

# Sleeping at Home: A New Model for a Hospital Teaching Service

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The traditional marriage between teaching hospitals and residents pivots on a central prenuptial agreement: residents offer their hospitals round-the-clock patient care, and, in exchange, hospitals provide an experiential learning modality. This long-held covenant may require an update due to 3 significant changes: the increased spotlight on protecting resident education from excessive service demands; the development of hospital medicine as a specialty; and the need to provide more experiential learning in ambulatory care settings for primary care programs, including family medicine.

The rapid growth of hospitalist care—84% of all teaching hospitals in the United States have at least 3 hospitalists<sup>1</sup>—has been sparked in part by pressure placed on primary care doctors to increase outpatient visits and on hospitals to reduce length of stay.<sup>2</sup> The desire to have better work/life balance coupled with fewer inpatient admissions and increased financial demands have resulted in a decline in family medicine physicians who provide both inpatient and outpatient care. Many hospitals are moving to hospitalist care, citing improved care and decreased cost.<sup>3,4</sup> In 2006, the year before we implemented our new model of inpatient teaching, 62.5% of our program's new graduates entered into practice without an inpatient component.

We describe a unique adult inpatient teaching service in a family medicine residency program that integrates resident teaching with hospitalist care. The novelty stems from the use of hospitalists, not residents, as the primary workforce in the hospital. By uncoupling the educational experience of teaching residents how to care for hospitalized patients from the service demands of the hospital, it is possible to achieve both of these goals and comply with duty hour limits. The added advantage of our system is that residents are able to spend more time in the outpatient setting. This gain in ambulatory training aligns with most of our residents' postgraduation plans to work as primary care physicians in the outpatient setting.

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Funding: The authors report no external funding source.

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Received June 2, 2010; revisions received August 16, 2010 and October 4, 2010; accepted December 1, 2010.

DOI: 10.4300/JGME-D-10-00098.1

## A New Teaching Service

The Tufts University Family Medicine Residency at Cambridge Health Alliance is a competitive 3-year family medicine program with 8 residents per class and 12 core family medicine faculty members. The program has a strong emphasis on outstanding, team-based, patient-centered ambulatory care for the whole family. During their first year, residents spend 3 months at a Boston tertiary care hospital learning to care for inpatient children and obstetrical patients, 1 month in the same hospital's adult Medical Intensive Care Unit, and 3 months with the adult inpatient service at a community hospital. The remainder of the year is focused on residents' own continuity practices at our model family medicine center.

The second and third years are spent almost completely in the outpatient setting, with the exception of 6 weeks of inpatient obstetrics and 3 months on our adult inpatient service. This paper focuses on the 6 months spent in adult inpatient medicine in the community hospital setting.

In 2007, we moved our community inpatient experience to a hospital that had never before had residents. At the new hospital, some patients were attended to by private physicians; others were assigned to a new group of hospitalists. This growing hospitalist service provided the setting for our new inpatient teaching service, replacing our previous day team/night float model with traditional 24-hour inhouse call on the weekends at the old hospital.

The new hospital is located a short drive from a family medicine center where residents see a panel of ambulatory patients in continuity. When continuity patients require hospitalization, they are cared for by residents under supervision from family medicine faculty. Additional patients who see other primary care physicians are assigned to the teaching service from the hospitalist service, and the hospitalists are the attendings-of-record for these patients.

During the day, residents on the inpatient service are supervised by both a family physician faculty member and a teaching hospitalist. In the evenings, residents hand over responsibilities for their patients to the nocturnist, a hospitalist responsible for all of the patients in the hospital (both teaching and nonteaching patients). In the morning, the resident team resumes responsibility. Additional details for the daily schedule are available in the **BOX**.

## Benefits of the New Model

The new teaching service provides 3 major benefits. First, the team composition optimizes the strengths of the faculty

**BOX SCHEDULE**

6:30 AM Pre-rounding by first-year residents.  
 7:00 AM Sign-out. Residents, out-going overnight physician, and incoming hospitalists review overnight admissions and select patients appropriate for the teaching service.  
 7:15 AM Morning report (once per week). Hospitalist case-based teaching.  
 7:45 AM Work. Residents see patients, write notes, coordinate discharges, and call consultants, primary care physicians, and patients' families.  
 9:00 AM Interdisciplinary rounds start in the intensive care unit, followed by telemetry and medical-surgical floors. The family physician and hospitalist attending doctors are both present. After rounds, residents finish the morning's work.  
 1:30 PM Internal handoff. The pair of residents going to the office sign out to the on-call pair.  
 2:00 PM Office/hospital. One first-year resident and one upper-level resident depart the hospital for the office for a half-day clinic session of their own patient panel. The other pair of residents remains until 7:00 PM to conduct patient care and to admit new patients. The pairs alternate so that each pair has an ambulatory continuity session two afternoons per week and admits new patients 2–3 afternoons per week. On weekends, one pair covers the whole service.  
 7:00 PM Sign out. The on-call pair signs out to the in-house nocturnist. The admitting pair each day remains on home call each evening until 7:00 AM, during which time the upper-level resident is also fielding patient calls from ambulatory patients. If there is a family medicine center admission overnight, the on-call pair drives back to the hospital to admit the patient. If residents spend the night at the hospital, the next day's afternoon ambulatory session is canceled, to allow for appropriate rest and compliance with duty hour regulations.

and enhances resident education. The 4 residents on the service team are supervised by 2 attending physicians, including 1 faculty family physician and 1 hospitalist, usually trained in internal medicine. The entire team goes on rounds together daily for all teaching service patients. Both of the attending physicians offer bedside teaching and guidance during rounds, and each attending physician brings unique expertise to the team. The family medicine faculty member models continuity of care for patients from the office, supervises common dermatologic and gynecologic procedures, and can provide care to patients as young as 15 years old. The hospitalist offers experience in advanced hospital medicine for complex patient conditions and supervision of common hospital and intensive care procedures. The result is an interdisciplinary, collaborative model.

A second benefit is that all residents go to the office 2 to 3 afternoons per week for ambulatory patient care sessions and group didactic experiences. Under the previous system, residents returned to the office only once per week during the adult inpatient rotation. The increased time in the outpatient setting emphasizes the values of patient care continuity and self-identity as a family physician and has been a positive experience, particularly for first-year residents, who previously spent much of the year on hospital rotations.

The third and perhaps most critical feature of the new teaching service is that the residents are not the cornerstone of medical care in the hospital. The service has in-house residents only 12 hours per day, 7 days per week, plus residents taking home call overnight. At night, routine

patient care is provided by an in-house overnight hospitalist, who would have been in-house regardless of the existence of a teaching service in order to care for the nonteaching patients. The on-call residents (2 of the 4 residents on the team are on call each night, alternating this duty with the other pair) sign out to the nocturnist and go home. If a patient from the family medicine center requires admission, the on-call residents return to the hospital. Residents also return for rare circumstances such as the death of a teaching service patient. Otherwise, the nocturnist covers all patient care needs overnight, and the residents sleep at home.

### Outcomes

Formal assessment of the new model is in progress. Initial evaluations indicate several positive results. First, the hospitalists welcomed the change. Having residents in the hospital accomplishes more work during the day, offloads some of the patient care from hospitalists to residents, provides redundancy that reduces medical errors, allows for camaraderie and team building, and offers hospitalists opportunities to teach. Resident sign-out to the nocturnist has been lauded as more thorough and safer than the typical sign-out a daytime hospitalist gives his or her nighttime colleague.

Prior to this new teaching service, residents worked nearly 80 hours per week during their adult inpatient medicine rotation; under the new system, first-year residents now work an average of 70 hours per week, and upper-level residents work an average of 66 hours per week, including office time. Residents prefer to sleep at home; in our new model, residents return to work the next day far readier to perform patient care duties and to learn. They stay at work the entire day rather than leaving the hospital post-call in the morning, which is beneficial for some aspects of continuity. Group education has improved, as there are opportunities to teach during rounds or at lunch. Our model complies with the duty hour standards that will go into effect in July 2011. For instance, elimination of the overnight call schedule results in first-year residents leaving the hospital after 12–16 hours and returning ready to work, and learn, the following morning.

Finally, the teaching service has taught residents several skills: effective communication to a covering physician, anticipation of overnight care needs, and the real-life model of family physicians taking calls from home.

### Challenges Overcome

Transplanting a resident teaching service into a community hospital created a challenging transition as nursing staff and other clinicians became accustomed to the residents' role. It was difficult at first to instruct nurses about which physician to page: intern, senior resident, or attending physician. In-service educational sessions, written protocols, and frequent meetings between family physician faculty, the

hospitalists, and nurse managers helped overcome this challenge.

A second challenge that has been successfully addressed was defining what a family medicine residency graduate must know about inpatient adult medicine, particularly with the reduced hours spent in the hospital. We developed a competency-based system across all 6 ACGME (Accreditation Council for Graduate Medical Education) competencies integrating criteria from the Society of Hospital Medicine. Third, to address the value of overnight patient care experiences, we retained a traditional month-long rotation for first-year residents in the adult intensive care unit at our tertiary hospital affiliate. Residents also still take mandatory inpatient call on other rotations, eg, medical intensive care, pediatrics, and inpatient maternity care (obstetrics) rotations. In addition, we offer elective opportunities for residents who desire more experience in the hospital setting. Residents may choose a night float inpatient elective and additional daytime admission experiences, and we allow our residents to moonlight at our community hospital.

### Remaining Challenges

One remaining challenge to our new model is maintaining day-to-day continuity of inpatient care. Residents leaving the hospital each evening results in a loss of the experience of nighttime hours spent awake with a sick patient. Not admitting patients overnight means that each morning, residents often must accept new patients onto their service to meet minimum numbers for their census. Frequently these patients are already improved from their middle-of-the-night reason for admission and may be discharged later the same day. Additionally, a major goal of the new rotation is to increase time in the ambulatory setting, and the corresponding challenge is to minimize the stress on residents to accomplish their inpatient work in the morning to get to the office on time for an afternoon session. Finally,

if a resident returns to the hospital from home for an admission after midnight, the outpatient session the following afternoon is canceled, to allow for adequate rest.

We have developed an interest group composed of family medicine faculty, teaching hospitalists, and residents that convenes monthly to discuss the teaching service, and other changes have been proposed, implemented, and assessed. We plan to continue to adjust the structure of the teaching service to meet the needs of the learners, teachers, and patients.

### Conclusions

Our approach to adult inpatient medical training for family medicine residents presents a dramatic contrast to the traditional model. Residents graduate from the 3-year residency program competent in hospital medicine, but the new inpatient service better reflects the practice model of typical family physicians, with an emphasis on outpatient training and patient continuity. The program also has demonstrated that an extensive and grueling inpatient experience is not required for exemplary primary care training. Programs wishing to test this model will need to train residents in hospitals with a hospitalist service already present or implement one. Uncoupling the hospital's service requirements from the primary goal of educating residents has led to numerous positive outcomes for residents, faculty, the hospital, and patients.

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