

## MEDICAL EDUCATION: PART II

## Do Trainee Consults Communicate Evidence-based Medicine and Clinical Reasoning?

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The practice of medicine is constantly evolving, requiring physicians to be aware of new research and the impact it may have in the delivery of high quality and high value care (HVC). Over the past 20 years, the use of evidence-based medicine (EBM) techniques in clinical practice has become increasingly recognized as a critical part of residency training and a key component in physician life-long learning.<sup>1</sup> The deliberate, daily use of EBM is called *Evidence-based Practice (EBP)*. The Accreditation of Graduate Medical Education (ACGME) has incorporated the practice of EBM into its milestone competency framework, one of which is under the competency of practice-based learning and states the learner should “learn and improve at the point of care.” EBP teaching is most effective when it is tied to directly to patient care. Real-time EBP learning (in the clinics, on rounds) is more effective than journal clubs and group didactics, which create a temporal and physical space between the evidence and the patient.<sup>2,3</sup> Teaching trainees ways to promote value through evidence-based medicine to help with cost containment and reduce waste has become paramount.<sup>4</sup> An integral part of EBP is including the patient’s perspective, expert opinion, and clinical reasoning in areas where the evidence is gray. Communication of these thought processes is an essential skill for residents and fellows on consult services who are at the edge of expert opinion and EBP in direct patient care.

There have been limited studies assessing facilitators and barriers to residents using Evidence-Based Practice. In a 2010 review in *Academic Medicine*, nine studies were identified to assess facilitators/barriers to EBP and, of these, 4 assessed internal medicine or family medicine. They reported that time, EBM skillset, and learning environment were significant barriers to practicing EBM.<sup>5</sup> The majority of studies assessing curricular interventions focuses on lecture or modules rather than the use of EBP and point of care HVC.<sup>2,3,5</sup> Although point of care barriers and facilitators have been explored in the literature, few studies describe what residents and attendings feel would be a non-burdensome, sustainable point-of-care intervention to promote evidence-based practice on consult services.

The consult services are an ideal place to deliberately practice the use of EBP as a tool to create high value consults. Residents have more time and are primed with a clinical question with each consult. Residents also serve a unique dual role as both a consulting physician and primary physician who request consults during their training. There are few studies assessing communication of clinical reasoning or EBP on consult services.

Our study was designed to assess current attitudes and perceptions and to receive input from all physicians who interact with residents on the consult service in order to develop sustainable and feasible

curricular interventions that routinize EBP on the consult service to promote high-value consults.

The survey covered four domains: teaching practices, communication of evidence-based practices, communication of clinical reasoning, and ideas to promote daily practice of evidence-based medicine. The survey was designed after an extensive literature search for published assessment tools yielded no validated assessment tools for EBM consult communication practices. Questions were designed and piloted by an expert group of medical educators based on existing quantitative and qualitative assessments within the literature. Surveys for fellows contained questions that overlapped with both attendings’ and residents’ surveys. Residents answered questions from two perspectives: as the primary team placing the consult and as residents on a consult service rotation. Residents and fellows were asked to report perceived frequency of communication of clinical reasoning and evidence base medicine. Fellows and attendings were asked to report on their perceptions of resident communication behaviors of evidence-based medicine and clinical reasoning. Questions utilized a five-point agreement Likert scale (strongly disagree, disagree, neutral, agree, strongly agree), a frequency Likert scale (almost never, seldom, half the time, usually, almost always), and a free text option for

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ideas on how to promote EBP. The study was approved by the University of Pittsburgh Institutional Review Board.

All data was entered into Redcap and then analyzed using STATA with support from the University of Pittsburgh Clinical and Translational Science Institute. ANOVA was used for comparison of means and paired t-test for within group comparisons. Free text comments were evaluated and divided into categories based on content by two independent reviewers with an adjudication process to come to a consensus on categories.

**Participants:** Surveys were designed and sent to first-year subspecialty fellows (n=49) (cardiology, pulmonology, rheumatology, palliative care, endocrinology, hematology/oncology, nephrology, gastroenterology, infectious dis-

ease), all internal medicine residents (n=159), and coinciding subspecialty attendings who had spent at least two weeks on the consult service (n=141) between May and October 2015.

**Key Results:** Response rates for attendings, residents, and fellows were 45% (64 of 141 attendings), 40% (63 of 159 residents), and 84% (41 of 49 fellows) respectively. In general, lack of standardized orientation and lack of teaching about how to write consult notes were reported by more than 60% of all groups. Overall, attendings agreed it was more important to communicate clinical reasoning (mean 4.6, SD 0.8) as compared to evidence (mean 4.1, SD 0.9,  $p=.0001$ ), although both were rated highly. Residents and fellows both communicated clinical reasoning (mean 4.5, SD 0.7) more fre-

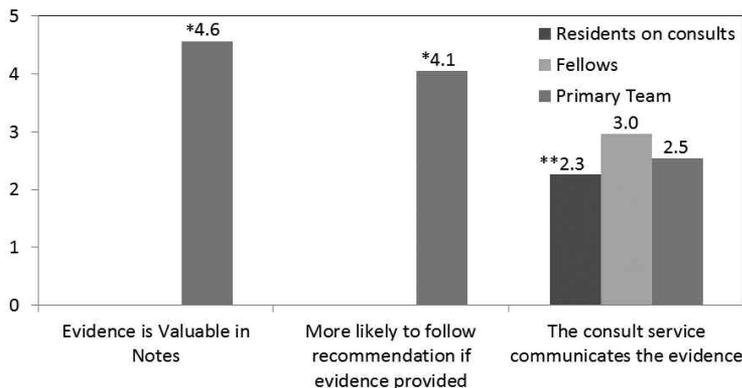
quently than evidence (mean 2.5, SD .6,  $p=.0001$ ). From the perspective of the primary team requesting the consult, residents agreed that they value evidence in the note and that they are more likely to follow a consult recommendation if evidence is provided. However, they do not provide evidence in their notes when responding to consults on their consult electives (Figure 1).

Regarding internal communication on consult services, attendings and fellows felt that residents seldom communicated evidence in notes. Conversely, residents felt they communicated evidence in notes more frequently, about half the time, significantly higher than their supervisor's perceptions ( $p=0.002$ ). Attendings and fellows alike rated "as seldom" that residents provided evidence on rounds without prompting. Attendings and fellows perceived residents communicated clinical reasoning in their notes about half the time compared to residents who rated themselves at almost always ( $p=0.001$ ).

To assess communication of evidence and clinical reasoning between a consulting service and the primary team, we grouped residents and fellows on consults together and did a mean comparison to the primary teams' perception of communication patterns. The combined group consulting team perceived that it communicated clinical reasoning "almost always" (mean 4.5, SD 0.7) compared to the primary team placing the consults perception of "usu-

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Figure 1: Residents want evidence in consult notes, but when they are on consult electives they don't communicate evidence in their notes:



\* Likert Scale: Strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5).  
 \*\*Likert Scale: Almost never (1), seldom (2), half the time (3), usually (4), almost always (5).

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ally" (mean 3.9, SD 0.8,  $p=0.001$ ). Overall communication from the consultant team to the primary team of evidence was "low" (mean 2.5, SD 0.6) and was corroborated by similar low ratings from the primary team perspective (mean 2.5, SD 0.9).

Four EBM promotion categories were generated from the free response questions: improved accountability, the need for expectations on rounds, increased transparency in notes, and development of online shared resources. Ideas proposed included online blogs, shared e-libraries, questions of the day, and to require evidence as part of morning presentations and in the notes.

**Conclusions:** This assessment shows that although EBM and clinical reasoning are deemed important by

all groups, communication of evidence on consults is poor and residents have higher self-perceptions of communications skills of CR and evidence as compared to their supervisor's perceptions. In the development curricula for high value consults promoting communication of evidence is clearly a need. This highlights a target for application of the EBM promotion categories to develop future curricular innovations.

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