

Spotlight on primary care management of COPD: Electronic health records

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Long-term management of chronic obstructive pulmonary disease (COPD) in primary care depends on high quality clinical recording. From diagnosis to disease surveillance, it is difficult to assure high quality care of COPD without good records. For some years international evidence has exposed gaps between observed and recommended care in key quality indicators of COPD management including recording in the patient electronic health records (EHRs). This can be seen particularly in the recording and interpretation of spirometry measurements.^{1–8} In their recent paper in this journal Heinmüller et al. have highlighted shortcomings in the recording of COPD care in general practices in Germany.⁹ Their findings suggest sub-optimal care across a range of quality indicators. Spirometry data to confirm a secure diagnosis of COPD could not be extracted. There was a lack of standardized recording within the EHRs. Data were not easily accessible from a single database and the records were difficult to search. It cannot be concluded that poor recording of quality indicators represents genuine deficits in care, but it begs the question whether low quality recording is itself evidence of low quality care.

Poor recording may impede the delivery of appropriate interventions. Absence of records of spirometry-confirmed diagnosis, of smoking history or nicotine replacement therapy, of influenza or pneumococcus vaccination, of referral for pulmonary rehabilitation, or of the occurrence of an exacerbation, may prevent proactive disease surveillance and treatment. Poor recording makes the assessment of quality of care of COPD impossible in both the individual and in the practice overall. Comprehensive record-keeping provides a baseline against which change can be judged. Improvements in the recording of care may not assure improvements in the quality of care, but

they are essential to the assessment of quality. Rates of recording of spirometry in COPD patients in primary care vary greatly across different countries and are often low.^{5,6,9–11} Where spirometry is recorded interpretation is frequently inaccurate with up to 30% of patients incorrectly diagnosed with COPD.^{5–8,10,11} Rothnie et al. found that 99% of primary care traces were of adequate quality but that only 73% were consistent with obstruction.⁵ Concerted efforts such as the adoption of a national program in Finland for the prevention and treatment of COPD in primary care and the Quality and Outcomes Framework (QOF) in the United Kingdom (UK) have been associated with significant improvements in the recording of patient smoking habits and spirometry results in the EHRs.^{11,12} The maintenance of a COPD diagnostic disease register may also be associated with higher rates of recording of quality indicators.¹⁰

In addition to seeking improvements in the recording of care, the Disease Management Program (DMP) for COPD care in Germany aims to enhance the quality of care through a “top down” system.⁹ This approach has led to increased adherence to treatment guidelines in primary care but as yet it has not been associated with reduced rates of hospital admissions for COPD exacerbations.^{13,14} In the National Health Service (NHS) in England approximately 95% of general practices participate in the QOF.¹⁵ The QOF is also a “top down” system of financial incentives for

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general practices to standardize and improve their care of patients with long-term medical conditions, including COPD.¹⁶ Electronic prompts can be integrated in the EHR to remind clinicians of the need to collect data during a consultation in order to meet the QOF criteria. Although a pay-for-performance approach may improve the recording of care in general practice, its effects on quality of care are far from clear.¹⁷ In addition, the beneficial effects of pay-for-performance care may be short-term.¹⁸ The use of financial incentives has been criticized for eroding professional autonomy and for diverting clinical focus to those aspects of care which are measurable at the expense of other facets of care including the patient's concerns during the consultation.^{17,19} Better recording may be achieved in the context of a system like the QOF. It does not inevitably lead to better care, but without good quality recording high quality care is much harder to deliver in general practice.

Reliable EHR recording in COPD care is of importance to the possible prevention of exacerbations, an important cause of worse prognosis in COPD.²⁰ The previous history of exacerbations is a key criterion in prescribing, especially of inhaled corticosteroid (ICS) therapy, to prevent acute exacerbations.^{21,22} It is difficult to assess accurately the frequency of COPD exacerbations due to their subjective nature and variation in their recording in the EHR.²³ Accessing data on exacerbations from EHRs can be complicated and time-consuming and the practice and accuracy of coding in primary care varies widely between individual clinicians.²⁴ Data on exacerbations often are entered in a free-text format and can only be retrieved by inspection of individual patient records, undermining the reliability of large-scale data searches.²⁵ Only those episodes recorded with an accepted electronic code will be detected during an EHR search. One way of identifying an exacerbation is by the prescription of antibiotics and oral corticosteroids.⁵ These are frequently prescribed to patients in advance as "rescue packs" to enable COPD patients to intervene early in an exacerbation, reduce its severity and prevent hospital admission.²⁶ The widespread community prescribing of these packs, for which there is sparse evidence of effectiveness,²⁷ without evidence of the exacerbation for which they were prescribed, impedes the accurate assessment of the prevalence of moderate COPD exacerbations. Improvements in data recording and auditing of COPD care in UK general practice has occurred during a time of rising rates of prescription of inhaled drugs, including ICS therapy.²⁶ The

change has not been associated with improvements in exacerbation-related hospital admissions or readmissions.^{26,28}

Long-term surveillance and acute decision making in COPD require good EHR recording in primary care. Annual reviews of COPD should be informed by past records of smoking history and cessation treatment, vaccination, and referral for pulmonary rehabilitation. Consistent recording of exacerbation history is essential to targeted prescribing to prevent acute exacerbations. Reliable and complete recording should be an essential element of high quality COPD care. Without it, doubts arise about the accuracy of the diagnosis, and systematic long-term management of COPD becomes very difficult.


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