultation had $611 lower charges per day than those without a consultation (p=.02). They spent on average 0.36 fewer days in the ICU (p<.001). They were less likely to have restraint orders (20.0% vs 27.9%, p<0.001), more likely to have a POLST (58.2% vs 44.6%, p<.001), and more likely to be discharged to home (33.4% vs 28.2%, p=.03). They received fewer doses of antipsychotics, benzodiazepines, and antiemetics (10, 5, and 7 fewer doses per 100 patient-days, respectively) and had lower in-hospital mortality (2.4% vs 4%, p=.01). There was no difference in hospital LOS or 30-day readmission.
CONCLUSION: Our consultation program resulted in significant reductions in daily charges, ICU days, potentially inappropriate medication use, and use of physical restraints and increased end-of-life planning. This model has potential for dissemination to other institutions operating in resource-scarce, value-driven settings. **J Am Geriatr Soc 2018.**

Key words: geriatrics; geriatric consultation; economics, hospital; academic medical center

Hospitalization can be dangerous and life changing for frail older adults. There is a dearth of formal geriatric expertise in hospitals across the country,[1–3] and inpatient teams frequently fail to recognize and manage geriatric syndromes, address goals of care, safely reduce medication burden, or assess risks for hospital-associated disability and delirium.[4,5] Varying models of inpatient geriatric care, including Acute Care for Elders (ACE) units, orthogeriatric units, and primary geriatric services, have been found to have lower rates of delirium and functional decline, shorter hospital length of stay (LOS), fewer discharges to nursing homes, and lower costs,[1,5–14] but many hospitals lack resources for dedicated geriatric units and teams. The effects of traditional geriatric consultation services on outcomes and costs have been mixed.[15–22] We sought to mitigate hospital-associated risks, improve outcomes, and lower costs through an interprofessional inpatient geriatric consultation program capitalizing on unit-based geriatric champions in place of more-costly team-specific staff.

METHODS

Program Description

Clinical Care

The geriatric consultation program was implemented in a 576-bed academic tertiary care hospital and Level 1

From the *Division of General Internal Medicine and Geriatrics, Oregon Health & Science University; and the †Center for Health Systems Effectiveness, Oregon Health & Science University, Portland, Oregon.

Address correspondence to Juliana Bernstein, 3181 SW Sam Jackson Park Road, L475, Portland, OR 97239. E-mail: bernstej@ohsu.edu

DOI: 10.1111/jgs.15473

0002-8614/18/$15.00

trauma center in Portland, Oregon, in October 2015. There was no prior geriatrics service in our hospital, but a geriatrics-trained physician assistant (author JB) spent 2 years embedded in a medicine teaching team to inform development of the consultation program. The consultation team consisted of 1 geriatrician (1.0 full-time equivalent (FTE)) and 1 physician assistant (0.75 FTE), who provided comprehensive geriatric assessment and management recommendations for medicine and trauma surgery patients. Program costs were modest, including only the salary and overhead of the team's clinicians; protected time within their schedules allowed for attendance at institutional meetings and development of systems level initiatives.

Individuals aged 70 and older admitted to the departments of medicine and trauma were eligible for geriatric consultation, at primary team discretion. The service was introduced monthly at medicine residents' orientation sessions before their ward rotations. Advertisements in team workrooms encouraged geriatric involvement for older adults with delirium, dementia, falls, and frailty. Primary teams (typically an attending physician, residents, advanced practice providers (APPs), and medical and physician assistant students) requested a consultation, and recommendations could be adopted or discarded, with primary teams writing orders. The consultation team held daily meetings with case managers, social workers, and rehabilitation therapists assigned to patients by unit. The team also held weekly "rapid rounds" with speech, physical, and occupational therapists to discuss mobility, progress, expected postacute care needs and barriers to discharge for all individuals receiving a geriatric consultation and individuals being followed by rehabilitation who might benefit from a consultation. The consultation team also frequently attended bedside rounds for real-time interprofessional discussion with primary teams, unit-based case managers, bedside nurses, and pharmacists. Most follow-up discussion, outside of rounds, occurred between the consultation service providers and residents or APPs.

Targeted recommendations frequently included reducing medications because of potential adverse effects, pill burden, renal impairment, and drug-drug interactions; discontinuing tethers, including physical restraints, bladder catheters, nasogastric tubes, oximetry, and telemetry; dose adjustment and multimodal therapies for pain control; preventing and treating delirium, emphasizing nonpharmacological therapies and interprofessional care; early discharge planning; and advance care planning guidance.

Systems Improvements and Population Health Management

The geriatrics team worked with liaisons from informatics, pharmacy, nursing leadership, and the trauma surgical intensive care unit on systems improvement initiatives, including redesign of admission order sets and symptom-specific order sets (pain, nausea, constipation) for the medicine and trauma services. Melatonin and topical diclofenac were added to the hospital formulary in April 2016. Order sets for the Trauma Service were introduced in June 2016. The consultation team also championed institutional process improvement efforts in advance care planning, medical holds, and thoughtful prescribing.

Data Collection and Analysis

Subjects and Institutional Review Board Approval

Medical records were analyzed for 16,537 encounters of individuals aged 70 and older admitted between October 1, 2013, and June 30, 2017. This included 497 individuals that the consultation team saw after October 12, 2015. We excluded 2,928 outlier encounters (including 41 geriatric consultations, i.e., "cases") with a LOS of less than 1 day (12 cases, 1,522 controls), daily charges over $50,000 (n=11 cases, n=953 controls), total charges of more than $150,000 (30 cases, 1,321 controls), or encounters missing a discharge date (1 case, 42 controls). The remaining sample included 7,219 encounters in the preintervention period (October 1, 2013, to September 30, 2015) from which we drew propensity score–matched controls and 6,844 encounters in the postintervention period (October 1, 2015, to June 30, 2017), 464 of whom received a geriatric consultation. Because charges are highly variable in small samples, a 5:1 ratio was used to increase the precision of the estimates. The Oregon Health and Science University institutional review board approved this study.

Data Analysis

We compared cases with controls using propensity scores and stratified matching. First, we applied a stepwise elimination logit regression model to the postintervention sample to identify factors associated with receipt of consultation. The significance threshold for variable elimination from the model was $p>.05$. Candidate variables entered into the stepwise model included sex, admission source, delirium, dementia, first Activity Measure in Post-Acute Care (AMPAC) score, insurance type, number of medication types, Medicare Severity Diagnosis-Related Group (MS-DRG) weight (synonymous with case mix index), and MS-DRG mean LOS. We also included any *International Classification of Diseases, Ninth Revision* (ICD-9) diagnosis codes, MS-DRG codes, and chief complaints with a frequency of 10 or greater to prevent overfitting. With only statistically significant variables remaining, we used the final model to calculate propensity scores (probability of receiving a consultation) for all encounters in the pre- and postintervention periods. Using this score, we then matched, with replacement, each case in the postintervention period to 5 nearest-neighbor controls in the preintervention period, within stratification of age category and trauma versus medicine status.

Each outcome variable was estimated with its own set of covariates to reduce confounding, selected using stepwise elimination regression, using the same covariates used for propensity matching. Binary outcomes were estimated using a logit model; ordinary least squares linear regression was used for continuous outcomes. The effect of the program was measured using marginal effects to avoid effects in nonlinear models with interaction.

Each variable was assessed for trend over time to determine whether additional secular trends were affecting

Table 1. Descriptive Characteristics

Variable	Cases (Postintervention), n = 464 (16.3%)	Controls (Preintervention), n = 2,381 (83.7%)	Total, N = 2,845
Categorical, n (%)†			
Female	260 (56.0)	1,140 (47.9)	1,400 (49.2)
Age[1]			
70–74	45 (9.7)	235 (9.9)	280 (9.8)
75–79	62 (13.4)	318 (13.4)	380 (13.4)
80–84	120 (25.9)	617 (25.9)	737 (25.9)
85–89	139 (30.0)	714 (30.0)	853 (30.0)
≥90	98 (21.1)	497 (20.9)	595 (20.9)
Admitted from emergency department[1]	420 (90.5)	2,262 (95.0)	2,682 (94.3)
Transferred from hospital[1]	58 (12.5)	450 (18.9)	508 (17.9)
Delirium POA or diagnosis[1]	168 (36.2)	765 (32.1)	933 (32.8)
Dementia POA or diagnosis[1]	175 (37.7)	882 (37.0)	1,057 (37.2)
First Activity Measure in Post-Acute Care score			
None[1]	28 (6.0)	532 (22.3)	560 (19.7)
6–9	86 (18.5)	345 (14.5)	431 (15.1)
10–14	111 (23.9)	452 (19.0)	563 (19.8)
15–19	182 (39.2)	806 (33.9)	988 (34.7)
≥20	57 (12.3)	246 (10.3)	303 (10.7)
Medicare	402 (86.6)	2,084 (87.5)	2,486 (87.4)
Continuous, mean ± standard deviation			
Number of medication types[1]	2.9 ± 1.5	2.9 ± 1.5	2.9 ± 1.5
MS-DRG weight	1.6 ± 1.1	1.6 ± 0.9	1.6 ± 1.0
MS-DRG mean length of stay	5.3 ± 2.1	5.1 ± 2.0	5.1 ± 2.0

[1]Statistically significant variable in the stepwise elimination propensity score model estimated on the postintervention sample. Age was treated as a continuous variable with 1-year increments in the propensity score model.

†In addition to these variables, any observed Medicare Severity Diagnosis-Related Group (MS-DRG), *International Classification of Diseases, Ninth Revision* (ICD-9) or chief complaint with a frequency >10 was entered into the stepwise elimination propensity score model. The following were candidates in the stepwise model, and those followed by an asterisk (*) were significantly associated with receipt of the geriatric consultation, MS-DRG: 83*, 85*, 86*, 87, 184*, 480*, 481, 551*, 552, 871, 963*; ICD-9: 276.1, 430*, 432.1*, 432.9, 780.09, 807.09, 820.8, 959.01, 959.9, E888.9*; Chief complaint: altered mental status, fall*, ground level fall*, shortness of breath, trauma*, other, not listed*.

POA = present on admission.

the results. Charges per day increased significantly over time because of inflationary factors. To provide a larger sample for estimating the inflation factor, patient encounters not selected as cases or controls were included to help capture the general increase in charges per day over the study period. To accommodate these observations, a difference-in-difference modeling approach was required that included a time trend (measured continuously by month). This approach allows a generic inflation effect to be estimated and still provides an estimate of the effect of the program.

RESULTS

The final sample included 464 individuals who received a geriatric consultation (cases from the postintervention period) and 2,381 individuals who did not receive a consultation (controls from the preintervention period) (Table 1). Cases were more likely to be female (56% vs 48%), receive an AMPAC assessment from a physical or occupational therapist, and have a lower AMPAC score (indicating greater functional impairment).[23] Cases and controls were similar in age, location immediately before admission, and other variables. Table 1 lists variables that were statistically significant in the propensity score model predicting receipt of a consultation in the postintervention sample, as well as the full list of variables derived from MS-DRG, admission ICD-9 code, and chief complaint used in the propensity score model.

Individuals who received a geriatric consultation (cases) spent, on average, 0.4 fewer days in the ICU than controls ($p<.001$); had 4.3 fewer Foley catheter days per 100 patient-days ($p<.001$); received on average 10.3 fewer doses of antipsychotics ($p<.001$), 5.3 fewer doses of benzodiazepines ($p<.010$), and 7.1 fewer doses of antiemetics ($p=0.4$) per 100 patient-days; were less likely to have a restraint order (20.0% vs 27.9%, $p<.001$) and more likely to have completed a POLST (58.2% vs 44.6%, $p<.001$) and be discharged to home (33.4% vs 28.2%, $p=.03$); and had lower in-hospital mortality (2.4% vs 4.0%, $p=.01$) (Table 2).

Mean unadjusted charges per day for all inpatient encounters increased over the study period. On average, charges per day increased by $41 each month over the 44 months of the study. When adjusted for participant characteristics and secular time trends, mean charges per day were $611 lower for individuals who received a consultation (global mean charges per day $8,348). Total charges

Table 2. Geriatric Consultation Effect on Outcomes

Outcome	Consultation Effect[1]	t	P-Value	Cases (Postintervention), n = 464 (16.3%)	Controls (Preintervention), n = 2,381 (83.7%)	Total, N = 2,845
Continuous, mean ± SD						
Inpatient length of stay, days	–0.29	–1.58	.11	6.2 ± 3.9	5.9 ± 4.3	5.9 ± 4.2
Intensive care unit days	–0.36	–5.70	<.001	0.9 ± 1.3	1.1 ± 1.5	1.1 ± 1.5
Foley days per 100 patient-days	–4.26	–3.63	<.001	13.1 ± 24.0	15.4 ± 25.6	15.0 ± 25.3
Medication doses per 100 patient-days	33.33	0.55	.58	2,686 ± 1,078	2,756 ± 1,387	2,745 ± 1,342
Anticoagulants	5.01	1.81	.07	57.7 ± 66.2	48.7 ± 59.3	50.2 ± 60.6
Opiates	17.92	1.27	.20	252.1 ± 283.5	268.1 ± 331.9	265.5 ± 324.5
Anticholinergics	0.58	0.35	.73	5.8 ± 26.3	8.2 ± 34.8	7.8 ± 33.5
Antidepressants	–1.46	–0.83	.40	12.6 ± 34.5	12.5 ± 35.5	12.6 ± 35.3
Antipsychotics	–10.31	–3.28	<.001	24.3 ± 59.6	31.5 ± 70.8	30.3 ± 69.1
Antiepileptics	–5.02	–1.29	.20	20.0 ± 63.4	30.7 ± 82.8	29.0 ± 80.1
Benzodiazepines	–5.35	–2.60	<.010	6.4 ± 22.8	13.1 ± 45.4	12.0 ± 42.6
Antiemetics	–7.08	–2.07	.04	29.6 ± 67.3	38.9 ± 71.8	37.4 ± 71.1
Other medications	–0.72	–0.12	.90	33.2 ± 63.9	36.1 ± 128.8	35.6 ± 120.6
Binary outcomes, n (%)						
30-day readmissions	–0.004	–0.32	.75	32 (6.9)	139 (5.8)	171 (6.0)
Physician Orders for Life-Sustaining Treatment	0.137	5.97	<.001	270 (58.2)	1,061 (44.6)	1,331 (46.8)
Advanced directive	0.005	0.25	.80	78 (16.8)	404 (17.0)	482 (16.9)
Restraint orders	–0.093	–5.29	<.001	93 (20.0)	664 (27.9)	757 (26.6)
Discharge to home	0.049	2.22	.03	155 (33.4)	672 (28.2)	827 (29.1)
Mortality	–0.018	–2.50	.01	11 (2.4)	96 (4.0)	107 (3.8)
Charges, $, mean ± SD						
Total	347.20	0.24	.81	47,511 ± 27,924	43,204 ± 26,337	43,907 ± 26,645
Per day	–611.80	–2.35	.02	8,543 ± 3,886	8,310 ± 3,684	8,348 ± 3,718

[1]Adjusted for sex, age, insurance type, first Activity Measure in Post-Acute Care score, delirium present on admission (POA) or diagnosis, dementia POA or diagnosis, admission source, Medicare Severity Diagnosis-Related Group (MS-DRG), MS-DRG weight, MS-DRG mean LOS, chief complaint, admission diagnosis, number of medication types, and admission month.
SD = standard deviation.

were not significantly different between cases and controls (Table 2).

Charges per day were significantly lower for cases than controls, adjusted monthly for inflation (Figure 1). We tested for parallel trends and found that the inflation effect observed for controls was not significantly different from that observed for the overall sample (data not shown).

To address concerns about other secular hospital trends, we simulated alternative start dates as a falsification test for critical outcomes (restraint orders, ICU days, mortality). Of the 193 alternative start weeks, 2% had a greater reduction in restraint orders than the actual start week. ICU days and mortality had larger reductions for 14% and 38% of alternative start weeks, respectively. These results suggest that it was unlikely that other trends affected these outcomes. As a test of potential bias from the larger matching ratio, a sensitivity analysis of a smaller 2:1 ratio showed changes in significance (as expected with decreased precision) without significant changes in effect (expected if there was bias).

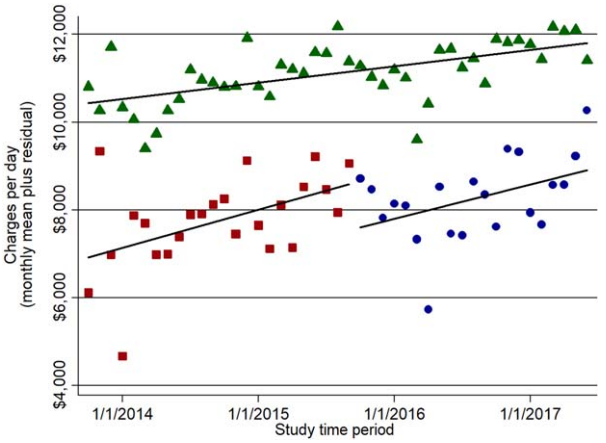

Figure 1. Adjusted charges per day. • Cases ■ Controls ▲ Preperiod unmatched and postperiod non-consult patients.

DISCUSSION

In this study of a streamlined inpatient geriatric consultation program, we found that consultation lowered in-hospital mortality, daily costs, and use of high-risk medications and physical restraints and shortened ICU stay; individuals who received a consultation were also more likely to be discharged to home and to have end-of-life planning documented. Consultation was not associated with shorter hospital stay or 30-day readmission. Outcomes from the first 18 months of the program suggest that a small provider team marshalling the skills of existing unit-based personnel can be highly effective in a resource-scarce environment.

One limitation of this study was its pre- and postintervention design. Data from our institution show no

discernible decrease in central line associated bloodstream infection or catheter-associated urinary tract infection incidence during the pre- and postintervention periods hospital wide or on the medicine and trauma units specifically. Our falsification tests for restraint orders, ICU days, and mortality suggest that it was unlikely that other trends affected these outcomes.

Individual consultation and systems changes may have led to less high-risk medication use, in turn contributing to lower rates of complex delirium and less physical restraint use. It is more difficult to determine exactly which components of our intervention led to cost savings. From clinical day-to-day experience, we surmise that a significant proportion of cost reduction came from careful discontinuation of monitoring deemed unlikely to change clinical management (e.g., frequent glucose monitoring in individuals with diet-controlled diabetes, telemetry in individuals who had had a mechanical fall, infrequently used as-needed medications held in the dispensing system, daily laboratory tests in a clinically stable individual). The reduction in ICU days also contributed to cost savings.

Two factors determined our decision to exclude the highest-cost individuals. First, we believe this work is reflective of typical acute care admissions of older adults and, as such, hope that this model may be considered broadly applicable and potentially reproducible; thus, it made sense to exclude the highest cost, and least typical, individuals. Second, we wanted to ensure that our data did not overestimate the potential for cost savings with geriatric consultation. A smaller proportion of cases than controls were excluded because of costs, suggesting that exclusion of the highest cost admissions may have biased our cost data toward underestimation of savings.

Lastly, our findings show a statistically significant difference in hospital mortality. It is possible that reduction of deliriogenic medications and tethers reduced aspiration and other fatal adverse events. In addition, the consultation team recommended engagement of home hospice services for appropriate individuals, ensuring discharge home before death. Finally, the geriatrics team did not see some patients on the trauma service, including those with severe head trauma for whom death appeared imminent upon admission and those who were admitted and died within 24 hours; this selection bias may have affected the mortality difference shown in our data.

Overall, this study suggests that a decentralized geriatric consultation team capitalizing on unit-based geriatrics expertise across disciplines can lower daily hospital costs and improve quality of acute care. Further investigation is warranted to better understand which components of a geriatric consultation program will lead to the greatest improvements in care and cost savings for acutely ill older adults.

ACKNOWLEDGMENTS

The authors thank Lindsay Stutheit and Brian Garrison for assistance with data acquisition. We thank Katherine Bensching and Clea Cadham of the Division of General Internal Medicine and Geriatrics for their support of the inpatient geriatrics consultation program. Thanks also are extended to the members of the Oregon Health & Science University (OHSU) Department of Trauma Surgery and Division of Hospital Medicine for their ongoing efforts to improve the quality of care of older adults in the acute care setting.

Financial Disclosure: Ms. Bernstein and Dr. Drago received funding support through a clinical development grant from the OHSU Faculty Practice Plan. An early version of the abstract for this manuscript was presented at the Annual Scientific Meeting of the American Geriatrics Society, May 2017.

Conflict of Interest: None.

Author Contributions: Study concept and design: Bernstein, Dobbertin, Drago, Graven, Eckstrom. Acquisition of data: Dobbertin, Graven. Analysis and interpretation of data: Bernstein, Dobbertin, Drago, Graven. Drafting of manuscript: Bernstein, Dobbertin, Drago, Graven, Eckstrom. Critical revision of manuscript for important intellectual content: Bernstein, Eckstrom.

Sponsor's Role: The authors are solely responsible for the content and the decision to submit the manuscript for publication.

REFERENCES

1. Wald HL, Glasheen JJ, Guerrasio J, Youngwerth JM, Cumbler EU. Evaluation of a hospitalist-run acute care for the elderly service. J Hosp Med 2011;6:313–321.
2. Boustani M, Baker MS, Campbell N et al. Impact and recognition of cognitive impairment among hospitalized elders. J Hosp Med 2010;5:69–75.
3. Institute of Medicine (US) Committee on the Future Health Care Workforce for Older Americans. Retooling for an Aging America: Building the Health Care Workforce. Washington (DC): National Academies Press (US); 2008.
4. Teno JM, Fisher ES, Hamel MB, Coppola K, Dawson NV. Medical care inconsistent with patients' treatment goals: association with 1-year Medicare resource use and survival. J Am Geriatr Soc 2002;50:496–500.
5. Covinsky KE, Pierluissi E, Johnston CB. Hospitalization-associated disability: "She was probably able to ambulate, but I'm not sure." JAMA 2011; 306:1782–1793.
6. Palmer RM, Landefeld CS, Kresevic D, Kowal J. A medical unit for the acute care of the elderly. J Am Geriatr Soc 1994;42:545–552.
7. Vidan MT, Sanchez E, Alonso M, Montero B, Ortiz J, Serra JA. An intervention integrated into daily clinical practice reduces the incidence of delirium during hospitalization in elderly patients. J Am Geriatr Soc 2009;57: 2029–2036.
8. Barnes DE, Palmer RM, Kresevic DM et al. Acute Care for Elders units produced shorter hospital stays at lower cost while maintaining patients' functional status. Health Aff 2012;31:1227–1236.
9. Counsell SR, Holder CM, Liebenauer LL et al. Effects of a multicomponent intervention on functional outcomes and process of care in hospitalized older patients: A randomized controlled trial of Acute Care for Elders (ACE) in a community hospital. J Am Geriatr Soc 2000;48:1572–1581.
10. 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.
11. Flood KL, Maclennan PA, McGrew D, Green D, Dodd C, Brown CJ. Effects of an Acute Care for Elders unit on costs and 30-day readmissions. JAMA Intern Med 2013;173:981–987.
12. Farber JI, Korc-Grodzicki B, Du Q, Leipzig RM, Siu AL. Operational and quality outcomes of a mobile acute care for the elderly service. J Hosp Med 2011;6:358–363.
13. Hung WW, Ross JS, Farber J, Siu AL. Evaluation of the Mobile Acute Care of the Elderly (MACE) service. JAMA Intern Med 2013;173:990–996.
14. Kristensen PK, Thillemann TM, Soballe K, Johnsen SP. Can improved quality of care explain the success of orthogeriatric units? A population-based cohort study. Age Ageing 2016;45:66–71.
15. Sennour Y, Counsell SR, Jones J, Weiner M. Development and implementation of a proactive geriatrics consultation model in collaboration with hospitalists. J Am Geriatr Soc 2009;57:2139–2145.

16. Cohen HJ, Feussner JR, Weinberger M et al. A controlled trial of inpatient and outpatient geriatric evaluation and management. New Engl J Med 2002;346:905–912.
17. Conroy SP, Stevens T, Parker SG, Gladman JR. A systematic review of comprehensive geriatric assessment to improve outcomes for frail older people being rapidly discharged from acute hospital: 'interface geriatrics.' Age Ageing 2011;40:436–443.
18. Allen CM, Becker PM, McVey LJ, Saltz C, Feussner JR, Cohen HJ. A randomized, controlled clinical trial of a geriatric consultation team. Compliance with recommendations. JAMA 1986;255:2617–2621.
19. Reuben DB, Borok GM, Wolde-Tsadik G et al. A randomized trial of comprehensive geriatric assessment in the care of hospitalized patients. New Engl J Med 1995;332:1345–1350.
20. Deschodt M, Braes T, Broos P et al. Effect of an inpatient geriatric consultation team on functional outcome, mortality, institutionalization, and readmission rate in older adults with hip fracture: a controlled trial. J Am Geriatr Soc 2011;59:1299–1308.
21. Winograd CH, Gerety MB, Lai NA. A negative trial of inpatient geriatric consultation. Lessons learned and recommendations for future research. Arch Intern Med 1993;153:2017–2023.
22. Dugan JP Burns KM, Baldawi M, Heidt DG. Impact of geriatric consultations on clinical outcomes of elderly trauma patients: A retrospective analysis. Am J Surg 2017;214:1048–1052.
23. Jette DU, Stilphen M, Ranganathan VK, Passek SD, Frost FS, Jette AM. Validity of the AM-PAC "6-Clicks" inpatient daily activity and basic mobility short forms. Phys Therapy 2014;94:379–391.