

Reducing Routine Labs—Teaching Residents Restraint

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Inappropriate resource utilization is a pervasive problem in healthcare, and it has received increasing emphasis over the last few years as financial strain on the healthcare system has grown. This waste has led to new models of care—bundled care payments, accountable care organizations, and merit-based payment systems. Professional organizations have also emphasized the provision of high-value care and avoiding unnecessary diagnostic testing and treatment. In April 2012, the American Board of Internal Medicine (ABIM) launched the *Choosing Wisely* initiative to assist professional societies in putting forth recommendations on clinical circumstances in which particular tests and procedures should be avoided.

Until recently, teaching cost-effective care was not widely considered an important part of internal medicine residency programs. In a 2010 study surveying residents about resource utilization feedback, only 37% of internal medicine residents reported receiving any feedback on resource utilization and 20% reported receiving regular feedback.¹ These findings are especially significant in the broader context of national healthcare spending, as there is evidence that physicians who train in high-spending localities tend to have high-spending patterns later in their careers.² Another study showed similar findings when looking at region of training relative to success at recognizing high-value care on ABIM test questions.³ The Accreditation Council for Graduate Medical Education has developed the Clinical Learning Environment Review program to help address this need. This program provides feedback to teaching hospitals about their success at teaching residents and fellows to provide high-value medical care.

Given the current zeitgeist of emphasizing cost-effective, high-value care, appropriate utilization of routine labs is one area that stands out as an especially low-hanging fruit. The Society of Hospital Medicine, as part of the *Choosing Wisely* campaign, recommended minimizing routine lab draws in hospitalized patients with clinical and laboratory stability.⁴ Certainly, avoiding unnecessary routine lab draws is ideal because it saves patients the pain of superfluous phlebotomy, allows phlebotomy resources to be directed to blood draws

with actual clinical utility, and saves money. There is also good evidence that hospital-acquired anemia, an effect of overuse of routine blood draws, has an adverse impact on morbidity and mortality in postmyocardial infarction patients^{5,6} and more generally in hospitalized patients.⁷

Several studies have examined lab utilization on teaching services. Not surprisingly, the vast majority of test utilization is attributable to the interns (45%) and residents (26%), rather than attendings.⁸ Another study showed that internal medicine residents at one center had a much stronger self-reported predilection for ordering daily recurring routine labs rather than one-time labs for the following morning when admitting patients and when picking up patients, as compared with hospitalist attendings.⁹ This self-reported tendency translated into ordering more complete blood counts and basic chemistry panels per patient per day. A qualitative study looking at why internal medicine and general surgery residents ordered unnecessary labs yielded a number of responses, including ingrained habit, lack of price transparency, clinical uncertainty, belief that the attending expected it, and absence of a culture emphasizing resource utilization.¹⁰

In this issue of the *Journal of Hospital Medicine*, Kurtzman and colleagues report on a mixed-methods study looking at internal medicine resident engagement at their center with an electronic medical record–associated dashboard providing feedback on lab utilization.¹¹ Over a 6-month period, the residents randomized into the dashboard group received weekly e-mails while on service with a brief synopsis of their lab utilization relative to their peers and also a link to a dashboard with a time-series display of their relative lab ordering. While the majority of residents (74%) opened the e-mail, only a minority (21%) actually accessed the dashboard. Also, there was not a statistically significant relationship between dashboard use and lab ordering, though there was a trend to decreased lab ordering associated with opening the dashboard. The residents who participated in a focus group expressed both positive and negative opinions on the dashboard.

This is one example of social comparison feedback, which aims to improve performance by providing information to physicians on their performance relative to their peers. It has been shown to be effective in other areas of clinical medicine like limiting antibiotic overutilization in patients with upper respiratory infections.¹² One study examining social comparison feedback and objective feedback found that social comparison feedback improved performance for a simulated work task more for high performers but less for low performers than standard objective feedback.¹³ The utility of this type of feedback has not been extensively studied in healthcare.

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However, the audit and feedback strategy, of which social comparison feedback is a subtype, has been extensively studied in healthcare. A 2012 Cochrane Review found that audit and feedback leads to “small but potentially important improvements in professional practice.”¹⁴ They found a wide variation in the effect of feedback among the 140 studies they analyzed. The factors strongly associated with a significant improvement after feedback were as follows: poor performance at baseline, a colleague or supervisor as the one providing the audit and feedback, repetitive feedback, feedback given both verbally and in writing, and clear advice or guidance on how to improve. Many of these components were missing from this study—that may be one reason the authors did not find a significant relationship between dashboard use and lab ordering.

A number of interventions, however, have been shown to decrease lab utilization, including unbundling of the components of the metabolic panel and disallowing daily recurring lab orders,¹⁵ fee displays,¹⁶ cost reminders,¹⁷ didactics and data feedback,¹⁸ and a multifaceted approach (didactics, monthly feedback, checklist, and financial incentives).¹⁹ A multipronged strategy, including an element of education, audit and feedback, hard-stop limits on redundant lab ordering, and fee information is likely to be the most successful strategy to reducing lab overutilization for both residents and attending physicians. Resource overutilization is a multifactorial problem, and multifactorial problems call for multifaceted solutions. Moreover, it may be necessary to employ both “carrot” and “stick” elements to such an approach, rewarding physicians who practice appropriate stewardship, but also penalizing practitioners who do not appropriately adjust their lab ordering tendencies after receiving feedback showing overuse.

Physician behavior is difficult to change, and there are many reasons why physicians order inappropriate tests and studies, including provider uncertainty, fear of malpractice litigation, and inadequate time to consider the utility of a test. Audit and feedback should be integrated into residency curriculums focusing on high-value care, in which hospitalists should play a central role. If supervising attendings are not integrated into such curriculums and continue to both overorder tests themselves and allow residents to do so, then the informal curriculum will trump the formal one.

Physicians respond to incentives, and appropriately designed incentives should be developed to help steer them to order only those tests and studies that are medically indicated. Such incentives must be provided alongside audit and feedback with appropriate goals that account for patient complexity. Ultimately, routine lab ordering is just one area

of overutilization in hospital medicine, and the techniques that are successful at reducing overuse in this arena will need to be applied to other aspects of medicine like imaging and medication prescribing.

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