

# Patient safety

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## **“If healthcare was an airline, only dedicated risk takers, thrill seekers and those tired of living would fly on it”<sup>1</sup>**

Over the past five years, patient safety as a topic of academic interest has blossomed, with numerous books and research articles being published. Yet, the concept of patient safety is not new. Even the rule attributed to Hippocrates has it at its core: the doctor should “first, do no harm”. However, it has really only been recently that the frequency and consequences of medical error have really been brought to the public’s attention.

A trigger for this was the publication of the report “To Err is Human: Building a Safer Health System” in the United States of America (USA).<sup>2</sup> This document concluded that deaths due to medical error were comparable to that due to breast cancer or road traffic accidents. Patient safety became a discrete topic of scholarly activity rather than part of the wider sphere of health care quality. Recently, for example,

the World Health Organisation (WHO) has launched the World Alliance for Patient Safety<sup>3</sup> and, in its European region, has devoted one of its Futures Forums to the governance of patient safety.<sup>4</sup>

Patient safety has been defined as “the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of health care”.<sup>1</sup> Although it applies to the delivery of all healthcare, most research activity has concentrated on high risk areas, such as surgery, obstetrics, and medicines. To illustrate some of the main topics of interest, this article concentrates, as an example, on patient safety as it is related to medication use during hospital care.

In this example, patient safety is about more than the prevention of prescribing errors; it is about the reduction of patient harm. Some of that harm is preventable,

such as that caused by prescribing errors; some harm is not, such as that caused by unpredictable adverse drug events (ADEs). Nonetheless, there is a lot that can be done to ameliorate the morbidity suffered by patients in such cases. The National Patient Safety Agency in the United Kingdom (UK) has coined the term “patient safety incident”, to describe any unintended or unexpected incident which could have or did lead to harm for one or more patients.<sup>5</sup> Patient safety incidents include “near misses”, where potential for harm existed that did not actually occur, either due to good fortune or the vigilance of staff. This term concentrates on actual patient outcome, therefore, rather than the process of care that led to that outcome.

The epidemiological work conducted on the frequency of patient safety incidents has produced some alarming statistics. In a groundbreaking study conducted in New York in the 1980s, the authors found that almost 4% of patients admitted to hospital suffered “disabling injuries” due to patient safety incidents, with more than a quarter due to negligence; 14% of those injuries were due to medicines.<sup>6</sup> A recent systematic review concluded that approximately 4.5% of admissions to hospital had drug-related morbidity as a primary cause or contributing factor.<sup>7</sup> During the hospital stay, ADEs occur in up to 6.5% of admissions, prolonging the stay by almost 2 days. This costs an additional \$2,000 and increasing the risk of death for the patient by a factor of nearly 2.<sup>8,9</sup> More worrying, it has been estimated that 25-50% of such ADEs are preventable<sup>8,10</sup> and that these preventable ADEs are more severe, with double the hospital stay and costs of other ADEs.<sup>8</sup>

Studies of ADEs, by definition, concentrate on incidents with negative outcomes to treatment. Investigations of medication errors (including prescribing and administration errors) are concerned with incidents that *may* cause harm, but often don’t. However, they are very useful in understanding the causes of these types of patient safety incidents. It has been estimated that prescribing errors occur in 0.4 to 1.9% of all prescriptions written in the USA and UK.<sup>11-14</sup>

Patient safety incidents due to errors can occur at any stage during the medication process, from decision-making to administration. However, they seem to occur most frequently when patients move between primary and secondary care, i.e. at the time of admission to or discharge from hospital.<sup>15,16</sup> For example, lack of information about what was prescribed to a patient in the community may result in the failure to continue essential drugs. Poor communication with the general practitioner may result in unnecessary changes to the discharge medication. During the admission, numerous distractions during a busy ward round could result in transcribing errors, with a junior doctor writing bumetanide 5mg, instead of bendroflumethazide 5mg. And in the pharmacy, a simple slip of the hand could result in an inexperienced pharmacist dispensing a box of lorazepam 1mg tablets against a prescription for lorazepam 2.5mg tablets.

These examples can be used to highlight the systems approach to human error proposed by Reason.<sup>17</sup> Contrary to the person approach that is commonplace (where individuals are personally blamed for their forgetfulness etc), in the systems approach efforts are concentrated on understanding the conditions under which people work and how failure of the systems contribute to error occurrence. Thus, amelioration focuses on building defences to prevent errors or reduce their impact. The errors described above have the *potential* to cause ADEs. However, many times when such errors occur, this does not happen. The prescription for bumetanide 5mg could have been identified by a clinical pharmacist who was alarmed at such a

high starting dose. The prescription for lorazepam would have been double checked by another and re-dispensed before being given to the patient.

This systems approach considers that most errors are caused not by “bad people”, but by defects in a system, whereby the person actually causing the error may be the final link in a long chain. For example, a nurse on a very busy ward might not have a drug calculation checked by her sole colleague (who was with another patient) and therefore administer a twofold overdose of digoxin injection to patient. There were (at least) two systems problems here, leading to the patient safety incident. Firstly, poor training in drug calculations did not prepare the nurse for what she had to do on a busy ward with numerous distractions. Secondly, the ward was short of staff and no one was available to conduct the check at the required time. Rather than not treat the patient, the nurse choose to go against the protocol and administer the drug anyway. The study of such incidents from a systems perspective can help us to understand how to improve the situation (e.g. better training and increased staffing levels) and prevent further incidents, rather than pillory a series of unfortunate “culprits”.<sup>17</sup>

There are many potential interventions that have been shown to improve patient safety with medicines. These include information technology,<sup>18</sup> clinical pharmacy services,<sup>19</sup> and better transfer of information between primary and secondary care.<sup>15,16</sup> However, it is also important to think more broadly about improving patient safety. The WHO’s Futures Forum on the governance of patient safety described what they called the “seven deadly sins” in dealing with patient safety (Table 1).<sup>4</sup> If clinicians believe or pretend to believe that mistakes do not happen, or try to cover them up for fear of blame, then it is impossible to learn and improve patient safety. The solutions recommended in the WHO report are not interventions directed at the “sharp end” of the problem (i.e. the individual healthcare professional), but at the overall systems within which they provide care.

There needs to be both political and professional will to address patient safety at a national level. Locally, there needs

to be strong leadership and a willingness to change the prevailing culture from one of blame for the slightest mishap, to an open and fair culture where people take responsibility for patient safety. There also needs to be good quality data available that can be used to describe the problem and show that change is necessary and possible. Learning from our mistakes is a normal part of the human condition. In the working life of a single healthcare professional, however, one would hope that they would not make enough mistakes to learn all that they need to know! Therefore, we need to learn also from the mistakes of others. The WHO has published draft guidelines on using patient safety incident reporting to improve patient safety.<sup>20</sup> For example, the National Reporting and Learning System for patient safety problems in the UK is a central repository to draw together reports of patient safety incidents and system errors from across the country to help the National Health Service learn from such mistakes.<sup>5</sup>

Improving patient safety is something that all health care professionals aspire to. This short article gives a brief overview of some of the current thinking in the area. Recognition of the problem and an openness to learn from mistakes will take us far. As has been said before, “those who cannot remember the past are condemned to repeat it”.<sup>21</sup>

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Table 1

### The “seven deadly sins” in recognising and addressing patient safety<sup>4</sup>

- Arrogance
- Denial
- Blame
- Shooting the messenger
- Averting the gaze
- Failure to think systems
- Passive learning

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### Practice Points

- Patient safety incidents associated with medicines, such as prescribing errors and adverse drug events, are very common both in hospitals and in family practice in the community.
- Such incidents cause considerable morbidity and mortality to the patients and waste large quantities of health care funding.
- International researchers and policy thinkers agree that taking a systems approach and learning from the mistakes of others are two methods that can be used to improve patient safety
- They also agree that denial of the problem and blaming the individual, who makes a mistake when working in a system riddled with error-producing conditions, are counterproductive efforts.

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