

# Erring and learning in clinical practice

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**SUMMARY**

*This paper discusses error types, their possible consequences and the doctors who make them. There is no single, all-encompassing typology of medical errors. They are frequently multifactorial in origin and arise from the mental processes of individuals; from defects in perception, thinking, reasoning, planning and interpretation and from failures of team-working, omissions and poorly executed actions. They also arise from inadequately designed and operated healthcare systems or procedures.*

*The paper considers error-truth relatedness, the approach of UK courts to medical errors, the learning opportunities which flow from error recognition and the need for personal and professional self awareness of clinical fallibilities.*

**Keywords:** error; clinical governance; malpractice claims; negligence; error recognition.

'Great blunders are often made, like large ropes, of a multitude of fibres.'

(Victor Hugo, 1862.)<sup>1</sup>

**E**RROR — aberration, misdirection, wrong course, misjudgment, wrong impression, self-deception, slip, blunder, miscalculation! A term with remarkably wide semantic range, error can qualify innumerable different sorts of thoughts, actions and omissions.

At its root it signifies a wandering off course. Early dictionary entries define 'erring' as a rambling around in physical or moral space, hence 'knight errants' in medieval times wandered the countryside in search of chivalrous adventures, while 'erratics' — rogues past — operated outside of the rules of civil society.<sup>2</sup>

In *The Youngest Science* Lewis Thomas dwells on the etymology of error, noting it derives from the Indo-European root 'ers', meaning 'to be in motion' and observing that it comes into Latin as 'errare', meaning 'to wander', and that the same root in Old Norse, 'ras', meant 'rushing about looking for something'.<sup>3</sup> These varied origins help explain error's many metaphorical connotations, which include straying from the right road, deviation from truth, procedure or purpose.

While sticking closely to its vernacular meanings, James Reason has constructed a definition of error — now widely accepted — which places the accent on planning that has gone awry: 'all errors', he states, 'involve some kind of deviation understood as occasions in which a planned sequence of mental or physical activities fails to achieve its intended outcome'.<sup>4</sup> Reason divides errors into those caused by problems with physical execution — such as, slips, lapses, trips and fumbles, usually associated with attention or memory failures — and mistakes related to planning or problem solving, in which

actions are performed correctly but fail to achieve their purpose because of inadequate plans, faulty formulation, judgment or problem solving. Clearly, many errors have the potential to lead to harmful consequences, but quite serendipitously, harm may be averted and some errors can be associated with unforeseen benefit (Box 1). Harm, though frequently associated with error, is not an essential element of it.

Punctuated by sleep, sips of water and log rolls, a patient recovering from spinal surgery recently described in *The Lancet* what happened as sensation and awareness returned:

*'The nurse puts a black plastic handpiece into my hand and says "If you want anything press the button." Sleep comes easily, interrupted only by thirst. I press the button expecting response. Nothing happens. I press again, and again. Where is everyone? This was the pattern for the rest of the night: sleep, thirst, press button, no response. Serious doubts creep in about the quality of intensive care in this expensive hospital. At last daylight and more staff. The black handpiece is returned to me: "Press this button, if you're in pain". Then, like a magician plucking a rabbit from a hat, the nurse reached behind me and pulled out a previously hidden white cord, which she put in my other hand "Press this dear if you need a nurse."*

I stare in glassy eyed disbelief. No wonder the nurse hadn't come when summoned — and I had been free of pain. I had been shooting up pethidine all night.<sup>47</sup>

Box 1. Intensive care.

## Truth, error and modernity

'Mistakes live in the neighbourhood of truth', wrote the poet Rabindranath Tagore.<sup>5</sup> The conceptual and methodological relationships between these polar notions have long attracted attention from philosophers interested in conditions of knowledge creation (Box 2), and in the undesirable effects of a professional ethos of infallibility.<sup>6,7</sup>

Error recognition requires linkage to a wider audience which should be informed of its occurrence. In *Advice to a Young Scientist*, Peter Medawar cautions the scientist who makes a mistake immediately to admit to it, adding: 'Human nature is such that the scientist may even gain credit from such a declaration and will not lose face — except perhaps in the bathroom mirror'.<sup>8</sup>

Recognition of error-truth connectedness is a defining characteristic of one notion of modernity, in which methodical error detection and correction are associated with progress.<sup>9</sup> According to this view, Western medicine can claim to be a modern endeavour only to the extent that it engages in a

never-ending struggle against error, revising assumptions, methods, and clinical research, accordingly.<sup>10,11</sup> This slipstream of thought underpins *The Lancet's* column devoted to offering clinicians and scientists opportunities publicly to report mistakes and the lessons learned from them;<sup>12</sup> the same intellectual current underpins George Steiner's decision to entitle his autobiography *Errata: an examined life*, thereby signalling his determination to scrutinise and expose the mistakes he has made in his life and in his thought.<sup>13</sup>

## Tackling medical errors

Many factors now contribute to the growing resolve to tackle healthcare errors, to ascertain their incidence, type, complexities, and to devise ways of preventing them.<sup>14</sup> Increasing litigation is focusing attention on the harmful effects of mistakes, their human and financial costs,<sup>15-17</sup> upon culpability and on preventability. Emphasis on clinical governance requires that close attention is paid to healthcare standards and to clinical service frameworks, and the Bristol Royal Infirmary Inquiry

Karl Popper argued that:

*'it is only the idea of truth which allows us to speak sensibly of mistakes and of rational criticism — that is to say, critical discussion in search of mistakes with the serious purpose of eliminating as many of these mistakes as we can...'*<sup>9</sup>

and Peter Winch alluded to the essentially social aspect of error in writing:

*'what is involved in making a mistake ... includes a consideration of what is involved in doing something correctly. If I make a mistake ... other people must be able to point it out to me. If this is not so, I can do what I like and there is no external check on what I do.'*<sup>7</sup>

Box 2. Truth and error.

Report has stressed the cardinal importance to the NHS of gaining in-depth knowledge of the incidence, associations, and causes of medical errors.<sup>18</sup>

Two ethnographic studies conducted among United States (US),<sup>19</sup> United Kingdom, and Swedish doctors<sup>20</sup> showed that many clinicians believe that errors are insufficiently acknowledged in healthcare systems and that, even when recognised, errors are thought to be dealt with too informally behind closed doors. Recurrent themes identified include: a belief that mistakes are only to be expected, since medicine is inherently uncertain and its practitioners are clearly fallible; and that clinicians feel vulnerable to error and identify strongly with those who make mistakes, and that they look to colleagues for understanding and forgiveness in the event of making mistakes themselves.

Rosenthal singled out a tendency for doctors to see themselves in the tragedy of each other's mistakes and quoted at length from the views of an experienced general practitioner (GP):

*'We're all entitled to make mistakes aren't we? We're all vulnerable. "There but for the grace of God go I" ... I remember making that mistake myself. We are all human. There are problems in our lives that are not our fault. As long as you can say: "That could happen to me", you are going to be sympathetic. You have to look at actual cases; we all*

*have the right to err. But the excessively repeated error is something else. A minority of doctors are repeating major errors and the formal system catches only some of them. A lot are never caught because it is hard to identify errors and patients may not complain.'*<sup>20</sup>

Reference to 'But for the grace of God' has become almost a touchstone utterance; it originates, in fact, from a 16th century Protestant martyr, John Bradford, who on seeing criminals going to execution exclaimed: 'But for the Grace of God there goes John Bradford'.<sup>21</sup> Its repeated utterance today, on occasions when doctors (as onlookers) discuss the mistakes of their colleagues, indicates how easy it feels to most doctors to make a mistake. Ritualistic repetition of his words after more than four centuries seems to betray a need to neutralise the superstitious fear, that merely by recognising and talking about others' mistakes might cause errors to 'befall' the onlooker.

## Remember and learn

Healthcare errors are increasingly recognised to be multifactorial in origin, to be manifestations of 'systems problems', not just 'people problems', where 'a trying harder' approach to prevention won't always work 'because continuous reduction of error depends on design and redesign of our systems of work' (Box 3).<sup>22</sup> In primary care, errors or alleged errors are commonly associated with wrong or late diagnosis,<sup>23-25</sup> GP prescribing decisions,<sup>26,27</sup> poor communication,<sup>28</sup> and failure to visit patients, although it should be acknowledged that few studies have formally characterised their frequency and nature.<sup>29,30</sup> Errors not much talked about because they are difficult to measure (and they stand outside Reason's schema) are interpretative mistakes. These arise from inadequate mindsets or underdeveloped emotional capabilities on the part of clinicians, and they result in failure to absorb, understand or fully appreciate what patients are trying to convey. Such failures of recognition and response lead doctors to misperceive the personal world of the patient. Rita Charon has written eloquently of such errors, which do not arise from instrumental or structural failures, for 'these errors are long-lived failures to have developed rich, complex, nuanced, perilous interpretations of meaningful and significant human events'.<sup>31</sup>

In the US, family doctors in Iowa associated the cause of errors with physician stress (being hurried or distracted) in 91% of cases, patient-related factors (for example, misleading, but in the event normal, findings) in 72%, and lack of physician knowledge in 62%.<sup>32</sup> Other US studies have sought to delineate risk factors for malpractice claims against doctors, a proportion of which arise from errors.

In Colorado and Oregon the relationship between communications skills and malpractice claims has been studied in primary care physicians without claims and in those facing two or more claims. Doctors without claims had significantly longer consultations (18.3 versus 15 minutes), employed more orientating statements (explaining what is likely to happen next), more facilitating statements (asking patient opinions and checking understanding), and they laughed more and used more humour in consultations than those facing claims.<sup>28</sup> Consultation length and physician affect (particularly laughter and behaviour demonstrative of concern, approval and empathy) were found to predict physician claims status.

When I talk to undergraduate medical students about mistakes in general practice I usually begin by recounting exactly what I remember took place some ten years ago. Bending down to remove several immunisations from the consulting room fridge, I explained to the patient who was on his way to Russia: 'Now, I need to be careful here because there are two strengths of diphtheria immunisation; a strong version for babies, and a weaker one for grown ups', [foresight of and attempt to avoid error] whilst removing both strengths of immunisation and placing them on the desk [mistake].

At that time, these immunisations came in almost indistinguishable packages [system error]. I drew up (what I believed to be) the weaker solution, along with the other immunisations he required. I then injected them. While I filled out various claim forms the patient rolled down his sleeve and departed satisfied, and I cleared away the empty vials and syringes. Imagine my dismay when, in doing this, I noticed to my horror that in fact I had administered the higher strength of diphtheria immunisation by mistake. I was astonished and frightened. Had my attention lapsed? Was I distracted? I do not think so. I had been aware of the danger of error in this task. Indeed, I had shared awareness of this risk with the patient, yet still the error had happened.

[What did I do?]

By the time I realised my mistake the patient had left the premises. I immediately consulted the British National Formulary to see what dangers I might have exposed him to but it contained little information about this. So I telephoned the Public Health Laboratory at Colindale (which then distributed these immunisations), gave a false name [immaturity on my part and fear of censure — another mistake], and explained to the consultant on-call exactly what had taken place. I was advised in detail of the nature of possible adverse effects that might ensue, which included cardiovascular collapse. I documented these and telephoned the patient, apologised profusely, advised him of the risks to his health from my mistake, and to remain at home or near medical help for the next 36 hours, and discussed with him the sort of symptoms he should look for in terms of untoward consequences. I also gave him my home telephone number and advised him to ring me at any time of the day or night if he felt unwell. He never did, and he returned from Russia some weeks later apparently well [serendipitous effect of chance factors].

Box 3. A mistake by the author waiting to happen: turned out to be a near miss.

A study of a large malpractice database in Florida showed that doctors with a favourable claims profile were older but no more likely to have more prestigious professional credentials, to have qualified in the US or Canada, to be in solo or group practice, or to be involved in research or teaching, than doctors with an unfavourable claims profile.<sup>33</sup> Using the same database, a subsequent study involving family physicians found a host of measures traditionally associated with doctor quality (graduation from US or Canadian medical school, specialty board certification, holding American Medical Association Physician's Recognition Award, and Alpha Omega Honor Society membership) were significant risk factors for facing claims. The authors, surprised by their findings, commented that they could result from the confounding effects of important unstudied differences in case mix and physicians' interpersonal skills between claim and no-claim groups.<sup>34</sup>

Experiences of the aviation and oil industries in scrutiny of organisational and human factors associated with errors have contributed to determination on the part of the US and British governments to support programmes of research and development designed to log, study and learn from errors and near misses.<sup>35,36</sup> A compelling call for their study is to be found in

the Department of Health's *An Organisation with a Memory*.<sup>37</sup> Chaired by Liam Donaldson, this report noted that healthcare failures 'often have a familiar ring about them and display strong similarities to incidents which have occurred before, in some cases almost exactly replicating them'. The report concluded that many errors were preventable 'if only the lessons of experience were properly learned' and emphasised the importance of recognising human and systems fallibility and the potential for improvement. Proposals have since been made to set up NHS systems of error recognition, both to promote understanding of their significance and to learn lessons from them.<sup>38</sup>

### Medical error and culpability

The findings of psychologists, such as Reason, suggest that, despite attention to training, protocol adherence and better technological design of systems, some errors appear to be inevitable in any human endeavour. As a health trust spokesperson reportedly tried to explain, when a mistake was identified which had caused serious patient harm: 'Nothing is 100% foolproof, health care is a risky business. We have to recognise it's given by people not machines and people do make mistakes'.<sup>39</sup> Lord Denning once sought to draw a legal distinction between a GP's errors of judgment and negligence:

*'A doctor is not to be held negligent simply because something has gone wrong. He is not liable for mischance or misadventure; or for an error of judgment. He is only liable when he falls below the standard of a reasonably competent practitioner in the field.'*<sup>40</sup>

He subsequently suggested a test for the distinction:

*'We must say firmly, that, in a professional man, an error of judgment is not negligent. To test it, I would suggest that you ask the average competent and careful practitioner: "Is this the sort of mistake that you yourself might have made?" If he says "Yes, even doing the best I could, it might have happened to me", then it is not negligent.'*<sup>41</sup>

His argument recognised that the effects of clinical errors and violations of procedure on health outcome are strongly influenced by random variabilities, by combinations of subsequent actions and omissions. However, although chance can play a decisive role in whether harm eventuates from clinical error, the current law of negligence tends to ignore intercalation of the random effects from intra- and inter-doctor variability.<sup>42</sup> Denning's distinction has since been rejected by the Law Lords, who have insisted that errors of judgment are seen as potentially negligent:

*'Merely to describe something as an error of judgment tells us nothing about whether it is negligent or not; it depends on the nature of the error. If it is one that would not have been made by a reasonably competent professional man professing to have the standard and skill that the defendant held himself out as having, and acting with ordinary care, then it is negligent. If, on the other hand, it is an error that a man, acting with ordinary care, might have made, then it is not negligence.'*<sup>43</sup>

In common law, negligence remains a binary concept; when found, it implies fault based on transgression of a reasonable standard of care which has caused the patient harm.

Given the multi-factorial nature of harm causation and the role of chance in influencing whether or not harm transpires (Box 3), several authorities are beginning to doubt whether certain errors should attract the censure that a finding of negligence implies. They argue that such errors — yet to be fully defined — should no longer be viewed as the result of morally relevant wrongdoing.<sup>18,42</sup> While not advocating abolishing actions in negligence, such authorities favour reform of the current system of legal redress, by disconnecting compensation from blame where fair blame cannot be properly apportioned.

## Conclusion

Sustained focus on error is not new. Commonplace expressions such as 'trial and error' and 'to err on the side of caution' remind us that common sense has long appreciated the central role of error recognition in learning and in doing (Box 4). While the conceptual connectedness of error to truth has become apparent through the labours of philosophers and scientists, doctors appear to have been slow to draw out the valuable implications that it has for health care. This seems odd, since for centuries novelists and dramatists have found in medical errors a fertile arena for exploring the comedy and tragedy surrounding doctorial fallibilities.<sup>44</sup> In *The Doctor's Dilemma*, Bernard Shaw framed medical error in the moral context of a life of action when he wrote in 1906: 'a life spent in making mistakes is not only more honorable but more useful than a life spent doing nothing'.<sup>45</sup>

What is new — Shaw perceived it early — is the realisation that cultural currents within professional organisations can militate against self awareness of fallibility, that institutional life in large organisations, such as the NHS, may generate a closed culture reinforced by a fault-based approach to the seeking of redress. This combination of factors ensures that the majority of errors are not even recognised, to the detriment of learning and of patient care:

*'Today, the blame-and-punishment orientation of our society drives errors underground. Indeed, we believe that the majority of errors never reach the leadership level of the very organisations in which they occur. Therefore, although there is much rumination over the statistics published about medical errors, we believe that no-one has a real handle on the actual numbers because all the incentives to report are negative.'*<sup>46</sup>

This view was enunciated by the US Joint Commission on Accreditation of Health Care Organisations, and has been endorsed by the Bristol Inquiry. It should lead us to have the courage to look errors in the face and to learn from them.

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*'The universal experience of every young child of stumbling, dropping things, saying the words wrong, sticking one's thumb in one's eye are part of the preparation for adult living. A successful child is one who has learned so thoroughly about his own fallibility that he can never forget it, all the rest of his life.'*<sup>54</sup>

### Box 4. Trial and error.

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