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Fostering apprenticeship in hospital medicine education: Establishing a taxonomy for direct care hospitalist teaching services

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INTRODUCTION

Hospitalists are well-established as teaching attendings on resident-covered teaching services and are routinely ranked as highly effective educators.[1] However, time on resident-covered teaching services—ones in which residents are the "first call" for patient care—is limited and insufficient to meet the growing demands of hospital medicine groups.[2] Many hospitalist educators spend most of their time as the responding clinician on direct care services, defined as services where hospitalists "directly engage with and direct the care of patients."[3–5] This tension between limited time attending on resident-covered teaching services and a high desire from hospitalist educators to work with learners has important ramifications for the professional growth of hospitalist educators, as limited time spent with learners leads to fewer opportunities for recognition as a teacher and less feedback for improvement. One solution has been the creation of direct care hospitalist teaching services, where a hospitalist is simultaneously providing direct care as a responding clinician and teaching learners.[6] As this unique model for clinical education expands, there is a growing need to establish a precise and commonly shared language regarding these types of teaching services.

While many institutions have published their individual curricula and experiences hosting various types of learners on direct care services, hospitalist educators lack a common language or taxonomy to describe these models. Various authors have used the phrases "nonresident," "nonteaching," "uncovered," and "direct care hospital medicine services."[6–8] The lack of a shared and codified lexicon and continued use of inconsistent terminology presents a barrier to developing, implementing, evaluating, and disseminating best practices in these models amongst hospital medicine groups and institutions. Practical steps such as conducting a literature review, identifying collaborators, or building communities of practice in this space are limited by the lack of an agreed-upon terminology. Moreover, the absence of a shared language to describe these services undermines our role as hospitalist educators and limits our identity to what we are not (e.g., "nonteaching service"). With a common taxonomy, we can better elevate the educational work we are doing as direct care hospitalist educators, embracing and describing distinctive aspects of direct care services and the educational opportunities they provide.

We propose the nomenclature of direct care hospitalist teaching services (DCHTS). Direct care highlights the fact that the attending hospitalist is providing direct clinical care to some or all of the patients as the responding clinician, hospitalist emphasizes our role in the medical system, and teaching service solidifies our professional identity as educators.

DCHTS: FOSTERING APPRENTICESHIP

Compared to a resident-covered teaching service, the attending's role on a DCHTS is more hands-on and involves working alongside learners rather than supervising from a distance. At the same time, DCHTS provide a wide educational lens, allowing the hospitalist to use their skills as an educator to zoom in on the learner's particular areas for growth and to ascertain when their learner is ready for

Spectrum of Educational Opportunities on Direct Care Hospitalist Teaching Services (DCHTS)

DCHTS Educational Domain	Hospital Medicine Exposure	Core Hospital Medicine Clinical Skills	Curated Hospital Medicine Skills	Clinical Coaching and Support
Purpose or Format*	• Shadowing • Basic bedside history and exam skills	• Inpatient general medicine clinical rotations	• Consultative medicine • Triage medicine • Addiction medicine • Co-management services	• Individualized learning plans • Remediation
Learner Types*	• Undergraduate students • Preclinical students (MD/DO, NP, PA)	• Clinical students (MD/DO, NP, PA) • Interns and residents • Clinical fellows • Early career hospitalists or APPs	• Clinical students • (MD/DO, NP, PA) • Interns and residents • Clinical fellows • Early career hospitalists or APPs	• Any learners with specific needs

Hospitalist educator titrates the educational experience to learner level and goals

***DCHTS** are services where hospitalist attendings simultaneously provide direct patient care as responding clinicians and teach learners*

**Meant as examples, not an exhaustive list*

FIGURE 1 Taxonomy of direct care hospitalist teaching services covering four key educational domains.

increased autonomy.[9] Whether coaching a clerkship student in history-taking, teaching a graduating resident intricacies of billing and hospital administration, modeling interprofessional communication on a comanagement service, or working side by side with a struggling learner to target areas for growth, the scope of DCHTS can match the individual educational needs of learners and the teaching passions of hospitalists. Additionally, the apprenticeship-like model fosters longitudinal relationships that may evolve into formal mentorship or career counseling opportunities.[10] However, DCHTS can face operational and institutional difficulties including wRVU or patient load pressures, inadequate faculty development, or a perceived hierarchy of teaching roles valuing resident-covered teaching services more highly when it comes to promotion and review.[2,3,6] Despite these challenges, DCHTS offer a unique venue for hospitalists to increase teaching opportunities as they work alongside learners to carry out the tasks of patient care, while providing high levels of support in the learner's "zone of proximal development."[5,11] A taxonomy that establishes a common descriptive language for these rotations will help hospitalist educators share creative solutions to these challenges as they innovate in the DCHTS space.

TAXONOMY

One advantage of DCHTS as a model is the flexibility to provide exposure to a vast array of clinical experiences while titrating to a diversity of learner needs. With that in mind, the goal of this taxonomy is generative and not overly prescriptive. We have organized our taxonomy into four key DCHTS educational domains (Figure 1). Underlying all four domains is the ability to provide more supervision or autonomy based on learner level.

Exposure to hospital medicine

Incoming health profession learners may possess limited familiarity with the role of a hospitalist and their daily responsibilities. Shadowing is a very common way for undergraduate students to explore a health profession, or for preclinical medical, physician assistant, or nurse practitioner students to explore the field of hospital medicine as a possible career path. This may be informal, such as students pairing with a hospitalist to shadow a shift, or a more longitudinal mentoring and shadowing experience. In the preclinical years, DCHTS are also a space where students begin to learn patient care skills, such as history taking, or physical exam maneuvers.[12,13]

Core hospital medicine clinical skills

DHCTS provides a unique venue for teaching the broad general skills of inpatient medicine, or core hospital medicine skills (e.g., history taking, physical exam maneuvers, patient communication, etc). Compared with resident-covered teaching services, attendings and learners on DCHTS generally work in smaller groups, which can be advantageous for instruction. The 1:1 apprenticeship model can be more conducive to titrating both content and degree of autonomy to the learner level. DCHTS can foster instruction in core hospital medicine skills for a diverse group of learners. These could consist of medical students, nurse practitioners, or physician assistant students on core clinical rotations. Within core internal medicine (IM) medical student clerkships, nearly half of clerkship and sub-internship directors reported learners working on DCHTS, and even more were considering adding a DCHTS in the coming year.[6] Additionally, they might include IM residents focused on hospital medicine, interns in

residency programs such as anesthesia or ophthalmology who need additional inpatient medicine rotations before subspecialty training, or advanced residents preparing for hospital medicine careers. An even more expansive definition of DCHTS would include hospital medicine fellows, early career hospitalists and advanced practice fellows, or clinicians onboarding to a new work environment.

These examples are not meant to be exhaustive, as a strength of DCHTS is that they are highly adaptable to a wide variety of learners. Published curricula and pilot programs of DCHTS for a variety of learners have been positive, highlighting the strengths of exposure to bedside teaching, involvement in direct patient care, the opportunity to work closely with an attending, and a chance to hone skills like patient safety, discharge planning, and quality improvement.[7,14–16] Pilot studies may be prone to selection bias, and thus more research into the long-term viability and how institutions adapt curricula to the unique needs of their learners and hospital medicine groups is needed.

Curated hospital medicine skills

Hospitalists are leaders in innovating care delivery with a rapidly evolving footprint, and direct care roles may also span many different models that offer specific educational opportunities. Curated hospital medicine skills may include comanagement with medical or surgical subspecialties, general medicine consultation and peri-operative medicine, addiction medicine, point-of-care ultrasound (POCUS) and procedures, triage and transfer center roles, post-acute care, and hospital at home.[17,18] These services may serve as electives for many different levels of learners, allowing targeted teaching for more specialized skills and supporting cross-disciplinary educational opportunities. For example, the University of Southern California hosted fourth-year students planning a career in a surgical specialty on a DCHTS to learn about perioperative medicine.[19] Other examples from our experience include orthopedic surgery interns rotating on a DCHTS comanagement service to solidify nonoperative inpatient management skills or learners interested in addiction medicine rotating on the hospitalist-staffed addiction medicine service. Direct care services with a focus on advanced hospital medicine skills allow learners to see the breadth of possible career paths hospitalists can take and can showcase additional essential areas of hospitalist expertise relevant to all disciplines, such as team-based care and communication skills.[20]

Clinical coaching and support

In medical education, effective coaching and remediation involves delivering personalized support. This includes providing frequent, high-quality feedback and individualized assessments.[21] DCHTS educators are primed to both recognize and support learners in need of coaching as there is little room for anonymity on these services. This has been shown to be effective in the pre-clerkship space, with learners in need of clinical skills remediation joining DCHTS for one-on-one mentorship, deliberate practice, and directed feedback to improve their clinical and professional skills before starting their clerkships.[22] Whether a learner needs coaching on their clinical skills, professionalism, or medical knowledge, the flexibility of DCHTS can provide a high level of support.

NEXT STEPS

The scope of DCHTS has rapidly become a part of the broader discourse in the medical education community with hospitalist educators using various avenues, including presentations and workshops at national meetings, to advance the conversation and pursue scholarly activities in this arena.[11]

More research is needed to understand the landscape of DCHTS; they face challenges ranging from educational concerns, logistical and productivity issues, a dearth of institutional support, and lack of faculty development specific to the needs of this model.[6] Simultaneously, DCHTS have distinct opportunities not only for learners and educational leadership but also specifically for hospitalists seeking to establish expertise and cultivate their careers as teachers, innovators, and scholars. We are at a pivotal moment where meaningful investigational advances can be made in this emerging space.

In this context, we propose the adoption of a standardized nomenclature for identifying DCHTS and delineate a taxonomy outlining the overarching objectives. Our aim is to establish a framework that serves as a valuable resource to facilitate collaborative efforts in creating such services, innovating curricula, nurturing faculty development, and engaging with institutional leaders and stakeholders. The implementation of such a taxonomy and nomenclature will streamline the formulation of best practices, facilitate exchange of ideas, and empower hospitalist educators to develop curricula and contribute as scholars in this domain.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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