Guest editorial

Using the electronic health record to diagnose gastro-esophageal reflux disease: blessing or curse?

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Gastro-esophageal reflux disease (GERD) is undoubtedly amongst the most common gastrointestinal disorders seen in primary care practice. The typical symptoms (heartburn and regurgitation) appear to be on the increase.[1] Left untreated, some believe that GERD can progress to erosive esophagitis, Barrett's esophagus and perhaps esophageal adenocarcinoma.[2] Untreated GERD symptoms result in a decrease in overall quality of life including disruption of sleep and impact on work productivity, absenteeism and psychosocial functioning.[3,4] In addition to heartburn and regurgitation, there is a group of patients who may present with so-called atypical symptoms such as chronic cough, laryngitis and other voice disturbances; difficult to treat asthma and even sleep disorders have been associated with GERD and are often unrecognised.[5]

The diagnosis of GERD is often made on the history and in the absence of so-called warning signs (weight loss, dysphagia or bleeding) the patient is usually treated empirically.[6] In the presence of atypical symptoms the diagnosis is more often overlooked and more difficult to confirm, and often requires treatment with higher doses of antisecretory therapy over a prolonged period of time.[4] In the patient given a diagnosis of GERD, long-term treatment with antisecretory therapy is often continued indefinitely at a substantial economic and sometimes personal cost. As such, optimising the diagnostic approach to GERD has the potential to benefit patients; however, the incorrect diagnosis of GERD has the potential for overtreatment or incorrect treatment.

The widespread use of electronic health records (EHRs) allows an opportunity to enhance and augment available information and even to educate practitioners in real time as they enter data. In this issue of the journal, Player, Gill, Mainous *et al*[7] report a randomised controlled trial in which an electronic medical record was used in an attempt to increase (and improve) the diagnosis of GERD and to track the antisecretory therapy given to a large cohort of patients in a primary care office setting. About two-thirds of the USA was represented with varying practice sizes. Patients with GERD were identified using International Classification of Disease version 9 (ICD-9) codes corresponding to GERD. ICD-9 codes for asthma, chronic cough, hoarseness and chronic laryngitis were included as potential GERD diagnoses. The authors used the American College of Gastroenterology guidelines[5] for diagnosis and treatment of GERD to develop diagnostic and treatment algorithms, as well as care prompts that were immediately available to the practitioner on an encounter form embedded within the electronic record. The investigators included persons who had symptoms suggestive of GERD but who had not already been diagnosed with the disease and automatically identified them in the EHR. Prompts were given to the provider to consider a GERD diagnosis (both with typical and atypical symptoms). The provider was then guided to a series of questions leading to a new diagnosis of GERD and resulting in the prescribing of a GERD medication. Education for providers and staff was also provided. The authors looked at new GERD diagnoses, new diagnoses for atypical symptoms and new prescriptions for GERD medications – proton pump inhibitors and histamine-2-receptor antagonists (H2RAs). It is assumed that those in the control group were not prompted in any way. Providers were mostly suburban, family physicians, predominantly male, Caucasian and with more than five years of practice experience.

It was no surprise that record prompts and education resulted in an increase in GERD diagnoses which was statistically greater in the intervention group (OR 1.33, 95% CI 1.13–1.56). Of particular interest, however, was a substantial increase in new prescriptions for those with a GERD diagnosis not on a PPI or an H2RA at baseline: 24.3% of the intervention group

and 19% of the controls received new treatment ($P<0.01$). There was likewise an increase in the diagnosis of GERD for atypical symptoms in the intervention group versus the control group, though surprisingly no increase in new prescriptions for GERD medications.

The study, despite its limitations, suggests the following:

- care providers are suggestible
- appropriate educational tools can result in an increase in diagnoses and prescriptions.

These interventions, if constructed carefully, could ideally enhance patient care. What is striking is the substantial increase in antisecretory therapy. If therapy is appropriate, the potential benefit to the patient is great. However, if the 'prompts' and EHR tools overdiagnose a condition (in this case GERD) then patients will be inappropriately over treated with medications that will increase costs (both to patient and system) and potential side effects. It is therefore imperative that these educational tools are carefully developed, evidence based and unbiased so that opportunities afforded by the EHR can be more often a *blessing* rather than a *curse.*

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PEER REVIEW

CONFLICTS OF INTEREST

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