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EDITORIAL

Mind the Gap: Venous Thromboembolism Prophylaxis in Patients Hospitalized with Inflammatory Bowel Disease

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As you board the train in London, a sign reminds you to "Mind the Gap" and not stumble between the train and boarding platform. Improving the quality of medical care will take countless efforts to "Mind the Gap" between care that could be and care that is. Bridge enough gaps and perhaps we can cross the "Quality Chasm" that the Institute of Medicine's 2001 report described [1].

In epidemiologic terms, the gap between best care and usual care is described by the terms "efficacy" and "effectiveness." A. L. Cochrane, the British epidemiologist, first articulated this difference in his classic book entitled *Effectiveness and Efficiency: Random Reflections on Health Service*, the textbook that launched evidence-based medicine [2]. According to Cochrane, efficacy refers to the best care achievable when provided under ideal (controlled) conditions. Effectiveness refers to care that is provided under average or usual conditions.

In this issue of *Digestive Diseases and Sciences*, a gap in care is highlighted for patients who are hospitalized with inflammatory bowel disease (IBD). Patients with IBD are at 3- to 4-fold increased risk of both primary and recurrent venous thromboembolism (VTE) compared to people without IBD, VTE can occur at a younger age than expected and pulmonary embolism (PE) also appears at rates higher than in hospitalized patients without IBD [3–7]. VTE can occur in unusual locations including the cerebrovascular system, portal vein, mesenteric and retinal veins [3].

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In 2003 there were approximately 38 million discharges from US acute care hospitals [8]. Fifty-one percent of the 15 million patients discharged from medical services were judged to be at increased risk for VTE according to criteria of the American College of Chest Physicians (ACCP) [9]. VTE contributes to over 100,000 deaths each year and is one of the Agency for Healthcare Research and Quality's (AHRQ) key strategies for improving patient safety [10]. The following is taken from the ACCP 2012 VTE guidelines:

> For acutely ill hospitalized medical patients at increased risk of thrombosis, we recommend anticoagulant thromboprophylaxis with low-molecular-weight heparin (LMWH), low-dose unfractionated heparin… or fondaparinux (Grade 1B).

Sam et al. [11] at Mount Sinai Hospital Centre for Inflammatory Bowel Disease (Toronto) studied physicians' perceptions of risks and practices in VTE prophylaxis in IBD patients. They surveyed all members of the American Gastroenterological Association (AGA) who were affiliated with the Immunology, Microbiology and IBD section. Practicing clinicians who had cared for IBD patients were invited by email to participate in a survey of their perceptions and practices concerning VTE prophylaxis. A total of 174 gastroenterologists responded to the email invitation and 135 completed the survey (14 % of the 1,248 members of the AGA). Most (77 %) practiced in academic medical centers and had over 14 years (mean) of practice experience; 41 % had >50 % IBD patients in their practice signifying the expertise of this sample. Most (84 %) reported having had IBD patients develop VTE and almost all agreed that hospitalized IBD patients have a higher risk of VTE compared to non-IBD patients. Over half knew that VTE in IBD patients was associated with excess mortality.

Table 1 Examples of quality improvement initiatives and infrastructure

Objective	Description of example
Internal quality improvement program	Often in response to patient experience, task force examines literature, discussion among providers
Internal process re-engineering from bedside to system wide change	Institute for healthcare improvement framework for spread (see Ref. [18])
Increase awareness among providers at point of care automate or mandate actions when deemed necessary	Clinical decision support tools (Red Flag Alerts, algorithms embedded in the electronic medical record), standard order sets as default with over-ride capability
Outcome registries to track performance	Digestive Health Outcomes Registry (AGA), National Surgical Quality Improvement Program (NSQIP) of the American College of Surgeons
Recognition programs for high quality performance	Digestive Health Recognition Program (AGA), Crohn's and Colitis Foundation of America (CCFA)
Financial or reimbursement alteration public reporting	Hospital Compare, Physician Quality Reporting System, Physician Compare

The column on the left (objectives) lists the reasons and goals of quality improvement initiatives. Examples of such initiatives are provided on the right column

AGA American Gastroenterological Association

Twenty-six percent did not routinely assess their patients for signs or symptoms of VTE on admission. As noted in the AHRQ presentation cited above [9], public reporting of physician VTE assessment is coming (for now confined to joint replacement patients) and soon the Centers for Medicare and Medicaid (CMS) will not pay for hospital-acquired complications including VTE. Anticipate more "sticks" to appear since VTE prophylaxis is seen as a highly effective maneuver to enhance patient safety.

Forty-seven percent of these physicians self-reported administering VTE prophylaxis all of the time, 76 % at least half the time and 14 % never administer prophylaxis. One in five physicians surveyed believed there was insufficient evidence that VTE prophylaxis was either effective or safe enough to warrant routine administration. VTE prophylaxis was deemed unnecessary in young (<40 years) and ambulatory IBD patients in 8 and 24 %, respectively. There was conflicting opinion about whether rectal bleeding was a contra-indication to pharmacological prophylaxis. At least one randomized controlled study failed to show a significant difference in all-cause mortality between hospitalized patients at increased risk for VTE provided graduated compression stockings versus low-molecular-weight heparin, suggesting a good alternative to actively bleeding IBD patients [12]. Even aspirin has been demonstrated to be useful to prevent recurrent VTE [13]. Other excellent VTE management reviews and step-by-step improvement strategies have been published [14–18].

Given the variation in practice among experienced IBD physicians, one can only speculate about VTE prophylaxis among physicians who care for hospitalized IBD patients less frequently. What might be done to close this gap? Quality improvement efforts can involve focused education, publication of evidence-based guidelines, internal process improvement, outcome registries, recognition programs and financial incentives (or penalties). Examples of improvement initiatives are outlined in Table 1.

Transforming a health care system to deliver consistently high quality care for clinical service lines or a disease process is difficult. Such efforts begin with the development of an organizational culture of quality and recruitment of committed clinical leaders. Foundational knowledge about achieving high-value, cost-conscious health care is essential for leaders of any improvement effort [19]. The Institute for Healthcare Improvement (IHI) has long been a source of practical advice about implementation of change from bedside to system-wide [20]. IHI is an independent not-for-profit organization based in Cambridge, Massachusetts focused on improving health care delivery. An open-source interactive "Improvement Map" is available to help initiate a change strategy and track progress [21]. One portion of the multiple processes targeted for improvement is VTE prophylaxis.

Nationally, we are transitioning from the use of electronic medical records that merely record data to informational tools that drive behavior change and care improvement. One method used to enhance consistent care around a single disease or intervention is through the use of Clinical Decision Support Tools such as reviewed in VTE management [22].

Outcome registries are useful to identify specific interventions or outcomes that are deemed to be of highest value to patient care. At least three outcomes registries are available to track IBD care in children [23], adults [24] and surgical patients [25]. Goals of these emerging registries, in addition to demonstrating improvement in patient care,

include helping practices become recognized as centers of excellence for IBD care either by commercial or government payers or the lay public.

Two national recognition programs focused on IBD care now exist. The AGA has partnered with Bridges to Excellence (BTE) to develop a Digestive Health Recognition Program (DHRP) [26]. DHRP begins with practitioners extracting specific data elements from 24 consecutive IBD patient charts and filling out a template that is sent to an adjudicating entity. If sufficient points are achieved (based on meeting performance standards) a 2-year recognition status is conferred by BTE and AGA jointly. This is the first gastroenterology-specific BTE program. Other specialty programs recognized by numerous commercial payers are used to differentiate reimbursement. Crohn's and Colitis Foundation of America (CCFA) has developed criteria that characterize a high quality IBD practice using measures similar to those of the AGA. Despite the demonstrated relationship between IBD and increased risk for VTE, routine assessment of hospitalized IBD for VTE risk is not yet a performance measure in current registries or recognition programs. As programs develop and change, consideration for such a measure would be recommended.

Healthcare in the United States is beginning to transform from volume-based (fee for service) to value-based payments where financial risk is tied to health outcomes or patient experience. The Hospital Compare and Physician Compare programs of CMS are mandated by law to begin differentiating reimbursement to hospitals and providers respectively based on achieving high quality outcomes or avoiding adverse events. Avoidable complications such as VTE or PE are tied to diminished financial reimbursement [26]. The Physician Quality Reporting System (PQRS) from CMS is a program whereby providers report on specific performance measures that can either be individual measures or group measures. An IBD group was developed by a joint task force from the AGA and CCFA and now is part of the 2012 PQRS (measures 226 plus 269–276). These can only be reported through a registry such as AGA's DHOR.

Articles such as the one by Sam et al. [27] illustrate the challenge we have to improve care, gain consensus on best practice and develop an infrastructure to drive behavior change and measure performance. The "Quality Agenda" of the United States has been clearly articulated by the National Quality Forum in its 2012 report to Congress. A "Quality Care Primer" for gastroenterologists has been published [28] with multiple opportunities to measure and report on performance improvement now in existence (cited above). It is now up to us collectively to "Mind the Gap" and cross the "Quality Chasm."

Conflict of interest None.

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