Reducing errors in medicine

It’s time to take this more seriously

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“Ladies and gentlemen, welcome aboard Sterling Airline’s Flight Number 743, bound for Edinburgh. This is your captain speaking. Our flight time will be two hours, and I am pleased to report both that you have a 97% chance of reaching your destination without being significantly injured during the flight and that our chances of making a serious error during the flight, whether you are injured or not, is only 6.7%. Please fasten your seatbelts, and enjoy the flight. The weather in Edinburgh is sunny.”

Would you stay aboard? We doubt it.

Luckily, the safety statistics in airline travel are far, far better than these figures. Between 1990 and 1994 United States airline fatalities were 0.27 per 1 000 000 aircraft departures, less than one third the rate in mid-century, despite vast increases in the complexity and volume of our aviation systems. One estimate is that a modern passenger would have to fly continuously for 20 000 years in order to reach a 50% chance of injury in an airplane accident.

In health care it is a totally different story. With the rising complexity and reach of modern medicine have come startling levels of risk and harm to patients. One recent study in two of the most highly regarded hospitals in the world discovered serious or potentially serious medication errors in the care of 6.7 out of every 100 patients, and the Harvard Medical Practice Study, which reviewed over 30 000 hospital records in New York state, found injuries from care itself (“adverse events”) to occur in 3.7% of hospital admissions, over half of which were preventable and 13.6% of which led to death. If these figures can be extrapolated to American health care in general then over 120 000 Americans die each year as a result of preventable errors in their hospital care. The costs of medical errors are high in financial terms as well, estimated to be almost $4700 per preventable adverse drug event in one American teaching hospital.

Data like these are beginning to mobilise considerable public and professional sentiment to redesign healthcare processes and systems to become much safer in future. Some of this sentiment is channelled into harsh forms of surveillance and punishment. When medical errors do surface, often with heart rending accounts of the suffering of the primary victims—the patients harmed—the reaction in medical settings is most commonly an attempt to fix blame and to punish someone.

This will not work. If we can take any lessons from the stunning progress in safety in aviation and other high risk industries it is that fear, reprisal, and punishment produce not safety, but rather defensiveness, secrecy, and enormous human anguish. Scientific studies in human factors engineering, organisational psychology, operations research, and many other disciplines make it clear that, in complex systems, safety depends not on exhortation, but rather on the proper design of equipment, jobs, support systems, and organisations. If we truly want safer care we will have to design safer care systems.

In the United States a wave of effective safety improvement is starting. The American Medical Association has formed the National Patient Safety Foundation, convening leaders from many sectors in health care to think together and take action. The Veterans Health Administration is undertaking sweeping changes in its care system to reduce medical errors and has established four centres of excellence to foster the needed multidisciplinary research to design safer systems of care. The Institute for Healthcare Improvement has sponsored several national collaborative improvement projects on reducing medical errors and adverse drug events, with substantial gains in participating hospitals.

Similar activity in Europe and elsewhere would be timely and welcome. Studies in Australia, Israel, the United Kingdom and elsewhere, suggest levels of error and hazard in patient care that are no lower than in America. Moreover, a significant proportion of the leading scientific work on safety and errors in complex systems has come from European researchers. To help to increase knowledge and focus on patient safety, papers on patient safety and medical errors will be included in the March 2000 issue of *Quality in Health Care*; the *BMJ* is editing a special theme issue on patient safety and medical errors that will also appear in March 2000. Authors may choose to submit only
to QHC or the BMJ or may indicate that they would like their paper to be considered for either journal. For details of how to submit papers please visit the relevant website: www.bmj.com or www.qualityhealthcare.com.

Examples of some of the topics of special interest are listed in the box. Also of particular interest are innovative approaches to improving patient safety, empirical evaluations and experiments, and multidisciplinary efforts involving not only clinicians but also human factors specialists, engineers, and others who may not normally think of their work as relevant to health care. Patient safety will be a special feature of the 5th European Forum of Quality Improvement in Health Care to be held in March 2000 in Amsterdam.

- Error-reporting systems, especially non-punitive reporting
- The safety of medical equipment and devices
- Approaches to team training and improving interactions in medical care
- Innovative systems and procedures to improve safety and to decrease or mitigate the effects of errors—for example, medication administration, operating room management, and emergency care
- The use of simulation for training and system improvement
- Approaches to safety in non-healthcare sectors that may hold promise for adapting to medical care
- Epidemiological studies of the distribution and patterns of medical error and threats to patient safety
- Workplace safety for healthcare employees and professionals

Box 1 **Topics of special interest**

The aim of publishing papers on these topics is to help clinicians and managers to understand and participate in making health care safer for all patients. We should all make patient safety a high priority in our work. Encouraging more people to read about the issues and to talk about them is an important first step.

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The Institute for Healthcare Improvement, which DMB works for, is a non-profit organisation which offers training and opportunities to take part in demonstration projects for the improvement of health care, including the reduction of errors. LLL lectures internationally on error prevention and sometimes receives honorariums for this.

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