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Quality improvement in action

Screening electronic patient records to detect preventable harm: a trigger tool for primary care

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ABSTRACT

Minimising the risk of preventable harm to patients is a National Health Service (NHS) priority in the UK. In the past decade, a patient safety agenda has been established in many secondary care, but is only now migrating to primary care. Information about the epidemiology of error, contributory factors and the scale of preventable harm is limited in comparison to what is known in acute hospitals.

We describe how to apply a recently developed trigger tool – a rapid audit method of screening electronic patient records to detect patient harm – as a feasible part of routine primary care practice. We promote the idea that the trigger tool approach will enable care teams and clinicians to refocus their learning and improvement efforts on one of the most serious issues facing the NHS or any modern healthcare system – how to minimise the risks of unintended but avoidable harm to patients.

Keywords: avoidable harm, clinical audit, electronic patient records, learning, patient safety, quality improvement

How this fits in with quality in primary care

What do we know?
Promoting patient safety is a key component of the NHS policy agenda. Trigger tools have been developed and used in secondary care.

What does this paper add?
A trigger tool provides a rapid method of screening electronic patient records to detect patient harm and its use is feasible as part of routine primary care practice.

Introduction

In the past decade, increasing attention has been given to improving patient safety by systematically screening medical records to detect, measure and learn from avoidable harm.[1,2] The 'trigger tool method' is a recognised approach that allows trained clinicians to review patients' healthcare records in a rapid, structured and focused manner.[3] This method may allow clinical teams to better focus localised learning needs and implement intervention strategies, thereby reducing the risk of further harm to patients in those teams' settings.[4] Self-directed progress can then be monitored through serial measurement of preventable harm rates

and targeted improvement activity.[5,6] Evidence of trigger tool use in a range of clinical settings is growing internationally.[6–11]

In the UK this type of rapid record review is largely confined to acute hospital wards, normally as a key element of national patient safety initiatives.[12,13] However, there is growing interest in attempting to adapt this process for use in UK primary health care. The NHS Institute for Improvement and Innovation has since 2009 provided training to clinicians in England in using a web-based version of the trigger tool for 'measuring' harm in general practices.[14] Prior to this, in NHS Scotland, a primary care trigger tool was developed and piloted which demonstrated that this approach can be successful in screening electronic patient records to identify episodes of avoidable harm.[15] The pilot involved reviewing 500 randomly selected medical records using ten clinical triggers, and found a harm rate of 9.5% with around 40% of incidents conservatively estimated to have been preventable. The trigger tool and its method of application have since been refined in conjunction with general practitioners (GPs) and practice nurses in a small number of NHS Scotland health boards to ensure that it is professionally acceptable to clinicians and potentially feasible in practice. It is currently being utilised as a key component of the Health Foundation funded Safety and Improvement in Primary Care collaborative programme in NHS Scotland.[16]

In this paper we introduce the trigger tool concept and describe a practical and flexible way in which primary care teams and individual clinicians can engage with the process. The term 'trigger tool' may be unfamiliar to many, but it is not a new approach to learning. The underlying principle – essentially an adaptation of case note review – will be familiar to most clinicians. In this respect, we suggest that the trigger tool may have much greater educational utility beyond one of its core purposes – measuring harm rates – by helping primary care teams to identify learning needs and by facilitating local improvements in the quality and safety of patient care.

What is a trigger tool?

A trigger tool is a simple checklist pro forma containing a selected number of clinical 'triggers' which a reviewer seeks to identify when screening electronic medical records.[3] 'Triggers' are defined as easily identifiable flags, occurrences or prompts in patient records that alert reviewers to potential adverse events that had previously been undetected. For example, an international normalised ratio (INR) of 5.0 would be a 'trigger' for the reviewer to undertake a more focused examination of a record for evidence of the patient suffering some type of related haemorrhage. Box 1 contains a list of previously published core triggers which may act as a useful starting point in conducting a rapid search of electronic records for evidence of undetected harm to patients.[15]

What do we mean by avoidable harm?

The focus of the trigger tool approach is on detecting incidents of harm to patients, rather than highlighting evidence of clinical error. A universal understanding

Box 1 Selected examples of previously tested and published triggers and their clinical rationale[10]

Trigger	Rationale
Timing of consultation	Three or more contacts with the practice in any given period of a week (this can include telephone calls, consultations with practice nurse/GP or home visits)
Place of consultation	Any home visit, whether by the GP or by a practice nurse from the practice serves as a trigger
Frequency of consultation	Ten consultations for the period of review (12 months)
Changes to medication	Has any repeat medication been added or cancelled in the period under review?
Hospital admission/discharge	Has the patient been admitted to a hospital (minimum of one overnight stay) for any intervention, management or procedure?
Adverse drug events/allergies	Has a new Read code for allergy/adverse drug event been added to the record in the 12-month period under review?
Abnormal blood results	Specific abnormalities in U and E, LFT, INR and FBC levels serve as a trigger

and definition of 'harm' currently eludes the safety and improvement community. For the purposes of this paper we are content to accept the following definition of harm: 'unintended physical injury resulting from or contributed to by medical care that requires additional monitoring, treatment or hospitalization, or that results in death'. A pragmatic interpretation of this definition can be summarised as *anything that happens as a result of interaction with healthcare services (environment, workers, treatment) that you would not want to happen to you or your relatives.*[17]

Inevitably, the understanding and interpretation of this definition will vary, but should not significantly detract from the practice team's ultimate purpose of facilitating local learning and improvement through application of the trigger tool. It is also important to stress that not all harm in health care is caused by clinical error or system failure, just as all errors do not cause harm.

Training in electronic patient record screening using the trigger tool

Given the complexity and uncertainty of much patient care and the potential sensitivities around the circumstances leading to episodes of preventable harm, only clinically qualified individuals should be trained in the application of the trigger tool. As we will see, however, administrative staff can perform an important supporting role.

Clinical reviewers require a basic level of training to ensure a consistent understanding of the key general principles underpinning the trigger tool and how it should be applied in practice. Training should be straightforward; it normally involves the novice reviewer sitting down at a computer workstation with a colleague experienced in the process to discuss the content of the trigger tool and to practise applying it with a small selection of 'live' electronic patient records (EPRs). Alternatively, novice reviewers can work their way through the process by reading about the trigger tool method and practising on simulated medical records scenarios. The training process normally lasts around two hours. Once trained, and having gained some experience of the trigger tool, the reviewer should be in a position to then train other clinical colleagues, thereby building local capability and capacity. Both NHS Education for Scotland and the NHS Institute for Innovation and Improvement provide training support resources.[14,18]

The trigger tool process

The trigger tool process can be simplified into the three stages which are illustrated in Figure 1. The process is flexible and can be adapted according to the measurement, learning and improvement aims of individual clinicians and primary care teams. The three stages are described in more detail below.

Stage 1 *Planning and preparation*

What is the aim of the review?

At the outset, the clinician or team should clarify precisely what is the specific aim of the intended review. This will help them to decide whether a 'measurement' or 'non-measurement' approach is appropriate. Table 1 suggests how the process may be adapted by different professional groups to support a range of safety, regulatory and educational purposes. A series of short examples of how and why the tool may be used is outlined in Box 2.

Sampling of medical records: size, method, timeframe and frequency

Practical experience suggests that it is feasible to review up to 20 records in a two- to three-hour session, with most records taking less than five minutes.[15] How many records are reviewed and how frequently this is undertaken is inextricably linked to the purpose of the review. For example, if a practice team wishes to attempt to *measure* the avoidable harm rate in patients taking high-risk medications, then they should be looking at systematically reviewing random samples of records in this subpopulation on a periodic, three-month basis. It is thought that repeating this task over a period of time (e.g. 24 months) will provide the practice with 'metrics' on the avoidable harm rate. The reliability of this process is arguably open to question and will be discussed in more detail in a second, linked paper.

This type of measurement approach may seem desirable, but practice teams should take care that the scale of detected, preventable harm events does not exceed their capacity and capability to deal effectively with them. It should also be noted that medical records must be selected randomly if the aim is to establish a 'reliable rate of preventable harm'. Every patient record in the population being reviewed should therefore have an equal chance of being selected. There are various ways to ensure true randomisation. One approach is to manually select every nth record in the relevant patient population. Alternatively, a random number generator may provide an automated solution.[19]

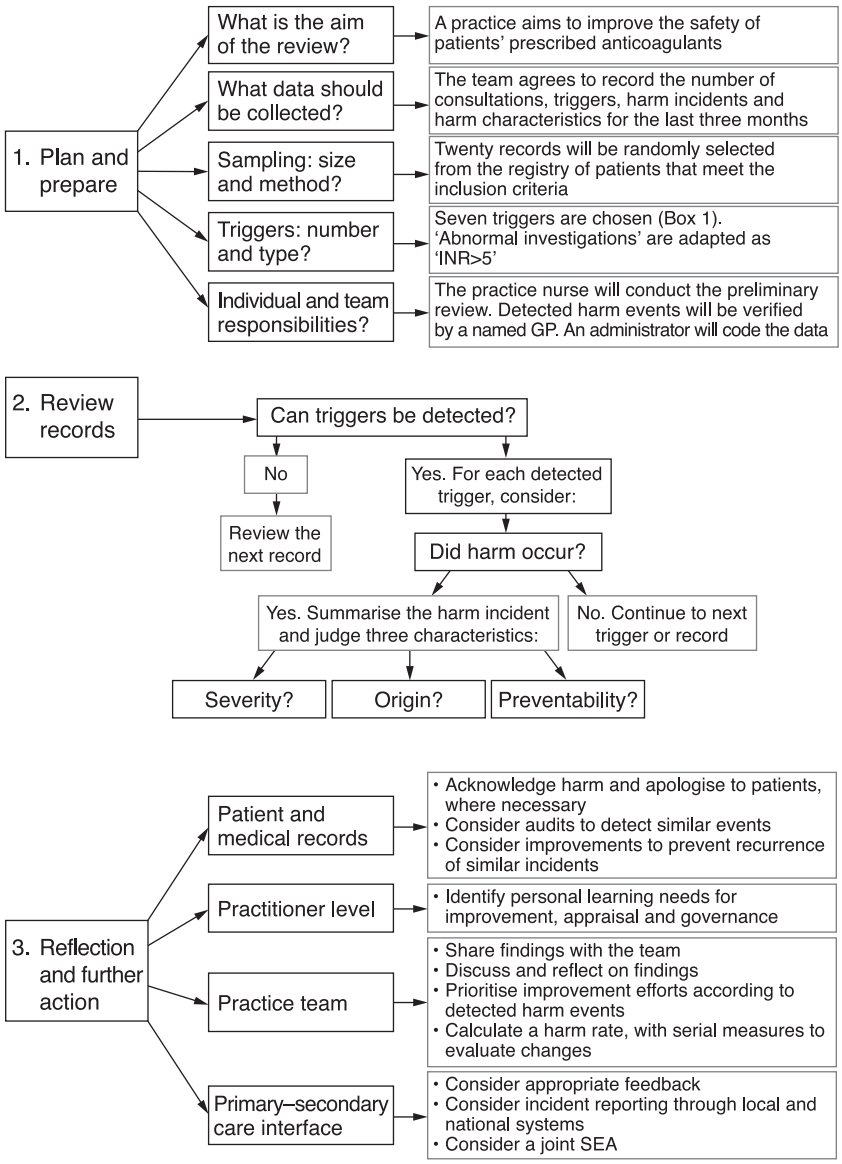

Figure 1 The trigger tool process

At the other end of the spectrum, it is also feasible for a general practice principal, sessional doctor or practice nurse to adopt a non-measurement strategy by applying the trigger tool to a small sample of medical records as either a one-off or regular educational task. For example, a GP may wish to review the last 20 elderly patients (75 years of age and greater) who consulted with her. In this way, individual learning needs can be identified and action plans documented (e.g. to undertake a significant event analysis or implement immediate improvement), which will contribute towards professional appraisal, CPD credits and, ultimately, medical revalidation.

We recommend retrospective review of three consecutive calendar months in the sample of records and also that the selected time periods do not overlap with any other comparable reviews. Reviewers may choose any other number of months to review in each selected patient record, depending on their specific aims and resources. Longer review periods will increase the number of detected harm events (but not necessarily the harm rate). This relative advantage may be offset by the requirement of additional resources and the fact that some harm events may be outdated (and so potentially less amenable to analysis and improvement).

Clinical triggers: how many and which ones?

It is anticipated that between eight and 12 triggers should provide the optimal balance between *sensitivity* in detecting levels of preventable harm and *feasibility* in terms of having sufficient time and resources to complete the chosen review task, which will of course

Table 1 Trigger tool process: a summary of potential application aims and methods for the primary care team and individual clinical groups

	GP specialist trainees	Individual GPs (sessional, salaried, principals)	Individual GPs/nurses	Practice team (basic)	Practice team (intermediate)	Practice team (advanced)
	More likely to aim for non-measurement purposes				*More likely to aim for measurement purposes. May combine two functions*	
Aim of review	To identify patient safety learning needs as part of specialist training	To identify patient safety learning needs as part of professional appraisal and revalidation	To identify patient safety learning needs as part of continuing professional development	To identify collective learning needs and areas for improving patient safety	To identify collective learning needs; measure and reduce harm rates in a given sub-population	To identify collective learning needs; measure and reduce harm rates across the practice population
Patient population	Group of previous consultations or random sample	Group of previous consultations or random sample	Group of previous consultations or random sample	Specific sample, e.g. patients with heart failure or chronic asthma	Specific sample, e.g. high-risk medication group or patients >75 years	Global random sample
Core triggers	Apply all	Apply all	Apply all	Choose triggers relevant to patient group	Choose triggers relevant to patient group	Apply all
Sample EPR size (*n*)	15	15	15	20	25	50
Annual frequency	x1–2	x1	x1	x1–2	x3	x4
Estimated time to conduct review (hours)	2–3	2–3	2–3	5–6	6–7	8–10
Examples of multi-purpose evidence for professional, team and governance obligations	Education and training, clinical audit	Appraisal, regulation, lifelong learning, RCGP CPD credits, clinical audit, patient safety	Appraisal, regulation, lifelong learning, RCGP CPD credits, clinical audit, patient safety	Patient safety, clinical governance, collective learning, safety culture, accreditation	Patient safety, clinical governance, collective learning, safety culture, accreditation	Patient safety, clinical governance, collective learning, safety culture, accreditation

Box 2 Examples of how and why the trigger tool may be applied by practice teams and different groups of clinicians

Example scenario 1
A practice team aims to quantify and reduce the rate of avoidable harm across their whole practice population (i.e. to calculate a global rate). The population to be sampled is all patients >17 years and registered with the practice for >12 months. The team serially measures the harm rate in the patient population by screening a random sample of 50 medical records every three months.

Example scenario 2
A practice team aims to quantify the avoidable harm rate in the practice's elderly patient population. They review a sample of records of patients >74 years, who have been registered with the practice for >12 months and are prescribed >4 repeat medication items. They decide that nursing home residents will be excluded.

Example scenario 3
A GP partner aims to identify and address potential learning needs as part of her continuing professional development plan. She reviews a random sample of 15 patients who have consulted with her in the previous three months to find specific harm events that may have been preventable and to identify other incidents or issues with learning potential.

Example scenario 4
As part of her specialist training, a GP trainee aims to review a random sample of 15 patients who have consulted with her in the past three months. She plans to detect potential harm events or other incidents with potential learning interest and to conduct a significant event analysis for training purposes.

Example scenario 5
A sessional GP who works occasionally in the same local practice negotiates access with the surgery to review the care of a random sample of 15 patients taking anti-coagulant drugs who have consulted with her in the past 12 months. She plans to detect potential harm events or other incidents with potential learning interest. Depending on the outcome, the GP can use the review findings to record: a learning point; a learning need; immediate action; or to suggest that a significant event analysis is necessary.

come at an opportunity cost. The triggers selected are clearly dependent on the purpose of the review. For example, 'INR >5.0' would be an appropriate trigger to select if the aim were to screen for anticoagulant-associated adverse events, but could be omitted when aiming to calculate a 'global harm rate' or to review the care of a specific patient population, such as those taking cytotoxic drugs.

What data should be collected?

Essential data to be collected for each trigger tool review:

- aim of the review
- population under review
- sample size
- name of reviewer(s).

Essential data to be collected for every patient record reviewed include:

- a patient unique identifier
- whether a harm event(s) is detected.

Essential data to be collected when harm events are detected include:

- the number of detected 'harm events'
- the grade of harm severity
- whether the event was judged to be preventable
- the setting where the harm event originated
- a brief narrative description of the harm incident.

Depending on the review aim it may be necessary to also extract the following data:

- the number and type of consultations
- the number of triggers found
- the time taken to review each record.

Incidental review findings

In addition to these data, reviewers will often come across other contextual information in the records which may be important in shedding light on understanding why detected harm events occurred. This type of information – unrelated to the aims of the review being undertaken – may be uncovered inadvertently but is of value because it highlights other learning needs for individual clinicians or the practice team as a whole. For example, *incidental findings* may include: clinical errors, administrative and systems failures and inadequate record keeping which did not lead to harm events. This should not distract reviewers from achieving their main objectives or unnecessarily slow the process.

Involving administrative staff

Administrative staff can play a key role in providing important practical support when applying the trigger tool. For example, it is an expectation that experienced administrative staff will be able to generate lists of appropriate electronic patient records; select random samples of records; pre-screen records to identify those containing relevant clinical triggers; and enter collected data into spreadsheets, where applicable. Completion of these tasks will speed up the process and minimise workload for clinical reviewers. Thereafter, reviewers can focus on screening the preselected patient records with identified triggers to ascertain if there is evidence of harm.

Similarly, medical and nursing staff can provide practical support to each other. For example, a practice nurse will be able to pre-screen records for agreed clinical triggers and also identify probable harm incidents. The GP and practice nurse are then able to jointly discuss and agree detected harm events and describe harm characteristics.

Stage 2 *Systematic review of a random sample of records*

Every record in the random sample is reviewed consecutively. A maximum of 20 minutes review time should be allowed for each record. Reviewers should move on to the next record if they are unable to collect relevant data and make the necessary judgements from the available information within this short timeframe. This is quite rare for experienced reviewers who typically require only a few minutes per record. The data to be extracted from each record can be entered into a simple pro forma.

A typical primary care record is normally divided into around five sections with each containing a range of personal, demographic and clinical information on the patient (Box 3). The reviewer should systematically screen each individual section to identify (or otherwise) the necessary evidence to answer the following key questions:

Can triggers be detected?

If yes, detected triggers should prompt the reviewer to examine the relevant section of the record in more detail to determine if the patient came to any form of harm. The majority of detected triggers will not be linked to harm incidents. In some instances more than one trigger may help to detect the same episode of harm. Similarly, a single trigger may help to detect more than one harm incident. If no trigger is detected, or if 20 minutes has elapsed, the reviewer should proceed to the next record and repeat the process for the whole sample.

Did harm occur?

It may be necessary for the reviewer to examine other sections of the record before deciding whether a harm incident has occurred. If evidence of harm is detected, the reviewer should consider where it originated and its severity level and should judge perceived preventability. If no harm is detected, the reviewer should continue reviewing the record (returning to the first question) or commence with the next record if applicable. When reviewers are uncertain whether harm occurred they should not record the incident.

What was the severity of the harm detected?

The reviewer should grade the severity of every incidence of detected harm using the classification system which is most commonly applied (Box 4).[20] This system has some potential limitations. Code 'G' ('permanent patient harm') may only become apparent in the months after the review and codes 'H' and 'I' will be very rare in primary care and are unlikely to go undetected. Arguably, other methods may be better suited to analysing and learning from these incidents.

Was the detected harm incident preventable?

The reviewer should make a decision on whether the detected harm was preventable, which is based on a combination of the evidence found in the medical record and their own professional judgement at that time. If a more in-depth analysis is required to support or refute a judgement it should be undertaken after the review, as discussed in Stage 3 below.

Where did the harm incident originate?

As before, the reviewer should arrive at an initial decision based on the recorded evidence and their professional judgement. The circumstances leading to the eventual harm event may have originated in primary or secondary care, or a combination of both.

Stage 3 *Reflection and action*

Once the sample of records has been reviewed, clinicians or teams may want to reflect on their findings and consider a number of potential actions, including making immediate improvements to patient care. Based on the trigger tool pilot study and follow-up feasibility work with front-line primary care teams,[15] we describe below a number of possible actions that can be taken in terms of immediate improvements and in relation to the identification of patient safety learning needs.

Action at the patient and EPR level

The quality of information in individual electronic patient records can be improved through updating,

Box 3 Clinical information is typically grouped into five main sections in medical records

1 Clinical encounters section (all types of documented consultations)
2 Medication related section (for example acute and chronic prescribed or discontinued items, item intervals, dosages, directions and indications)
3 Clinical Read codes section (various events such as allergic drug reactions, diagnoses, interventions and investigations can be coded. Some systems allow codes to be prioritised as being of low, medium or high importance)
4 Correspondence with other healthcare providers (including referrals, reports, discharge summaries and clinic letters)
5 Investigation requests and results (for example biochemistry, haematology, microbiology and imaging)

Box 4 National Coordination Council for Medication Error Reporting and Prevention *Index for Categorising Medication Errors*[20]

Category	Description	Example
A	Circumstances/events with capacity to cause error	Medication lost during hospital admission
B	An error occurred but did not reach the patient	Sticking plaster allergy not coded
C	An error reached the patient but did not cause harm	PPI* started for no clinical reason
D	An error reached the patient and required monitoring or an intervention to confirm it resulted in no harm	Large dose of hypnotic inadvertently prescribed for older patient
E	Temporary harm to the patient and required an intervention	Side effects and abnormal LFTs** after starting statin
F	Temporary harm to the patient and required hospitalisation of any length	Hyperkalaemia secondary to starting ACE*** required hospitalisation
G	Permanent patient harm	Reduced mobility after spinal surgery
H	Intervention to sustain life	None found
I	Patient death	None found

* PPI – proton pump inhibitor
** LFT – liver function test
*** ACE – angiotensin converting enzyme

correcting or clarifying them in real time, which may also act as a defence mechanism in terms of minimising further risk to the patients. For example:

- An adverse drug reaction to codeine is detected, but has not been entered as a clinical Read code. The clinician enters the appropriate Read code to help prevent prescription of this item in the future.
- A harm incident was detected where a patient had to be hospitalised after falling and sustaining a large laceration. The clinician identifies drug-induced postural hypotension as a likely contributing factor. She recalls a telephone discussion with a relative who expressed concern about the patient's ability to manage at home which had not been documented at the time. She takes a few minutes to retrospectively update the record.
- The clinician finds a positive trigger – 'repeat medication item discontinued' – but there is no reason for this change documented during the consultation. She discusses her finding with her colleague who made the entry. He clarifies the record by retrospectively adding his rationale for stopping the medication.
- A harm incident is detected where a patient's estimated glomerular filtration rate (eGFR) is rapidly declining. The clinician advises the patient to discontinue the anti-inflammatory drugs that she has been regularly using and to attend the surgery for regular monitoring. The patient's eGFR improves to her normal baseline over the following weeks. In this case an opportunity to resolve a harm incident or minimise its severity and complications through immediate action is demonstrated.

- It may be necessary to acknowledge and disclose errors to patients and apologise for harm that may have occurred. For example, a clinician detects the trigger 'AST/ALT (aspartate aminotransferase/alanine aminotransferase) >150'. The result is surprising as she recently reviewed the patient and concluded that he was clinically well. On further investigation she discovers that an error had occurred when identity labels were attached to the specimen. The labels of two patients with similar names were accidentally 'switched' during a routine phlebotomy session. She informs both patients of the error, apologises on behalf of the practice team and sends further specimens.

Detected triggers may also help to prevent a patient suffering specific incidents of unnecessary harm in the future. For example:

- The clinician detects a positive trigger 'INR >5' in the record of an elderly patient with mild dementia. There is no recorded evidence of harm, but she holds a family conference where it is agreed that future INR results will be phoned to the daughter. She also agrees with the family and pharmacist to issue other medications in a Dosette Box.
- While scanning the medical record for the trigger 'Hb<10', a clinician discovers that an elderly patient on warfarin has not had her haemoglobin checked for at least five years. She discusses this with the practice nurse who adds this test during the patient's next phlebotomy appointment.
- Detecting specific contextual information in a single record which is strongly indicative of preventable harm (but where no harm incident occurred), may act as a red flag which points to other patients in the group under review facing increased clinical risk. For example, detecting (and resolving) an incident involving a patient being inappropriately co-prescribed warfarin and aspirin led to a wider audit which uncovered two other similar cases. The practice took immediate corrective action for the patients concerned and to help prevent future harm from this specific safety threat.
- The detection of some harm incidents may have much wider implications within the practice. For example, a small number of preventable harm incidents related to non-steroidal anti-inflammatory drug (NSAID) prescribing were detected in patients with heart failure. However, the practice team decided to audit care for elderly patients and those prescribed warfarin or a proton pump inhibitor (PPI) to establish the full extent of these issues. They also develop practical prescribing guidelines for the team.

Action by the individual practitioner

Evidence suggests that a majority of clinicians remain unaware of the scale and nature of the patient safety problem.[21–24] Amongst those with some level of awareness there is a tendency to believe that the problem is 'somewhere else', rather than in their own practice.[25] A difficult task for many will be shifting attitudes and behaviours in terms of acknowledging that avoidable harm occurs locally, accepting that screening for it should be a priority and indicating a willingness to minimise future clinical risk.

The following examples are also possible outcomes and actions of trigger tool review, which motivated practitioners may have to consider:

- On detection of a preventable harm incident, practitioners should consider whether they have sufficient contextual evidence to plan and implement necessary improvement. They may need to explore cases in depth by reviewing the records again in more detail and at greater length. If there is still a lack of understanding as to why a harm incident occurred, the clinician should undertake a significant event analysis (SEA).[26]
- Individual practitioners may also reflect on whether the review process and findings have any other personal and professional implications. For example, an incident of harm is detected where an inappropriately high dosage of an antipsychotic drug caused increasing confusion, falls and injury to a patient in a nursing home. The clinician might recognise a learning need to improve her knowledge of patients with dementia and problematic behavioural symptoms. As a result she might attend a workshop dealing with this subject presented by a local psychiatrist.
- At an individual level, writing up a short report of the review process and outcomes – including personal reflections and efforts to improve safety – which could then be used as a basis for discussion during annual appraisal as well as evidence for claiming CPD credits.

Action by the practice team

Many of the practice team's potential actions can be agreed during team meetings. Different forums may be used, including dedicated SEA meetings, or protected learning time (PLT) sessions. Some of the actions the practice team may consider are discussed below:

- Identifying and addressing local learning needs. For example, a reviewer may detect a case where an elderly patient's INR temporarily increases to >5 after prescription of an oral antibiotic for a suspected urinary tract infection. The learning point which is shared with clinicians during a practice

meeting is that anti-coagulation patients require more intensive monitoring when suffering episodes of comorbidity.
- The practice designs and implements a specific improvement task as a consequence of a trigger tool review which indicates that the care of a specific at-risk patient group should be prioritised. They decide to use plan–do–study–act (PDSA) cycles[27] as a rapid method to audit and improve INR monitoring in housebound patients and enhance communication systems between practice and community based staff.
- Many practices will lack the time and resources to fully consider the implications of, and respond effectively to, every detected harm incident which is judged to be preventable. This implies that some incidents will have to be prioritised over others.

Action at the primary–secondary care interface level

- A patient safety incident[28] has been detected that should be officially notified to the local primary care organisation or the national patient safety agency using existing incident reporting systems. For example, a specific batch of influenza vaccines is implicated in a greater than expected number of adverse reactions. The practice's report allows the local authority to recall the batch and prevent any further adverse reactions.
- In selected cases it may be necessary to inform secondary care of harm incidents which originated in their setting. For example, a practice detects four incidents of post-operative, superficial cellulitis in patients undergoing gynaecological procedures. The practice nurse and GP notice that absorbable sutures have been used externally in every case. The senior partner writes to the relevant clinical directors to make them aware of the incidents.
- The practice team may wish to share their practical experience and outcomes of improvement initiatives with other surgeries. For example, a practice successfully implements a new system to monitor and manage patients prescribed warfarin. The practice shares its learning with its partners in a local improvement programme.

Conclusion

We have described a potentially feasible process for screening electronic records to detect episodes of preventable harm to patients in UK primary care settings. Further research evidence of the utility of this approach is necessary, particularly with regard to its professional acceptability and pragmatic feasibility, including resolving statistical issues over the measurement of harm rates in populations and subpopulations of patients.

However, we would suggest that if patient safety is really a national priority then decision makers should be directing efforts to explicitly identifying and minimising preventable harm. Clearly some may view the mass introduction of the trigger tool as a further opportunity cost in an already squeezed contractual environment. In contrast we suggest that as a minimum the trigger tool approach should not be perceived as an added extra, but should actually be mandated by policy makers as the basis around which existing safety-related learning and improvement efforts are concentrated and directed. For example, explicit policy attempts to address serious safety issues are presently focused around expectations that GPs and their teams participate in and provide evidence of activities such as clinical audit, incident reporting and significant event analysis. Evidence for the effectiveness of these strategies in addressing and improving patient safety concerns in primary care is either limited or lacking.[29–31] Additionally, there is a lack of direction given to primary care teams on how to identify safety-related concerns. The findings from the application of the trigger tool suggest that most harm events identified in this way would have remained unknown utilising the conventional methods outlined, or were ignored for reasons unknown.

At a minimum we would suggest that policy makers start to take an interest in the potential for screening EPRs for avoidable harm as a means to direct more meaningful safety-related learning and improvement. The patient safety components of the general medical services contract (through a local enhanced service) and GP appraisal (to direct learning) could both act as conduits in facilitating the rapid introduction of this method as one means of addressing preventable harm in primary care.

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