

Theories of quality improvement in complex systems have helped the understanding of safety in health care. Safety is the aim, and improving skills and techniques is the method to get there. Much is known about how to build safer systems and reduce risk, but little of this knowledge is embedded in health care—and until it is, the sustained changes in behaviour of individuals and organisations that are needed for safer care are unlikely. Punishment will not help.

The knowledge, skills, and attitudes needed for safe practice are not normally acquired in medical school. The disciplines in which risk management and quality improvement are important are wide ranging and cut across professional, clinical, and organisational boundaries. Some of these disciplines—cognitive psychology, ethics, bioengineering, mathematics, statistics, information science, ethics, and law—will be familiar. Others—change management, team work, organisational behaviour, systems theory, disaster analysis, and human factors—may not be. Not all these disciplines need be given their own space in the curriculum, but each should support the development of understanding about safety. How long, though, should we wait before all medical schools and training programmes include safety of patients as a central objective?

Doctors have mostly avoided the question of how safety can become central to their work. Employing an expert will not reduce harm. A general call to embrace safety may influence a few people but will not change systems. Care will be safer when we learn to work as teams and understand the team as a microsystem—a small, focused, organised unit with a set of patients, technologies, and practitioners.¹¹ Some important changes that health professionals can make may be very low tech and seem trivial. How would methicillin resistant *Staphylococcus aureus* survive if all doctors always washed their hands after examining a patient? We know this would make a difference. The difficulty lies in implementing what we know.

Improving safety of patients should be one of the highest priorities of healthcare leaders. Perhaps things are changing. In the United Kingdom the National Patient Safety Agency has just been set up, and in the United States President Bush has increased the budget

of the Agency for Healthcare Research and Quality by \$100m to promote research on safety of patients.¹²

Easy access to research on improving safety may help doctors and other health professionals make care safer. *Quality in Health Care*, a journal of the BMJ Publishing Group, has included papers on safety in the past. From March 2002 the journal will become *Quality and Safety in Health Care*. It will continue to publish papers on quality improvement but will include more papers on safe care and safe practice. We invite readers to send us these. Changing attitudes and practices will be hard work. Patients are being placed at unnecessary risk and many are harmed; they expect that we will offer safer care.

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Rapid assessment of chest pain

The rationale is clear, but evidence is needed

Angina is the cinderella to acute coronary syndromes, with uncertainty about how well and consistently patients are investigated and treated by the NHS. The new national service framework standard in England for patients with angina is investigation and treatment to relieve pain and reduce coronary risk,¹ and the rapid access chest pain clinic is the preferred way of delivering such care.^{2,3} The goal was to have 50 such clinics by April 2001, but there are already 100, with nationwide rollout gathering pace. What is the rationale for such clinics and do they work?

Patients presenting for the first time to their general practitioner with suspected angina can now be assessed by a specialist through a rapid access chest pain clinic. Patients with suspected acute coronary disease should still be sent direct to the casualty department; if they are then diagnosed as having exertional angina they too can be referred to the rapid access clinic, rather than a traditional outpatient clinic or back to general practice. There is observational evidence that these rapid access clinics reduce admissions.⁴ Thus they will close the loop between community and hospital for cardiac chest pain,

BMJ 2001;323:586-7

whatever the patient's first point of medical contact. Although general practitioners do not have to refer all patients with suspected angina for a specialist opinion, rapid access clinics will soon make this the norm.

The concept of a chest pain clinic is not new,⁵ and the rationale for rapid assessment of this symptom is simple. Firstly, exertional cardiac chest pain is common, frightening for the patient, and worrying for general practitioners and casualty officers since it can be difficult to distinguish cardiac from non-cardiac pain. Secondly, exertional angina can progress to unstable angina, acute myocardial infarction, or death.^{5,6} Predicting a stable clinical course from symptoms alone is difficult. A resting electrocardiogram is usually unhelpful in assessing risk as it is normal in over 90% of new patients.⁷ Life threatening complications occur in the short term, sometimes within days or weeks of medical presentation. In the only natural history study of exertional angina in the community, based in a chest pain clinic, 14% of patients receiving only sublingual glyceryl trinitrate developed serious complications within six months of presentation,⁵ most within the first four weeks. In a more recent community study of angina, based in a chest pain clinic, 11% died or had a myocardial infarction over 15 months despite prompt revascularisation in a fifth of all new cases.⁹

Thirdly, non-invasive techniques can risk stratify patients by showing the degree of reversible ischaemia,⁸ thus identifying those requiring immediate angiography. Fourthly, treatments to relieve symptoms and improve prognosis can be given: aspirin,⁹ statins,¹⁰ angiotensin converting enzyme inhibitors,¹¹ and revascularisation¹²—the last can be targeted at highest risk patients only after specialist investigation. Rapid access chest pain clinics inevitably increase the number of patients assessed at hospital. In one district a clinic doubled the number of new cases of angina diagnosed by the cardiology service.³ As a result the number of patients requiring coronary angiography and revascularisation will also increase. Finally, for most patients with chest pain considered by a specialist to be non-cardiac, rapid access clinics provide swift reassurance.

Thus launching rapid access chest pain clinics nationwide has a strong clinical rationale and will radically transform assessment and management of angina. Yet what evidence is there that this model of care will improve outcomes? There is no randomised controlled trial to show that prompt assessment and management reduces coronary morbidity and mortality. A priori, a reduction in coronary risk is expected, but its size and long term impact are unknown. We need a clinical trial, but the political imperative of the national service framework makes such a trial seem unrealistic. Rapidity of assessment is also an open question—same day, within two weeks, or a more relaxed approach? Published experience of chest pain clinics is based on same day (excluding weekends) assessment.⁴⁻⁸ The framework standard of assessment within two weeks is arbitrary. And rapidity of assessment begs a question about rapidity of management. How rapidly can coronary angiography be performed in high risk patients? And for those requiring revascularisation how rapidly should this happen after angiography? The framework waiting time goal for surgical revascularisation is within three months of deciding to operate, but this is

pragmatic rather than evidence based. A clinical trial is required to assess the impact of rapid medical and surgical management of exertional angina.

The staffing of a rapid access clinic is another open question. Various options exist—non-consultant career staff grades, trained general practitioners, or trained cardiac nurses and technicians. All depart from the principle of a specialist opinion, unless a cardiologist reviews every case. These alternative models have yet to be evaluated, and there is a pressing need to do so.

Assessment of exertional angina through rapid access clinics is a bold national initiative. Patients with angina, like those with acute coronary syndromes, will now gain prompt access to cardiology services. We need to capture this unique national experience by monitoring the frequency, management, and prognosis of exertional angina through these clinics. To do so we need to collect a common core dataset to form a national database. Evaluating different service models for rapid chest pain assessment is also required if hard pressed district cardiac services are to cope with yet more referrals. The number of patients presenting with exertional angina for the first time is about 22 600 a year in the United Kingdom.⁶ If specialist cardiac nurses and technicians can offer a protocol driven assessment of these patients then rapid access clinics are a more practical proposition for every hospital. Ultimately, we need to know if both rapid assessment and rapid management of angina presenting in the community will reduce coronary morbidity and mortality.

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