In academic institutions, educator and trainee collaboration has the potential to strengthen CDS. Formal quality improvement curricula for house staff could include succinct teaching about the educational value and pitfalls of CDS. Thus, educators and trainees can evaluate their institution’s CDS and advocate for tools that are timely, efficient, educational, and evidence based.

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LESS IS MORE

Concordance of Outpatient Esophagogastroduodenoscopy of the Upper Gastrointestinal Tract With Evidence-Based Guidelines

Esophagogastroduodenoscopy (EGD) is widely used for the management of gastroesophageal reflux disease and low-risk dyspepsia. Indications for endoscopy in patients with gastroesophageal reflux disease were recently clarified as guidelines from the American College of Physicians to help primary care physicians decide when to refer a patient for EGD. Our study examined procedures that were concordant with the guidelines across types of physicians and indications, the percentage of repeated EGDs within 3 years, and reasons for discordance.

Methods | A retrospective review was conducted of all adult outpatient EGDs performed at Massachusetts General Hospital from September 1, 2013, through December 31, 2013, for indications of gastroesophageal reflux disease, dyspepsia, esophagitis, and Barrett esophagus. Institutional review board approval was waived by Massachusetts General Hospital. Exclusion criteria included a history of esophageal malignant neoplasms, a history of Barrett esophagus with dysplasia and/or intramucosal adenocarcinoma, and elective therapeutic EGDs to exclude patients who were at increased risk of esophageal cancer and may have warranted more frequent surveillance. Concordance with the American College of Physicians guidelines was defined as patients with (1) nondysplastic Barrett esophagus without an EGD for surveillance in the past 3 years, (2) acute symptoms (<5 years) that persisted despite 4 to 8 weeks of twice-daily proton-pump inhibitor therapy, (3) chronic symptoms (>5 years) in men who were older than 50 years, (4) alarm symptoms (dysphagia, bleeding, anemia, weight loss, and recurrent vomiting), and (5) severe erosive esophagitis despite 2 months of proton-pump inhibitor therapy. Pearson unpaired χ² tests and 2-sided t tests were used for statistical analysis.

Results | We identified 550 EGDs that were performed in 549 patients (54.8% women; mean age, 54 years). Of the EGDs, 208 (37.8%) were discordant with the evidence-based guidelines. Of the patients, 123 (22.4%) had more than 1 EGD within 3 years. There were no differences in rates of guideline-discordant EGDs by the referring physicians’ specialty or level of training (P = .20 for referring specialty and P = .58 for physician level of training) (Table 1). Barrett esophagus and chronic symptoms had the highest rates of discordance at 49.1% and 47.0%, respectively. The most common reasons that EGDs were discordant with the guidelines included an inappropriate proton-pump inhibitor trial before endoscopy, surveillance for Barrett esophagus within 3 years, and chronic reflux symptoms in women (Table 2).

Discussion | To our knowledge, this study is the first to demonstrate substantial use of EGD in patients with gastroesophageal reflux disease and related disorders to be discordant with the current guidelines. Weak evidence that surveillance programs for Barrett esophagus reduce mortality due to esophageal adenocarcinoma and the presence of multiple differing

| Table 1. Frequency of EGD and Guideline Discordance Overall and Stratified by Indication, Referral Specialty, and Level of Referring Physician Training |
|---------------------------------|---------------------------------|-----------------|
| Characteristic                  | No. (%)                         | Guideline Discordance |
| Overall                         | 550 (100)                       | 208 (37.8)        |
| Indication                     |                                 |                  |
| Acute symptoms                 | 243 (44.2)                      | 62 (25.5)        |
| Chronic symptoms               | 230 (41.8)                      | 108 (47.0)       |
| Alarm symptoms                 | 169 (30.7)                      | 3 (1.8)          |
| Barrett esophagus              | 116 (21.1)                      | 57 (49.1)        |
| Severe esophagitis             | 16 (2.9)                        | 6 (37.5)         |
| Referring specialty            |                                 |                  |
| Primary care physician         | 410 (74.5)                      | 161 (39.3)       |
| Gastroenterologist             | 140 (25.5)                      | 47 (33.6)        |
| Referring physician level of training | 33 (6.0) | 11 (33.3) |
| Attending staff                | 517 (94.0)                      | 197 (38.1)       |

Abbreviation: EGD, esophagogastroduodenoscopy.

a An endoscopy could have been prompted by more than 1 indication.
b The guideline discordance rate between EGDs referred by primary care physicians and gastroenterologists was statistically insignificant (P = .20).

The guideline discordance rate between trainees (internal medicine residents and gastroenterology fellows) and staff (primary care and gastroenterology attending physicians) was statistically insignificant (P = .58).
recommendations may contribute to these high rates.\(^3\)\(^5\) No statistical difference in discordance rates existed between EGDs that were referred by primary care physicians vs gastroenterologists. Possible explanations include the relatively recent guideline publication and potential selection bias for greater symptom severity among gastroenterologists.\(^6\) Limitations included our short study duration and inability to capture patient-driven referrals, insurance data, and additional endoscopies performed at other institutions. A multidisciplinary approach of specialist preview of open-access referrals, incorporation of appropriate indications in referral orders, and continued education may result in improved concordance with the evidence-based guidelines.

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Author Contributions: Dr Cai and Ms Campbell had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: All authors.

Acquisition, analysis, or interpretation of data: Cai, Richter.

Drafting of the manuscript: Cai, Richter.

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Editor’s Note
Promoting Evidence-Based High-Value Health Care

Promoting evidence-based high-value health care remains one of the foremost challenges in medicine today. Increasing scrutiny of the real-world effectiveness, safety, and costs of medical care, including therapeutics, diagnostic tests, procedures, operations, and even decisions regarding whether to admit a patient to the hospital or schedule an outpatient follow-up, have broadened and deepened our understanding of high-quality and high-value care. In response, multiple specialty societies, prompted by the Choosing Wisely campaign,\(^1\) have revised their clinical practice guidelines and recommendations to address not only what care should be provided but also what care should not. But avoiding overtreatment and overdiagnosis are often easier said than done, even at the most prestigious and well-resourced institutions in the world.

In this issue of JAMA Internal Medicine, Cai et al.\(^2\) reviewed all 550 esophagogastroduodenoscopies performed in adults at Massachusetts General Hospital in the last 4 months of 2013 to evaluate low-risk indications, finding substantial overuse of the procedure. More than one-third were discordant with the American College of Physicians’ evidence-based guidelines. Nevertheless, it is always easier to find mistakes and examples of health care that, in retrospect, need not have been provided. This article is a reminder of what we need to do to improve. Guidelines and recommendations are not enough. Practices need to change at the point of care. More steps need to be taken, including checklists before procedures, to review appropriate indications for use; substantive discussions with patients to obtain informed consent to comprehensively review expected benefits, risks, and costs as well as treatment alternatives; and better physician reimbursement policies are needed to provide sufficient financial support for these discussions between patients and their physicians. As patients and physicians grow increasingly aware of the need to promote evidence-based high-value health care, we need to develop the tools to make this care a reality in practice.

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