How Can the Implementation of Guidelines Be Improved?*

Michael G. Pearson, MA, FRCP

Guidelines for a variety of diseases have now been produced. However, implementation of guidelines requires that the medical profession is willing to conform to patterns of diagnostic and treatment behavior set down by others. This may not happen in practice. Early experience in the United Kingdom was gained with the introduction of guidelines for the management of asthma. For a number of years, there have been improvements in practice, but deficiencies still exist. When the introduction of guidelines for the management of COPD was planned, a new approach was taken with a consortium of the British Thoracic Society, pharmaceutical companies, and medical equipment companies being formed to promote their use. Early studies show that COPD care starts from an even lower baseline than asthma; there is poor understanding of objective diagnosis of COPD in both primary and secondary care. ***(CHEST 2000; 117:38S–41S)***

Key words: clinical guidelines; COPD; spirometry

Abbreviations: BTS = British Thoracic Society; GP = general practitioner

The title of this article contains an implication that was probably believed by many in health management 10 years ago. If the best evidence is pulled together in a single document, it was thought that almost automatically doctors would follow those recommendations and there would be better care for patients with consequently better health outcomes and more cost-effective use of resources. The production of clinical guidelines became an industry of the 1990s. In the United Kingdom alone, most conditions in respiratory medicine have been covered, and in many cases, there are comparable national documents from many other countries. Therefore, should all care have been improved?

However, the relationship between theory and practice is never simple. Publishing a guideline document is not a guarantee that it will ever be read and still less that it will ever be acted on. Many members of the medical profession jealously guard their right to treat each individual as an individual and regard the imposition of guidelines as a threat. Others argue that it is helpful to set out the best practice but to recognize that for exceptional patients, doctors may deviate from the guidelines and that in such cases, the doctor should be able to point to good reasons to support the differences. Since the publication of the 1990 British asthma guidelines, there have been a series of audits and other activities aimed at promoting the use of guidelines. The rest of this article will discuss some of the lessons learned during the last 9 years.

Any assessment of implementation implies that it is possible to measure changes in clinical care standards. Unlike surgery, in which there are some very clear end points as was shown in the Confidential Enquiry into Perioperative Deaths study of perioperative mortality during the first 30 days postoperatively,[1] chronic medical conditions develop and change over years. Disease may progress despite the best medical care. For this and other reasons, it is usually not practicable to measure true health outcomes, and measurements of process of care are substituted. This second-choice approach has recently gained support from theoreticians.[2]

Experience With the British Thoracic Society Asthma Guidelines

At the time the asthma guidelines were being written, no one knew whether the recommendations were theoretical ideals or achievable practice. More important, there were no data to indicate whether the recommendations being preached in the guidelines were being practiced in our own clinical roles. The British Thoracic Society (BTS), together with the National Asthma Campaign and the Royal College of Physicians, performed a study in 36 hospitals looking at the process of acute asthma management

* From Clinical Effectiveness and Evaluation Unit, Royal College of Physicians, London, UK.
Correspondence to: Michael G. Pearson, MA, FRCP, Clinical Effectiveness and Evaluation Unit, Royal College of Physicians, London, UK; e-mail: Michael.Pearson@rcplondon.ac.uk

by examining care in the 2 months before the guidelines were published and in the same 2 months 1 year later. The study had to be a multihospital study to achieve sufficient numbers to have statistical power and to overcome the idiosyncrasies of single units. The study defined many aspects of care for which there were specific guideline recommendations and was set up as a confidential study to encourage participation from hospitals. Confidentiality is an important issue to clinicians and to patients but is increasingly threatened by the demands for disclosure of performance figures and by medicolegal practices. Such studies may become more difficult in the future.

This study demonstrated that there were many deficiencies in the care process and that these were evident during admission, during the hospital stay, and on discharge.[3] The greatest deficiencies occurred in patients cared for by nonrespiratory specialists, but average data hide the magnitude of the deficiencies seen in individual units. Figure 1 shows an alternative way of expressing the data that avoids the need for having a league performance table. (The box plots show individual units compared in centiles.) For certain aspects of care, some hospitals only achieved the guideline recommendations in half or less of the patients under their care. Although exceptions to guidelines are expected, it is difficult to imagine any situation that could justify more than half of patients with acute severe asthma not receiving prophylactic inhaled corticosteroids afterward. In other words, there are unacceptable variations in clinical care. This process can be shocking even to units that consider themselves to be of high quality. In my own hospital, we were surprised to find that our performance was in the lowest quartile in 1990, although with immediate action, the unit is now consistently in the top quartile. The changes would not have occurred if we had not found that there was a problem to address.

One year later the study was repeated, and, disappointingly, there were no significant improvements in the standards of care.[4] However, there were trends that could be observed, particularly among the behavior of the nonspecialist, and all were pointing in the same direction. When the study was repeated in 1995 and 1996 (but not in all the same hospitals), the national picture is much more encouraging, with use of inhaled corticosteroids and the provision of written self-management plans both rising. However, these data do demonstrate that the health services change by slow evolution and not by revolution—humans are generally resistant to change.

Implementation of the BTS COPD Guidelines

When guidelines for COPD were being produced in the United Kingdom in 1995 (published in 1997),[5]

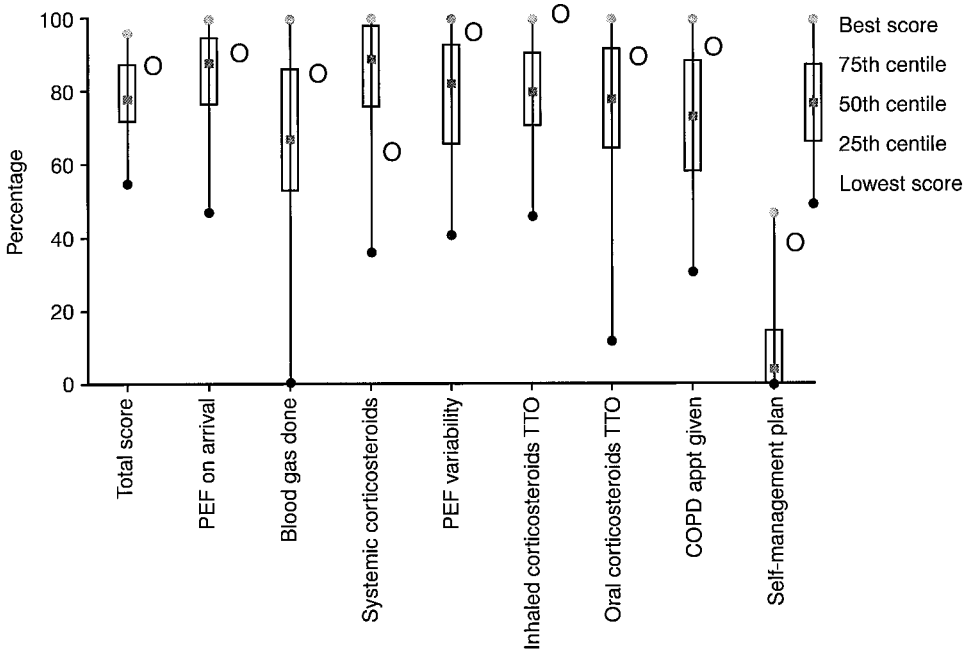

Figure 1. One hospital's performance (circles) compared with the best, median, and worst scores (box plots) achieved by other UK hospitals in the same year. PEF = peak expiratory flow; TTO = prescribed on discharge.

the BTS was concerned about how best to promulgate the guidelines so that change would hopefully occur more rapidly than for asthma. As with most professional organizations, the BTS has little in the way of resources, and thus a consortium of eight pharmaceutical companies and six medical equipment companies and the BTS was formed. In the first year, copies of the guidelines were distributed to all consultants, to many respiratory nurses, and to every UK general practice. With the guidelines came two offers—lecture slide sets for consultants and free leaflets on spirometry for practices. There was a most impressive uptake for both. At the same time, articles were encouraged in the free medical press, and a survey of awareness of COPD was conducted before and after all the activity.

Table 1 demonstrates that even after the publishing and distributing of a guideline document, there is a very poor understanding of COPD in primary care. The increase among those who thought spirometry was the diagnostic test for COPD from one third to nearly half of general practitioners (GPs) is gratifying until one realizes that it implies that more than half of all GPs are not even going to think about making an objective diagnosis. Answers to such questionnaires are likely to be overly optimistic because it is much easier to say that you would do something than to actually do it. Further cause for concern arises from the answers to questions about the interpretation of spirometric results—< 10% of GPs or nurses were able to use the values to correctly classify patients into mild, moderate, or severe categories.

The situation in secondary care is little better—preliminary data from a joint Royal College of Physicians/BTS study of 46 hospitals examining care in and around an acute exacerbation of COPD has shown that only 54% of patients admitted with an acute exacerbation had a measure of FEV_1 performed within 5 years of the index admission. The problem was much more marked if the patient was under the care of a nonrespiratory specialist.[6]

Table 1—*Proportion of GPs and Nurses Who Were Aware That the Guidelines Were Recommending Specific Actions

Guideline Recommendations	GPs, %	Nurses, %
Use of spirometry is vital for diagnosis	28	35
COPD is different from asthma	20	28
Appropriate treatment can improve QoL	13	29
Stress on anti-smoking advice	12	7
Use of PEF as diagnostic test for COPD		
Before guidelines	49	52
After guidelines	37	28
Use of spirometry as the diagnostic test		
Before guidelines	35	43
After guidelines	48	57

*QoL = quality of life; PEF = peak expiratory flow.

Much of the interest in the United Kingdom has centered on the acute exacerbation and on ways of helping to reduce admission rates. There are several projects that are using specialist nurses to assess patients in the emergency room and, if no life-threatening features are found, then to allow the patient to return home with augmented therapy under nurse supervision for the next few days. First data suggest this may be appropriate for up to a third of such patients and that it is safe, cost-effective, and liked by patients.[7] In asthma, the nursing profession has been vital to implementing better asthma care, especially in the community, and it is likely that the same will prove to be the case in COPD. Specialist nurses with diploma-level courses in COPD may prove to be much better at implementing guidelines than their nonspecialist counterparts.

The Importance of Accurate Diagnosis

These two studies show how far actual practice is from that recommended in the guidelines. If the diagnosis is not made objectively, then what is the chance of appropriate management? Within the last 2 years, I have seen many cases of mistaken diagnosis leading to erroneous treatment. A description of three real examples follows:

- A man of 56 years was referred because he wished to be offered early retirement on the grounds that his emphysema was preventing him from working in a moderately physical job. He had been using nebulized bronchodilators four times daily for the past 15 years. The company physician was puzzled because she recorded an FEV_1 of 79% predicted. I confirmed these findings and excluded any significant lung or heart impairment with an exercise test.
- A woman of 52 years was referred with a long history of a condition labeled COPD that was not responding to inhalers or to courses of oral corticosteroids. Her FEV_1 was reduced to $< 60\%$ predicted but so was the FVC. She had a restrictive defect later shown to be caused by a rheumatoid lung.
- A man of 67 years with a diagnosis of chronic bronchitis who had smoked for 45 pack-years was referred to be considered for long-term oxygen because he was so disabled and now confined to the house. His FEV_1 was 0.7 L, which rose to 1.3 L after nebulized bronchodilator and to > 2 L on oral prednisolone. He was delighted.

In each case, use of spirometry was able to radically alter the diagnosis and thus to redirect therapy and save money on drugs wasted on a wrong indication. Implementing guidelines is about using treatments appropriately, but the data above show that that arguments about the precise treatment regimens are at present secondary to persuading colleagues to make a correct diagnosis.

The potential gains for patients who are confirmed as having COPD must also be considered. It is unlikely that a cure will appear in the near future, but there are benefits from current therapies that will be noticeable to individual patients. Smoking cessation has unequivocal benefit in reducing the rate of decline of FEV_1 and in prolonging life. Long-acting β_2-agonist drugs have been shown to lead to improvements in various quality-of-life measures.[8] The recent inhaled corticosteroid studies from ISOLDE, EUROSCOP, and Copenhagen suggest that for a subset of COPD patients, it may be possible to prevent some admissions.[9] New drugs are likely to offer comparable small but useful benefits. It is important that if the profession is to prescribe these drugs in significant quantities that we do so to the right patients—accurate diagnosis again!

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