

Error and safety in primary care: no clear boundaries

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Abstract. This paper examines the notions of adverse events, error, critical incidents and safety from the specific viewpoint of primary care. We conclude that each term can be defined, but existing work which we reviewed uses many of the terms interchangeably. We recognise that trying to access medical error objectively within primary care can be problematic. Regardless of definitions, reflection on critical incidents, adverse events or other notable events is important, but requires time and resources to be conducted effectively.

And what is good, Phaedrus,
And what is not good—
Need we ask anyone to tell us these things?

Robert Pirsig, *Zen and the Art of Motorcycle
Maintenance*¹

Introduction

Medical error and safety once again are topical subjects for discussion within the profession.² This follows on from previous discussions in the last few years,^{3–8} and reflects new attitudinal changes. Primary care practitioners have been involved in the debate on error,^{5–7} with suggestions for an error database in general practice.⁹ More recently, the debate has focused on safety, with a call for research, action and leadership to promote safety in primary care,¹⁰ and a recent paper on enhancing public safety in primary care has delineated many safety issues.¹¹ Clearly, error and safety are intertwined, but we feel there is a need to discuss some principles that underpin the concept of error within primary care; it is an implicit feature of this paper that a reduction in error will improve safety.

Notably, most of the debate approaches error and safety as if they were categorical issues, with tangible events or processes that can be identified, and, by extension, eliminated if sufficient attention is paid to cause. Like the authors of the most recent paper on primary care and safety, we suggest that this analysis is problematic for primary care, where medicine involves incremental longitudinal processes, and is founded on decisions concerned with managing uncertainty and marginalizing risk.¹¹

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‘Errors’ are delineated by individual perceptions interpreted from differing standpoints. Patients, professionals, managers and politicians will ascribe differing meanings to events, particularly when hindsight, differing levels of expertise and varying expectations are used to make judgements about problems which unfold over time. Given these qualifications, it is important to ask what may appear to be a simple question: what constitutes ‘error’ in primary care?

Errors and adverse events

The terms ‘error’ and ‘adverse events’ are often used interchangeably. For instance, much of the debate on error arose following a paper reporting data from London hospitals, despite the title of the paper referring to a review of adverse events.¹² It may be important to distinguish between error and adverse events because they are conceptually separate,⁶ although the distinction between them may be difficult to disentangle. We particularly note the views of Thomas and Brennan (distinguished authors of a book chapter reviewing error and adverse events) who emphasize that there exists no agreed distinction between them.¹³

Sheikh and Hurwitz propose a database of error in general practice,⁹ and utilize definitions of error and adverse events which we shall use to provide a frame of reference, although later we shall see that this poses problems for categorization. They define error as: “the failure, for reasons which are preventable, of a planned action to be completed as intended (i.e. error of execution), or the use of a wrong plan to achieve an aim (i.e. error of planning)”. They define adverse events as injuries caused by medical management rather than the underlying condition of the patient, although a drawback of this latter definition is that it includes recognized potential complications of medical care. We now look at the notion of error in greater detail.

How error occurs

Close inspection of error definitions reveals further distinctions, particularly between *execution* and *planning* failures. Execution failures can be either *slips* (failures of attention) or *lapses* (failures of memory);¹⁴ clinicians will make both these types of errors, and it is incumbent upon them to recognize and reduce recurrences.⁸ This can apply just as easily in primary care as in other medical fields.

Planning, or problem solving, failures can be subdivided into rule-based mistakes or knowledge-based mistakes.¹⁴ In the former, clinicians misapply good rules, fail to apply good rules or apply bad rules. For instance, management guidelines for hypertension point to a need to treat a 46-year-old patient with blood pressure readings of 180/115 mmHg, averaged over three separate measurements.¹⁵ Failure to initiate treatment could be regarded as an example of error, because a clinician fails to recognize a pattern, or (recognizing a pattern) does not initiate any action.

In this instance, the error is clear. However, frequently, primary care medicine is less clear cut. Demarcations between ‘error’ and ‘non-error’ become difficult because of the inherent imprecise nature of presentations in primary care, rendering problem solving particularly challenging.

The nature of primary care

Primary care medicine differs from other branches of medicine in several respects. Clinical presentation, diagnosis and management often are episodic processes in primary care contexts. Patients and clinicians work together to present and solve problems in short consultations (7–15 min across Europe for instance). Patients often (but not invariably) present with early manifestations of illness, often against backgrounds of existing psychosocial problems and physical co-morbidities. It is not always possible to arrive at diagnostic certainty, and neither would it be good practice to investigate every problem until this was achieved, as the anxiety generated, procedural risk exposures, excessive costs and inconvenience to patients would be counter-productive.¹⁶

Given this equation, time is often used as a diagnostic and therapeutic tool, but always with considerable latitude. These elements combine to demand flexibility and diversity that primary care clinicians regard as a strength,¹⁷ and have made attempts at valid distinctions between adverse events and error even more challenging. Nonetheless, some studies have assessed complications, adverse events and error in primary care, although none define these terms precisely. A few are described below.

Primary care data

Clinical negligence occurs when a patient suffers harm resulting from failure to act in a manner consistent with

that of a ‘responsible body’ of colleagues.¹⁸ The Medical Defence Union reports that 66% of primary care negligence cases relate to delays in the diagnosis of serious life-threatening infections, orthopaedic conditions and cancers.¹⁹ A further 25% of cases are attributed to prescribing errors, frequently involving anticoagulants, non-steroidal anti-inflammatory drugs and opiates.²⁰

Two reviews of deaths from GP surgeries have been published, involving one and four practices, respectively.^{21,22} They report ‘avoidable causal factors’ in 45 and 54% of cases, respectively, ‘attributable’ to patients in most instances, but at least 5% could be attributed to ‘practitioner factors’ such as delays in diagnosis, treatment or referral. While no standardized criteria existed for the basis of attribution, these figures deserve further comparative assessments, and give pause for thought.

Significant event audits involve discussions of cases aiming to identify possible system failures and identification of strategies to prevent recurrences.²³ A survey of 500 significant events in 10 general practices identified diagnostic delays, poor preventive care, communication problems and medication errors. Remedial actions were identified for over half the events, and included exhortations to ‘be more careful’, plans for educational activity, and new practice protocols and guidelines. Similar reasons for events were noted in studies of ‘critical incidents’^{24,25} and ‘potentially harmful events’.²⁶

Difficulties of interpretation

It is not easy to interpret information from these studies. Typically, ‘adverse events’ are reported, but it is often unclear whether any of these events constitute ‘error’ as defined above, although we can agree that negligence is error. However, in most studies, it is a matter of judgement as to whether the events were ‘error’, and, if so, which type of error. How to learn from these such that safety can be enhanced adds another layer of difficulty of interpretation.

Secondly, although significant event auditing can facilitate a discussion of preventative actions, it often is not clear how significance is bestowed, and by whom, on some events and not bestowed on others.^{23–26} This is important, because it is not always easy to decide which instances to investigate further, and, conversely, it is a time-consuming process to look at many events looking merely for those which are termed arbitrarily ‘significant’, ‘critical’ or ‘potentially harmful’.

Thirdly, surveys provide no obvious comparison between practitioners, partnerships, localities or regions, and there is no obvious method to create an epidemiology of primary care error. There are large variations in prescribing and referral patterns,²⁷ and diverse contexts, socio-economic conditions and consultation rates will complicate efforts to analyse and compare ‘error’, even though this comparison may be desirable.²⁸

Fourthly, existing reports derive from ‘after the event’ analysis, which is the first step towards risk management. However, it is clear that more proactive strategies should be developed. The institution of systematic changes developed to prevent error is recognized in many sectors,²⁹ and primary care should follow this trend by setting up processes too.¹¹ We include examples ourselves in Box 1.

Finally, existing surveys have been conducted by and for doctors examining their own quality of care. This is laudable and appropriate, but incomplete. The President of the Royal College of Physicians emphasizes that error has different connotations to patients or relatives who have experience of possible error, in comparison with those who discuss error in abstract terms.³ The viewpoint of patients in general, including those involved in ‘error’ cases, should also be addressed, however difficult this exploration may prove to be. It is imperative to have a genuinely open debate, which must involve the wider public too.³⁰

Hindsight issues

With the benefit of hindsight, errors often appear obvious. The ‘retrospectoscope’ phenomenon is well recognized

and should be accounted for in any analysis by professionals or others. Illnesses do not always follow expected patterns, and all primary care doctors should be aware of their limitations. On a simple level, all GPs have surgeries where patients ‘need’ to return to the surgery for antibiotics, having been told originally that these are viral infections. The patient may view the original non-prescription as error, and yet this appears, to doctors at least, to be reasonable practice. Individual views on a symptom such as cough may be viewed differently by patients and doctors alike.³¹

Few clinicians would perform an electrocardiograph (ECG) on a young woman presenting with chest pain suggestive of a musculoskeletal problem, because ‘positive’ ECGs are more likely to be ‘false’ positive rather than ‘true positive’, and cardiac muscle enzyme tests are not always feasible in the primary care situation.¹⁶ Likewise, a headache symptom with no accompanying signs is very unlikely to indicate intracranial pathology, and a CT scan would not normally be requested until other symptoms and signs become apparent.¹⁶ However, as can be seen in Tables 1 and 2, each could represent more significant pathology than suggested by the original presentations.

Box 1 *Some strategies to prevent error*

- Diary systems that signal when patients at risk (e.g. individuals with severe depression or on potentially harmful medication) do not attend for scheduled appointments
- Recognition of alarm symptoms or signs
- Care pathway development guiding a practitioner and administrative staff when exceptions occur
- Information management ensuring an updated, available record of all patient contact, investigations and referrals
- Follow-up of abnormal results if patient does not contact surgery or attend review appointment

TABLE 1 *Chest pain in a 35-year-old female with no risk factors for ischaemic heart disease*

	Day 1	Day 2	Day 3
Symptoms	Chest pain	Pain continues	Pain continues
Evidence	Well, no signs	Well, no signs	Increasing patient and family anxiety
Plan	Reassurance and symptomatic treatment	Reassurance and symptomatic treatment	Urgent admission
Diagnosis	Musculoskeletal pain	Musculoskeletal pain	Myocardial infarction

TABLE 2 *Headaches in 45-year-old male*

	Day 1	Day 10	Day 30
Symptoms	Headache	Pain continues	Pain continues
Evidence	Well, no signs	Fundi normal	Fundi now abnormal
Plan	Reassurance and symptomatic treatment	Reassurance and symptomatic treatment	Urgent CT scan
Diagnosis	‘Stress’	‘Tension headache’	Tumour

No obvious ‘errors’ occurred in the initial consultations but, with the benefit of hindsight, problems subsequently became apparent, and patients and others may feel that the ‘need’ for earlier investigations was disregarded. From this standpoint, and with hindsight, the failure to organize investigations was in error.

These situations illustrate the delicate balancing acts that primary care clinicians need to perform. There is a need to balance uncertainty and consequent lack of clinician-initiated patient anxiety,¹⁶ against an increasing trend to rule out all potential problems, however improbable, to guard against accusations of negligence and resulting medico-legal issues.^{32,33}

Further, we recognize that we are approaching an era where we are going to involve patients in their medical care, and shared decision making may become more a standard of care.³⁴ We recognize that patients have many suggestions where ‘best care’ does not necessarily meet their needs, their wishes or both.¹⁶ It is interesting to speculate on how patients may view such care if unwanted, but nonetheless entirely possible ill effects occur as a result of non-utilization of best available evidence. Examples could include the prescription of the combined oral contraceptive pill to a 38-year-old woman who smokes, or the non-prescription of warfarin to a 68-year-old patient with atrial fibrillation.

In each instance, doctors can explain the risks and benefits of options for treatment, although a recent paper illustrated how GPs can subtly influence their patients to their own desired wishes when discussing warfarin.³⁵ However, who decides if these do or do not constitute error should there be any consequences in the form of blood clots or strokes? Certainly, the position of explicit shared decision making within the consultation needs to be clarified further, especially when doctors review the quality of care and ‘safety record’ of other doctors.

Education and training

The risk of litigation or complaints has been a strong influence on clinical practice. In a survey, 98% of responding practitioners indicated they had changed their practice in at least one way because of perceived risk of complaint. These changes involved: lowering referral thresholds; avoiding treating certain conditions; increasing the number of investigations, follow-up rates, screening and audit; more detailed record keeping; and providing more detailed explanations to patients.³²

Some of these trends are welcome, as they will increase patient safety, and contribute to the recognition of learning needs. Developing ways in which practitioners can audit their practice, assess their communication effectiveness and reflect on their personal practice is a relatively under-researched area of continuing professional development.³⁶

In the UK, GPs complete a vocational training period including 1 year as a Registrar within one or more Training

practices. This year includes ‘hot reviews’ of surgeries (discussion of consultations with an experienced GP soon after surgeries), and assessment of videotaped consultations looking at communication skills.

This level of training and immediate review is not widespread in other branches of medicine, and reflects the important ethos of educating future practitioners to self-reflect, and to be self-aware. Of necessity, this training includes recognition of potential pitfalls in practice that, if left undisclosed, subsequently may result in adverse events or even error, and reduce patient safety. The role and success of education and training in reducing error and improving safety should not be underestimated.

Final thoughts

Discussion of error and safety should take place in an atmosphere that moves away from a ‘blame culture’ and recognizes the effectiveness and hard work of most doctors.³⁷ It is important to create a culture where error is highlighted—precisely because such identification, if analysed correctly, can lead to systematic solutions which can have benefits for patients, professionals and the wider society. We feel that patients, the profession and the wider society should demonstrate reduced tolerance of error.

We suggest that there is a possibility that attempts to reduce error might be misconstrued as admission of poor practice as a common experience. The immediate media response to the data reporting adverse events from London hospitals, and the subsequent reporting of data from a pilot study in the North of England, could be interpreted as suggesting that medicine is full of error, cover up and secrecy, and that patients are suffering at the hands of doctors too often and unnecessarily. The effects of such ‘attacks’ on the profession can never be known.⁵

The effects may see a concomitant risk of increased litigation against doctors; in the UK, there are already increasing numbers of complaints reported to the GMC,³⁸ and an ever increasing negligence bill.³⁹ However, on balance, we feel the effort to identify and prevent further error through reflective practice (either individually or systematically) may instead aid the profession in defending itself against spurious claims, especially when easier access to legal opinion may result in more litigation.⁴⁰

Much of this paper has discovered that error is a relative concept, and may be difficult to pin down. The quote at the start of this paper is from a book by Robert Pirsig that discusses quality, among other things. Pirsig concludes that quality is an entity that can be recognized, but is equally difficult to pin down. He emphasizes that a means of achieving good quality is to care about the job in general. Good quality general practice should continue to try to recognize, and eliminate, wherever possible, medical error (and thus enhance safety) in such a way that good quality care continues to be apparent.⁴¹

We have shown the difficulty of assessing error within general practice, and the imposition of rigid definitions of adverse events, complications or error may be difficult to formalize. However, the importance of recognizing events that may be termed 'notable events' should become an integral part of continuing professional development. We recognize that this new term may add to the confusion over definitions, but we contend that a cultural shift embracing the practice of reflecting on such 'notable events' is vital in our quest to reduce error.

We conclude that a particularly important aspect that is vital in our quest to reduce error and improve safety is the need for more resources to allow practitioners, their support staff and other interested parties to reflect on their work. This is a further issue for GPs who are already busy people, and it takes place at a time when doctors may be less 'generous' in response to all sorts of external, workload pressures. The need to reduce error and improve safety must take place against this background of potential declining altruism,⁴² and GPs should have the opportunities to set aside time and space to be allowed to conduct the required, appropriate reflection effectively.

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