

# Health Care Provider Evaluation of a Substitutive Model of Hospital at Home

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**Objective:** To evaluate Hospital at Home (HaH), a substitute for inpatient care, from the perspectives of participating providers.

**Research Design:** Multivariate general estimating equations regression analyses of a patient-specific survey of providers delivering HaH care in a prospective, nonrandomized clinical trial.

**Subjects:** Eleven physicians and 26 nurses employed in 3 Medicare-Advantage plans and 1 Veterans Administration medical center.

**Measures:** Problems with care; benefits; problem-free index.

**Results:** Case response rates were 95% and 82% for physicians and nurses, respectively. The overall problem-free index was high (mean 4.4, median 5, scale 1–5). “Major” problems were cited for 14 of 84 patients (17%), most relating to logistic issues without adverse patient outcomes. Positive effects included quicker patient functional recovery, greater opportunities for patient teaching, and increased communication with family caregivers. In multivariate analysis, the problem-free index was lower for nurses compared with physicians in one site; for patients with cellulitis; and for patients with a higher acuity (APACHE II) score. HaH physicians and nurses differed in their judgments of hours of continuous nursing required by patients.

**Conclusions:** The health care provider evaluation of substitutive HaH care was positive, providing support for the viability of this innovative model of care. Without provider support, no new model of care will survive. These findings also provide insight into areas to attend to in implementation. Organizations considering adoption of the HaH should monitor provider views to promote quality improvement in HaH.

**Key Words:** hospital care, home, provider evaluation, provider satisfaction

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Despite a dearth of rigorous research evidence to support its effectiveness, the hospital is the accepted standard for the provision of acute medical care. However, acute care hospitalization may be hazardous, especially for older persons, who face care that may be dehumanizing<sup>1</sup> and commonly associated with adverse events such as functional decline, delirium, hospital-associated infections, and other iatrogenic effects.<sup>2–4</sup>

Providing acute hospital-level care in the patient’s home, as a full substitute for an acute hospital admission for older persons, in Hospital at Home (HaH) has been demonstrated to be clinically feasible, efficacious, and associated with lower rates of important clinical complications, higher patient and family caregiver satisfaction, less caregiver stress, and lower costs.<sup>5–7</sup>

Of great importance to the legitimacy and clinical viability of HaH as an alternative to hospitalization, however, is the assessment of the model among the physicians and nurses who deliver acute care in patients’ homes. Acceptance among the providers of care is an essential piece in the successful dissemination of any healthcare program; likewise the feasibility of HaH is in part contingent upon the evaluation of the implementing providers and of providers who might participate in an HaH program at their own institution. Organizations considering implementing HaH will also be interested in clinicians’ perspective on the program. Furthermore, an analysis of clinician views may expose potential improvement opportunities in the HaH program and offer insights relevant to its dissemination into widespread practice.

The aim of this study is to evaluate the HaH model from the perspective of the physicians and nurses who delivered this care. The article seeks to isolate concepts that operate at the patient level, the provider level, and the study site level, to establish which commentary applies to the HaH program (rather than to features of the specific study sites in which HaH was tested, or of providers). Then areas of agreement and discordance between physicians’ and nurses’ perspectives on HaH care are examined.

## METHODS

### Description of the Hospital at Home Model of Care

The Johns Hopkins Hospital at Home care model has been described previously.<sup>5</sup> In brief, the HaH provided hospital-level care in a patient’s home for community-dwelling

patients, aged 65 and older, who required hospital admission for community-acquired pneumonia, exacerbation of congestive heart failure, exacerbation of chronic obstructive pulmonary disease, and/or cellulitis, and who met specific medical eligibility criteria.<sup>8</sup> Following initial evaluation, usually in the emergency department, patients electing to participate in HaH were taken home by ambulance. Patients received continuous direct nursing supervision for the initial portion of their stay followed by intermittent nursing visits at least daily. A HaH physician made at least daily home visits and was available 24 hours a day for urgent or emergent visits. Nursing and other care components, such as pharmacy support, skilled therapies, durable medical equipment, and oxygen therapy were provided by a partner Medicare-certified home health agency and some services such as home radiology were provided by independent contractors. A Lifeline device (Lifeline Systems Inc., Framingham, MA) was placed in the home of any patient who didn't have a family member present. Diagnostic studies and treatments, including intravenous fluids and medications, oxygen and respiratory therapies, basic radiography, and others were provided at home. Illness-specific HaH care maps, clinical outcome evaluations, and discharge criteria provided a path for care. The patient was followed until stable for discharge, at which time care supervision reverted to the patient's primary care physician. HaH care substituted for an acute hospital admission.

The HaH National Demonstration and Evaluation Study was a prospective, nonrandomized clinical trial conducted in 3 Medicare managed care plans at 2 sites and a Veterans Administration medical center between November 2000 and October 2002. The study was conducted in 2 consecutive 11-month phases and has been described previously.<sup>5</sup> In the first (observation) phase, patients who would be eligible for HaH were identified and followed through usual hospital care. In the second (intervention) phase, eligible patients were identified at the time of admission and offered the option of receiving their care in HaH rather than the hospital. This article focuses on health care providers' assessments of the care provided to HaH patients in the intervention phase of the study.

## Study Participants

Study participants are the treating physicians who provided HaH care and the nurses who provided the continuous direct nursing supervision for the initial portion of a HaH admission. The physicians were all board-certified geriatricians and one at each site was the local principal investigator for the study (S.M., B.N., and J.B.). The local principal investigator provided the majority of physician coverage for HaH patients. Additional visits were made by a small cadre of geriatricians associated with the local principal investigator's clinical group. Typically, the same HaH physician provided care for the entire HaH admission.

Nurse participants were all registered nurses. Each study site had a nurse clinical coordinator who coordinated research activities and helped to develop the clinical infrastructure of the program. Initial continuous nursing services were contracted from Medicare-certified home health agencies. These nurses received a 4-hour training session on the

HaH care model. Physicians and nurses had worked together before. The continuous nursing care was provided in shifts and given its duration, most patients received continuous nursing care from more than 1 nurse. The intermittent nursing visits provided to patients after the initial phase of continuous nursing was provided by secondary nurses. The same nurse could be primary on some cases and secondary on others.

## Survey Instrument

The survey instrument was developed in an iterative expert-consensus process by physicians and nurses with extensive home care experience who were familiar with the HaH model. The survey was pretested with HaH physicians and nurses across study sites for face validity. Each participant, physician or nurse, completed a 2-page survey with 16 to 18 questions for each patient. Most items were identical on the physicians' and nurses' surveys, but some were tailored to the expected concerns of each provider type. Common items asked providers to rate on a scale from 1 to 3 how large a problem certain aspects of HaH were with respect to the specific patient (where 1 = no problem; 2 = minor problem; 3 = major problem). The rating of a problem as "minor" or "major" was not defined a priori and was left to the clinical judgment of the provider. The common items included patient confidence in HaH, family confidence, the home environment, the safety of staff, and the patient's clinical course. The survey also asked whether they noted quicker return of physical function or increased opportunities for patient education in HaH as compared with usual care. Respondents had the opportunity to fill in up to 2 additional problems or 2 additional positive aspects they observed that were not provided on the survey. Finally, the questionnaire asked whether certain features of the model (such as continuous nursing in the first 24 hours) were clinically necessary.

## Statistical Analysis

The surveys were created to elicit provider assessments of the applicability of the HaH program for specific patients, and in the aggregate, to judge its overall usefulness as an alternative way to provide acute medical care. However, for some questions, it seemed possible that respondents would answer with respect to their immediate context, rather than in a program-evaluative fashion. For example, a physician might report a "major problem" with nursing care with regard to: (1) a weakness of the HaH nursing model (for this patient and in the aggregate for the program); (2) a problem based on a relationship issue with a specific nurse; or (3) a general negative feeling between nurses and physicians at a specific intervention site. As a result, we felt it was important to examine the roles of potential provider-type and study site effects. To the extent there are none or few, we can be confident that assessments are relevant to program-wide evaluation, that is, applicable across study sites, provider types and for a wide array of individual patients. To do this, we used ANOVA on study site for the items with no problem, minor problem, and major problem as outcome values, treating the 3 levels as continuous, with F-tests to determine significance. Significant relationships were then examined using cross-tabulation to establish the pattern among study

sites. For items with the yes, no, and unknown response categories, we relied on cross-tabulations with  $\chi^2$  tests of association and multinomial logistic regression with significant odds ratios.

We also examined, on each variable found in both the nurse and physician surveys, any differences between provider types. For these analyses, we used simple cross-tabulations at the survey level with  $\chi^2$  tests for significant differences and logistic regression.

We used a polychoric correlation matrix to explore the magnitude of associations among survey items. This was used to identify items that could be collapsed. The questions about problems with care were most intercorrelated, so we created an index from these items alone. We summed responses of “no problem,” so that higher scores are better (theoretical range, 0–5). We refer to it as the “problem-free index.”

Finally, to examine potential differences in the problem-free index by provider type, by site, or by provider types within sites, we used generalized estimating equations to control for repeated measures on patients. In separate models, we controlled for several patient characteristics. Although it was not feasible to control for clustering on separate providers, we checked the multivariate analyses to see if findings were driven by 2 physicians and 2 nurses who accounted for large proportions of the reported data.

**Approval**

The study received IRB approval from each study site, the coordinating center at Johns Hopkins, and from officials at the Center for Health Plans and Providers at the Center for Medicare and Medicaid Services. Informed written consent for participation was obtained from all participants.

**RESULTS**

Table 1 describes the number of patients, physicians, and nurses who received or provided HaH care, respectively, as well as the details of case response rates and characteristics of the patient population, by site. At least 1 physician survey was completed for 80 (95%) patients and at least 1 nurse survey was completed for 69 (82%) patients. Site 2 differed from the other sites in that it had no patients with cellulitis or congestive heart failure, and therefore had larger percentages with pneumonia or chronic obstructive pulmonary disease.

Table 2 describes perceptions of clinical problems encountered by HaH health care providers on a case basis. Among questions answered by both provider types, there were no major problems with staff safety and only 1 major problem with family confidence in HaH. There were no statistically significant differences between provider types in any item-level problem with care. No major problems were cited by physicians for ordering diagnostic tests or obtaining test results and nurses reported no major problems in getting information and direction from the physician. In general, providers participating in HaH cited few problems with care beyond minor ones. Altogether, a major problem was cited only 26 times over 190 surveys collected; the issues raised affected a total of 14 patients (17%). Several of these mentions were in reference to the same incident, reported in

**TABLE 1. Provider Data and Response Rates**

	Site 1	Site 2	Site 3	Total
<b>Patients</b>				
No. HaH patients	30	10	44	84
Mean age	78	85	75	77
Mean APACHE II score	11.8	13	11.1	11.58
Percent with Pneumonia	13%	60%	27%	26%
Percent with CHF	37%	0	25%	26%
Percent with cellulitis	17%	0	23%	18%
Percent with COPD	33%	40%	25%	30%
Percent living alone	47%	40%	30%	37%
<b>Physicians</b>				
No. physicians who provided HaH care at the site	2	3	9	14
No. physicians who completed at least 1 survey on any patient	2	2	5	9
No. cases in which only 1 physician provided care	10	5	35	50
No. cases with at least 1 physician survey available	30	8	42	80
No. physician surveys	30	8	46	84
Physician-case response rate*	100%	80%	91%	95%
<b>Nurses</b>				
No. nurses who provided HaH continuous nursing care at the site	5	11	11	27
No. nurses who completed at least 1 survey on any patient	5	11	11	27
No. cases with at least 1 nurse survey available	19	10	40	69
No. nurse surveys	29	17	60	106
Nurse case response rate†	63%	100%	91%	82%

\*Percentage of cases with at least 1 physician survey completed.  
 †Percentage of cases with at least 1 nurse survey completed.

several items. For these 14 patients, details of the major events were as follows: 2 events were related to intravenous access problems; 6 events were related to durable medical equipment delivery delays (all delays were brief, and no adverse clinical outcomes occurred); and 1 event was related to a communication issue between providers. In addition, there were 5 issues stemming from patient characteristics: 1 patient with dementia and agitation; 1 with morbid obesity; 1 with significant anxiety disorder; 1 who was not receptive to home nurse visits; and 1 who fell at home. Finally, in 2 cases, the home environments were described as unclean.

Providers were specifically about potential advantages of HaH, relative to usual care, related to possible quicker return to physical functioning, opportunities for teaching, and communication with family members. The results in Table 3 suggest significant advantages in these areas. In addition, providers wrote in additional positive effects on 40 surveys. The most frequently cited advantages were related to the patient being happier, more comfortable, or safer at home (17 cases), reduced family stress having the patient at home (5 cases), and advantages of evaluating the patient in the home environment (4 cases).

**TABLE 2.** Frequency of Problems With Care

Item	No. Surveys	% No. Problem (n)	% Minor Problem (n)	% Major Problem (n)
Patient confidence in HaH				
All providers	189	94% (177)	4% (8)	2% (4)
MDs only	84	95% (80)	4% (3)	1% (1)
RNs only	105	92% (97)	5% (5)	3% (3)
Family confidence in HaH				
All providers	172	96% (165)	4% (6)	1% (1)
MDs only	78	97% (76)	3% (2)	0
RNs only	94	95% (89)	4% (4)	1% (1)
Home environment for HaH				
All providers	186	84% (156)	13% (25)	3% (5)
MDs only	83	83% (69)	13% (11)	4% (3)
RNs only	103	85% (87)	14% (14)	2% (2)
Staff safety				
All providers	189	97% (183)	3% (6)	0
MDs only	84	98% (82)	2% (2)	0
RNs only	105	96% (101)	4% (4)	0
Patient's clinical course				
All providers	180	86% (155)	11% (19)	3% (6)
MDs only	84	91% (76)	8% (7)	1% (1)
RNs only	96	82% (79)	13% (12)	5% (5)
Asked of physicians only				
Nursing care	84	83% (70)	16% (13)	1% (1)
Ordering diagnostic tests	81	85% (69)	15% (12)	0
Obtaining test results	82	84% (69)	16% (13)	0
Implementation of treatment plan	83	93% (77)	4% (3)	4% (3)
Asked of nurses only				
Contacting HaH physician	97	94% (91)	5% (5)	1% (1)
Getting information and direction from MD	103	98% (101)	2% (2)	0
Delivery of medications	92	82% (75)	16% (15)	2% (2)
Delivery of durable medical equipment	72	82% (59)	14% (10)	3% (3)

**TABLE 3.** Frequency of Positive Effects

Positive Effects Items	N	% Yes (n)	% No (n)	% Unknown (n)
Quicker return to physical functioning				
All providers	172	58% (100)	16% (28)	26% (44)
MDs only*	75	57% (44)	33% (25)	8% (6)
RNs only*	97	58% (56)	3% (3)	39% (38)
Increased opportunities for patient teaching				
All providers	178	83% (148)	11% (20)	6% (10)
MDs only†	76	79% (60)	18% (14)	3% (2)
RNs only†	102	86% (88)	6% (6)	8% (8)
More informal communication with family				
Asked of RNs only	92	91% (84)	4% (4s)	4% (4)

\*Significantly different from other provider type using X<sup>2</sup> test, P ≤ 0.01.

†P ≤ 0.05.

Nurses were more likely than physicians to report increased opportunities for patient education, and to report being uncertain about whether the patient had quicker return to physical function.

Table 4 depicts provider views on a case by case basis concerning the necessity and nature of the initial continuous nursing effort required by study protocol for HaH patients. Most providers felt that continuous nursing was necessary for the first 24 hours. Nurses were more likely than physicians to report that a brief delay in the nurse's arrival would have been acceptable and that they were uncertain about the need for continuous nursing on the first day.

For the great majority of the initial continuous nursing HaH shifts, nurses felt a nursing assistant could not replace the nurse. Physicians were not asked this question.

The lower section of Table 4 examines the continuous nursing issue from a different point of view. Respondents were asked post hoc how many total hours of continuous nursing were clinically required for each case. For the largest portion of cases, providers felt that 1 to 4 hours of continuous nursing care were required; but one-fifth of the time they felt that 5 to 8 hours were necessary, and another fifth of the time, that 9 to 16 hours were necessary. Physicians and nurses differed in their assessments of the hours of continuous nursing needed. Although physicians indicated that 4 hours or fewer of continuous nursing was necessary for 65% of the assessments they made, nurses only estimated 4 hours or less for 34% of assessments they made. In only 1 case did a nurse estimate that zero hours of continuous nursing were neces-

**TABLE 4.** Nursing Effort Questions

Nursing Effort Item	N	% Yes (n)	% No (n)	% Unknown (n)		
Was continuous nursing necessary first day?						
All providers	172	66% (114)	24% (42)	9% (16)		
MDs only*	75	65% (49)	33% (25)	1% (1)		
RNs only*	97	67% (65)	18% (17)	16% (15)		
Was a brief delay in nurse arrival possible?						
All providers	98	46% (45)	49% (48)	5% (5)		
MDs only†	34	32% (11)	68% (23)	0		
RNs only†	64	53% (34)	39% (25)	8% (5)		
Could shift be handled by nursing assistant?						
Asked of RNs only	100	8% (8)	86% (86)	6% (6)		
Hours of Continuous Nursing Necessary	N	% 0 h (n)	% 1–4 h (n)	% 5–8 h (n)	% 9–16 h (n)	% 17–24 h (n)
Nursing Hours						
All providers	155	8% (12)	41% (64)	20% (31)	19% (29)	12% (19)
MDs only*	74	15% (11)	50% (37)	16% (12)	14% (10)	5% (4)
RNs only*	81	1% (1)	33% (27)	24% (19)	24% (19)	19% (15)

\*Significantly different from other provider type using X<sup>2</sup> test, P ≤ 0.01.

†P ≤ 0.05.

**TABLE 5.** Problem-Free Index, Analysis of GEE Parameter Estimates

Parameter	Estimate	Standard Error	95% Confidence Limits		Z	Pr > Z
Intercept	5.22	1.08	3.11	7.33	4.86	<0.0001
Site 1	1.28	0.38	0.53	2.03	3.34	0.0008
Site 2	-1.37	0.82	-2.97	0.23	-1.67	0.09
Provider type (1 = MD; 2 = RN)	-0.001	0.17	-0.33	0.32	-0.01	0.99
Site 1*provider type	-0.88	0.28	-1.42	-0.33	-3.13	0.002
Site 2*provider type	0.64	0.48	-0.31	1.58	1.32	0.19
Age	0.002	0.01	-0.03	0.03	0.14	0.89
Pneumonia	-0.19	0.17	-0.53	0.15	-1.10	0.27
CHF	-0.29	0.23	-0.74	0.15	-1.29	0.20
Cellulitis	-0.78	0.28	-1.33	-0.22	-2.75	0.006
Patient lives alone	-0.13	0.15	-0.43	0.17	-0.85	0.39
APACHE II score	-0.05	0.025	-0.10	-0.001	-2.02	0.04

sary, and in almost 20% of cases, nurses estimated 17 to 24 hours were required. Physicians were much less likely to select the higher categories of continuous nursing hours, and recommended 0 hours in 11 cases.

**Multivariate Regression**

The problem-free index, measuring (the lack of) problems with care was distributed toward the high end (higher scores are better) with 0.5% of cases (n = 1) scoring 0; 1% (n = 2) scoring 1; 3% (n = 5) scoring 2; 13% (n = 24) scoring 3; 18% (n = 33) scoring 4; and 66% (n = 124) scoring 5). The index had a mean of 4.4 and a median of 5.

Table 5 indicates that respondents in site 1 reported higher problem-free scores. As shown by the interaction term, nurses in that site had a statistically significantly lower problem-free index than physicians did, controlling for other influences and for clustering on patient. Among patient variables, cellulitis and a higher APACHE II score were statisti-

cally significantly associated with a lower problem-free index, other things equal.

**DISCUSSION**

To our knowledge, this is the first study to examine health care provider views of providing care in HaH. A variety of disparate clinical models exist under the general nomenclature of HaH. The model examined in this study was a substitutive or “clinical unit model” that delivered acute hospital-level medical care in the home and substituted for an acute hospital admission.<sup>9</sup> Our data demonstrate that staff evaluation of providing intensive hospital-level services in the home under such a model can be highly favorable.

We found that interdisciplinary evaluation of substitutive HaH was positive. Problems affecting care were infrequently described by nurses and physicians, and some advantages over usual care were consistently cited. Multivariate results suggested that the site with a midrange volume of HaH

patients was less likely to have problematic experiences than the largest site (and by extension, than the smallest site, which was not statistically different from the largest site). In addition, the interaction between site and provider type at 1 site was statistically significant, suggesting that nurses at this site reported more problems than physicians did, as compared with other sites. This may relate to the fact that only 2 physicians provided HaH care at this site and they may have adapted quickly to the care delivery demands of the model, attenuating their views of problems. Nurses and physicians providing HaH care differed in their views on some model-related issues (such as the need for continuous nursing care in the first 24 hours and the presence of increased opportunities for patient education). These differences appear to reflect their specific frames of reference (due to their respective roles in the HaH care delivery model), and discipline-specific perspectives.

Reports of major problems with care were relatively infrequent. Staff safety, ordering and obtaining test results, and nurses' ability to obtain information and direction from the physician were never reported to be a major problem. Many of the problems reported were related to ironing out the logistics of providing HaH care, such as the timing of delivery of supplies or medications. All "major problems" were addressed during the study as part of ongoing quality improvement in the HaH care model. It is likely that in future applications, when an HaH unit is running at full scale rather than as a research model, such logistic problems would occur even less frequently. It is also important to note that despite such events, our previous work demonstrated that HaH care met illness-specific quality indicators at equivalent rates to traditional acute hospital care, and was associated with high levels of patient and caregiver satisfaction, reductions in caregiver stress, and reductions in important medical complications such as delirium.<sup>5-7</sup>

Nurses and physicians had differing views regarding the optimal duration of continuous nursing required for patients at the start of an HaH admission. In general, physicians were more likely than nurses to believe that patients could be adequately taken care of with a shorter duration of such care. These disparate views may suggest that the physician felt comfort in caring for acutely ill patients in the home as long as a nurse was initially present in the home. This interpretation is consistent with the physicians being most likely to indicate that a delay in nurse arrival was not possible. On the other hand, nurses judged the need for continuous nursing services to be greater, perhaps in keeping with their frame of reference (eg, monitoring the state of the patient and home environment from a minute-by-minute perspective). Similarly, the constant presence of the nurse in the home at the start of a HaH admission likely offered nurses more frequent opportunities for patient education than physicians experienced. Our HaH model did not employ home telemonitoring techniques that are now increasingly available and it would be interesting to know whether such telemonitoring capabilities would have affected nurse or physician judgments of the need for continuous nursing in the home.

The study has several strengths. First, we actively sought to uncover and describe both strengths and shortcomings of a HaH model that provided a particularly intensive level of service in the home setting. Second, we sought to establish what findings were related to the HaH model rather than to issues related to the specific study sites or specific nurses and physicians providing care. Third, we achieved high case response rates.

However, as in any study, there are limitations. The number of cases receiving HaH care was relatively limited due to the nature of the study as a demonstration. Also, due to the novelty of the project, no previously-validated survey instrument was available to assess provider views. We developed our own survey, primarily for the purpose of identifying potential improvement opportunities in the HaH model. In the interest of brevity, we did not include series of items intended to be collapsed into scales, and we employed limited response ranges that yielded more limited variability than we might have seen otherwise. Although the overall HaH evaluation had a control group of hospitalized patients, the provider evaluation lacks a control group because no surveys were conducted among inpatient attending physicians and nurses, nor could we find any specific literature on provider evaluations of traditional acute hospital care for the focal conditions. As a result, there is no direct comparison to the views of traditional inpatient care (except through the participating providers' experience). It could be argued that the health care providers in the study had an interest in reporting favorably on the HaH model in which they were providing care; however, we note that both minor and major problems with the HaH model were nevertheless reported by both physicians and nurses.

The Medicare Program faces severe fiscal challenges as America ages and the numbers of Medicare beneficiaries grow over the next 2 decades. American hospitals also face challenges meeting the care needs of the aging population as they operate at ever-higher occupancy levels, and emergency departments remain overcrowded.<sup>10</sup> In this context, it is useful to consider HaH from a policy perspective in terms of defining the potential for HaH dissemination and the unique contributions it can make to healthcare in the United States. HaH is different from Medicare skilled home care with regard to the type of care that it provides and its goal. HaH provides a substantially higher level of services than that available in typical skilled home care with the intent of providing a short-term substitute for acute hospital care. Current fee-for-service payment norms do not align with HaH program design, and thus early adopters of HaH have been largely limited to integrated healthcare delivery systems, such as Medicare Advantage plans and the Veterans Affairs health system. For such integrated delivery systems, the business case for HaH is simply the delivery of high quality acute hospital care in a patient's home at a lower cost, which is associated with fewer clinical complications and is highly regarded by patients and their family caregivers. In addition, other mature HaH models have demonstrated reductions in hospital readmissions,<sup>11</sup> probably by applying geriatric principles of care and improving complex care transitions.

If a payment mechanism for HaH were developed in the fee-for-service sector, the business case for it would be based on additional revenue from new case capacity in the inpatient setting, direct revenues from services provided to the HaH patient, and potential reductions in losses from admissions of what generally tend to be low case-mix and low-margin patients. Additionally, commercial payers in the fee-for-service environment could contract with hospitals to provide HaH to the mutual benefit of the hospital (who would get guaranteed patient referrals) and the payer (who would save money on the hospital admission and potentially, sequelae of the admission). On a societal level, the return on investment will result from reductions in the cost of an episode of acute medical illness, thus reducing demand for expensive inpatient facilities and the need to capitalize costly new hospital beds. Society also has an interest in providing elders with a safe alternative to inpatient hospitalization and in reducing caregiver stress. Medicare has prior experience with policy initiatives shifting care out of the inpatient hospital setting and making payment changes, for example, with cataract surgery. Finally, HaH can help build care capacity across the continuum of care and contribute to improvement in care transitions and thus may be especially welcome as innovations like the patient-centered Medical Home come to fruition.

Understanding health care provider views concerning an emerging model of care is important to its clinical viability and its ultimate dissemination in the health care system. Organizations considering implementing HaH, and by extension the payers that support these organizations, will be interested in the staff perspective on the program. Other providers will also want to know what their peers who were involved in the pilot thought about it. This study demonstrates that HaH was well regarded by health care providers engaged in the model. However, differences in nurse and physician perspectives are seen in this new model of care as elsewhere in health care systems. From a care and policy viewpoint, understanding the perspectives of interdisciplinary care team members about HaH will help future HaH adopter organizations develop intentional strategies to build maxi-

mally effective care teams. Such strategies might include communication supports such as regular meetings and use of checklists or forms. Finally, opening a dialogue between the provider types could resolve differences in opinion, provide further opportunities for improvement in the HaH model, and offer insights relevant to its dissemination into widespread practice.

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