

## TRIGGER TOOL - NEW ZEALAND GUIDANCE<sup>1</sup>

# Safety in Practice

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<sup>1</sup> Acknowledgement: This Guidance has been based on the Scottish Guidance and has been adapted for the NZ Context. Permission has been granted by Dr Neil Houston to use this information for NZ Primary Care

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## INTRODUCTION AND BACKGROUND

The practice of medicine today is complex and at times carries risks. Primary Care Practitioners have recognised that patients may experience harm as a consequence of their interaction with the health service. The level of this harm is still being researched with reports varying from as low as 1 incident per 120<sup>2</sup> consultations with more recent data suggesting rates of 7-10 incidents per 100 consultations<sup>3</sup>. Most of these episodes are minor and related to medication

Trigger tools are ways of identifying and documenting patient harm using a systematic record review process so that steps can be taken to minimise the risk of harm and to improve the patient experience of care.

### WHAT IS A 'TRIGGER TOOL'?

A trigger tool is a simple checklist used to screen medical records for potential harm. They facilitate the **structured, focused** and **rapid review** of a sample of medical records by primary care **clinicians**.

“Triggers” are ‘flags’ for patient harm’. They act as a prompt to the reviewer to search the record in more depth for a potential unintended consequence of treatment. For example, an international normalised ratio (INR) of >5 would be a “trigger” for the reviewer to undertake a more focused examination of the record for evidence of bleeding.

Harm in this context is defined as:

*‘...anything that happens to a patient as a result of interaction with healthcare services (environment, workers, and treatment) that you would not want to happen to you or your relatives...’* (Scottish Guide)

The focus is on identifying avoidable harm, not error. It is therefore about the systems of care, not the individuals who deliver the care. The scale and type of harm that is detected is variable and dependant on a number of factors. Benchmarking and comparisons between two different practice teams is therefore unreliable, unhelpful and to be avoided.

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<sup>2</sup> Sandars K, Esmail A. The frequency and nature of medical error in primary care: understanding the diversity across studies. *Fam Pract.* 2003; 20: 231-6

<sup>3</sup> Eggleton K, Dovey S>M et al. Using triggers in primary care records to flag increased adverse event risk and measure patient safety at clinic level. *NZMJ* 2014; 127: 1390: 45-52

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#### NEW ZEALAND TRIGGERS (REFER APPENDIX 1 FOR DEFINITIONS)

1.  $\geq 2$  consults with a Prescriber in 7 days
2. New diagnosis of cancer within 3 months
3. New Allergy/Adverse reaction add to PMS
4. Cessation of medications
5. Reduction in medication
6. Out of hours / A&E attendance
7. Hospital discharge
8. Hb < 100
9. eGFR <35
10. Death within review period

#### HOW IS IT USED?

- Practices identify cohorts of patients identified as being at high risk (e.g. patients over 75 years of age and taking high risk medications)
- Each quarter, a maximum of 25 records is randomly selected from a selected cohort of patients. Each time the Trigger Tool is applied, the same cohort can be reviewed or a different cohort selected.
- Records are reviewed using the trigger tool, applying a standard approach to review the record for a 3 month period in the record
- No more than 20 minutes is allocated for each record. Once twenty minutes is reached go on to the next record.
- The record review is completed either when 5 harms are found, or two hours have been spent on the review, whichever comes first.
- Identified harms are documented and classified
- Opportunities for improvement are identified and prioritised.

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#### NOTES FOR REVIEWERS:

1. The trigger tool is better at detecting acts of commission (something that was done) which led to error and harm. However omission of care leading to patient harm should also be documented (Refer Page 12)
2. Consistency is essential to obtain reliable data over time.
3. The review focuses on a specific period in the record -- usually three months
4. If there is reasonable doubt whether harm occurred, the incident should not be recorded

## TRIGGER TOOL PROCESS

The process can be simplified into three main steps:

**STEP 1:** Planning and preparation

**STEP 2:** Review a random sample of records

**STEP 3:** Reflection and further action.

## BEFORE YOU START

Before you start this process, it is suggested have a practice meeting to introduce the concept and discuss what is involved and how you plan to approach it.

For example:

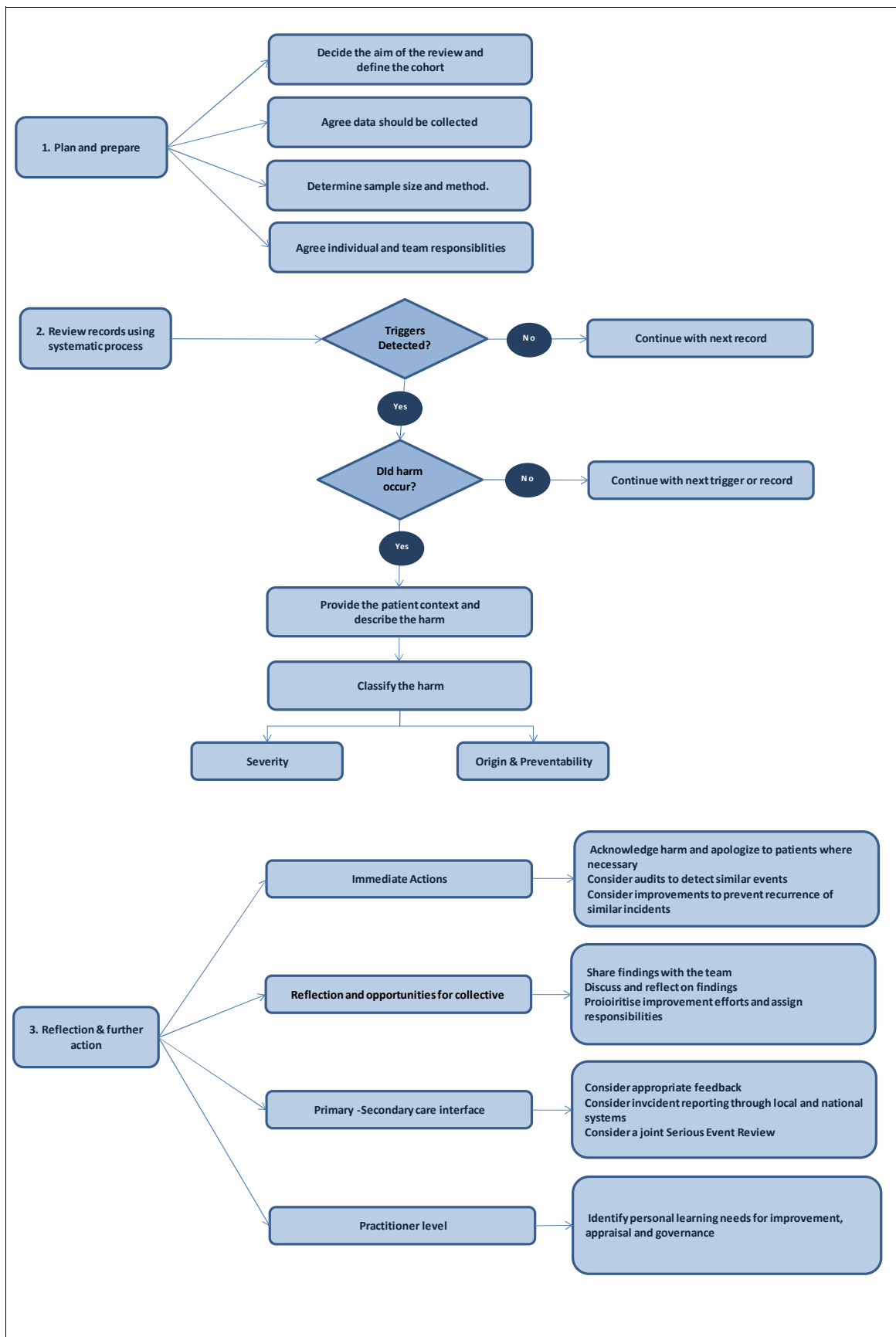
- How frequently will you undertake reviews
- Who will be involved
- How you will share the findings
- How you will prioritise and plan any improvements as a result of the review.

In particular it is important to discuss the concept of harm in this context, and reassure team members that the purposed is for system improvement and learning, not accountability.

Clarify issues relating to how you will manage identification of events where serious harm has occurred. There needs to be an agreed process for managing this which may involve open disclosure with patients.

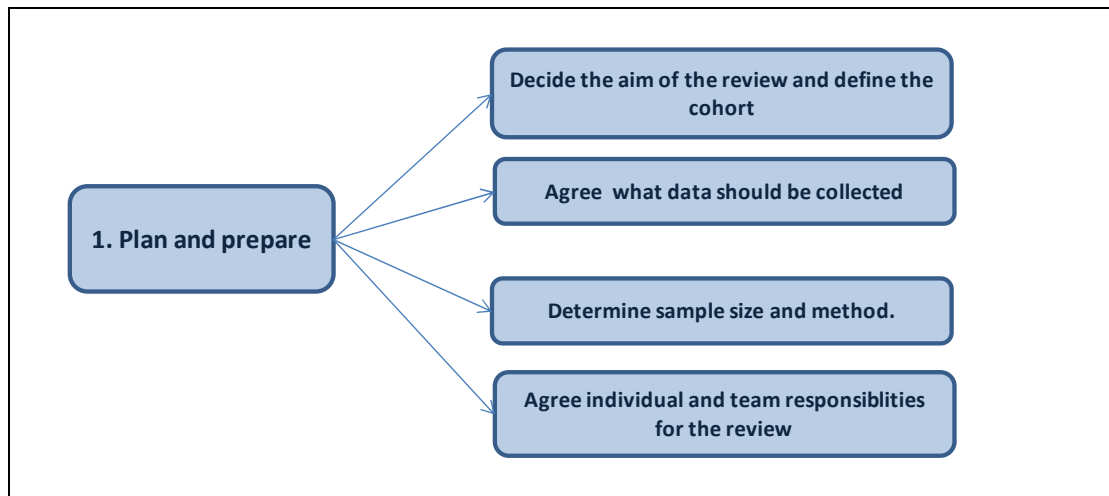
This activity is a Quality Improvement activity and could be described as a type of audit. This is not research and ethics is not required.

Figure 1 Flow chart of Primary Care Trigger Tool Process



## STEP ONE: PLANNING & PREPARATION

Figure 2: Plan & Prepare



### AIM OF THE REVIEW

The primary aim of doing a record review is to identify unintentional harm to inform opportunities for improvement.

### DEFINE THE COHORT

Patients' susceptibility to patient safety incidents vary widely and are influenced by many factors, including age, frequency of consultation, co-morbidities and the number and types of prescribed medications. The rationale for choosing a specific sub-population of patient records to review is that it increases the likelihood of detecting patient safety incidents. There is no single 'right' group to choose. In practice, the selected patient groups will mainly depend on the reviewers' preference and review aims.

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## EXAMPLES OF COHORTS

Please Note: The following are examples/ideas only to get you started. Each practice should determine the cohort they wish to review using the Trigger Tool process.

### ***Group 1: At risk individuals***

- Residential Care / Housebound
- Aged 75 years or older and on 6 or more medications
- Recent or multiple hospital admissions
- Palliative care
- Recent deaths

### ***Group 2: Patients with one or more long term conditions***

- Chronic kidney disease and on NSAIDS
- COPD
- Diabetes
- Heart Failure
- CVD: Stroke / TIA

### ***Group 3: Patients on one or more high risk medications***

- Insulin
- Opiates
- Warfarin
- NSAIDs
- Diuretics x 2

### ***Combinations of groups may be selected***

#### Examples

- Residential care patients prescribed NSAIDs
- Patients with heart failure prescribe 2 or more diuretics



## WHAT DATA SHOULD BE COLLECTED?

### ESSENTIAL DATA TO BE COLLECTED WHEN A HARM EVENT(S) IS DETECTED:

- Triggers found
- Description of the patient (NHI, age, ethnicity) and the harm event found.
- Harm severity according to harm severity scale
- Harm preventability according to the preventability scale
- Length of time taken to review all records

### INCIDENTAL FINDINGS

***There may also be important, incidental findings. This information can potentially be documented for later consideration\*. For example:***

- Clinical errors not resulting in harm
- Administrative and systems failures
- Inadequate record keeping
- Acts of omission.

## DETERMINE SAMPLE SIZE AND METHOD

Typically practices reviews a maximum of 25 records

Medical records are selected randomly from within the established cohort. Every record should therefore have an equal chance of being selected.

There are various ways to ensure true randomisation. One feasible method would be to manually select every nth record in the relevant patient population. Alternatively, a random number generator may provide an automated solution. An example can be found at: <http://www.graphpad.com/quickcalcs/randomN1.cfm>.

## PERIOD OF TIME REVIEWED IN EACH RECORD

It is recommended that three consecutive complete calendar months in every record; however any number of months may be chosen, depending on a clinician or practice's specific aims and available resources.

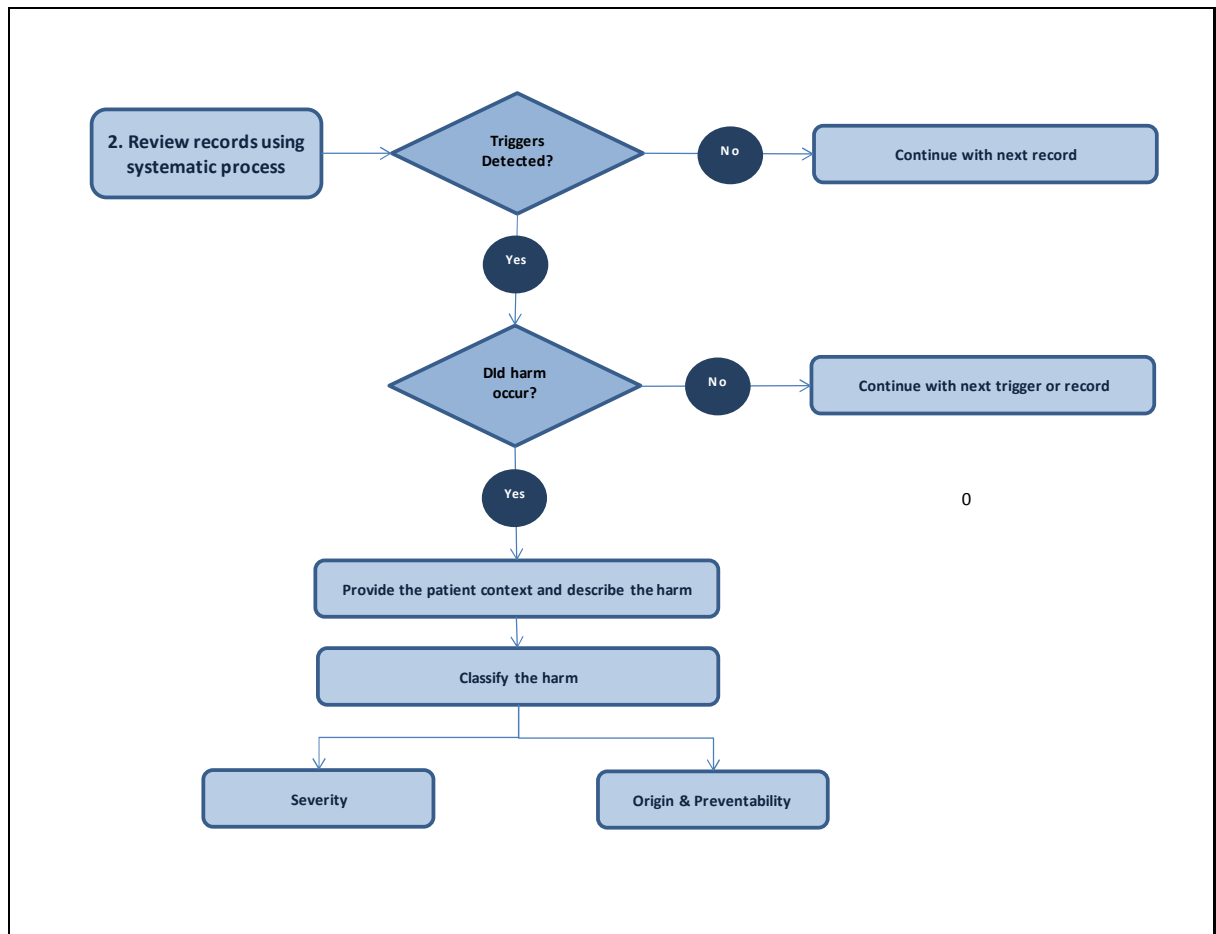
## AGREE INDIVIDUAL AND TEAM RESPONSIBILITIES

**Before starting each review work through the following tasks with the team**

- Identify team– who will be involved?
- Clarify roles, responsibilities & timelines for the following tasks
  - Extracting the random sample
  - Record management
  - Data entry
  - Analysis
  - Reporting
- Agree on a process for reflecting on the results, prioritising events, planning and implementing improvement

## STEP TWO: SYSTEMATIC REVIEW OF RECORDS

Figure 3: Review Record using systematic process



### Notes:

- The record review should take no longer than 2 hours
- The review is complete when either 5 harms have been found or you have spent 2 hours -- whichever comes first.
- Document the number of records reviewed to find the 5 harms or that were reviewed within the 2 hour period.
- It is not necessary to review all records -- the purpose is to detect obvious problems that offer opportunities for improvement.

## HOW TO WORK THROUGH THE RECORD

- Every record in the random sample is reviewed
- A maximum of 20 minutes review time should be allowed for every record.
- Reviewers should work through each record systematically to ensure a consistent approach. The following is a suggested process:
  - Clinical encounters section (all types of documented consultations)
  - Medication-related section (for example acute and chronic prescribed or discontinued items, item intervals, dosages, directions and indications)
  - Clinical read codes section (Various events such as allergic drug reactions, diagnoses, interventions and investigations can be coded. Some systems allow codes to be prioritized as low, medium or high importance)
  - Inbox
    - Correspondence including EDS
    - Results
- Reviewers should move on to the next record if they cannot finish in the allotted time.
- The data to be extracted from each record should be entered onto the data collection form (Appendix 2).

## TRIGGERS

It is recommended that all records are reviewed using the standard trigger set.

For New Zealand, there are 10 triggers (Refer Appendix 1 for definitions.)

1.  $\geq 2$  consults with a Prescriber in 7 days
2. New diagnosis of cancer within 3 months
3. New Allergy/Adverse reaction add to PMS
4. Cessation of medications
5. Reduction in medication
6. Out of hours / A&E attendance
7. Hospital discharge
8. Hb < 100
9. eGFR <35
10. Death within review period

Once the review is completed, the reviewer should systematically screen each individual section to identify the evidence necessary (or otherwise) to answer the following key questions.

## WERE TRIGGERS DETECTED?

- **If no:**
  - Proceed to the next record and repeat the process for the whole sample.
- **If yes:**
  - Examine the relevant section of the record in more detail to determine if the patient came to any form of harm. (most triggers are not linked to harm)

Note: In some instances more than one trigger may help to detect the same episode of harm. Conversely, a single trigger may help to detect more than one harm incident.

## DID HARM OCCUR?

### **If no:**

- Continue reviewing the record for remaining triggers.
- Commence with the next record if applicable.
- When reviewers are uncertain whether harm occurred they should not record the incident.

### **If Yes:**

- If evidence of harm is detected, document:
  - Triggers found
  - Description of the patient (NHI, age, ethnicity) and the harm event found.
  - Harm severity according to harm severity scale
  - Harm preventability according to the preventability scale

**NOTE: CLARIFICATION RE COMMISSION AND OMISSION OF CARE**

Acts of omission does not necessarily mean ‘doing nothing’. The GP might have reassured the patient, explored her health beliefs or arranged for a review appointment.

Both types of acts may be equally appropriate or inappropriate and both may result in positive or negative patient outcomes (Table 2)

**Table 1: Determining commission and omission of care example**

<b>Act of Commission</b> Prescription for antibiotic	<b>Appropriate</b> The patient has fever, tachycardia and unilateral chest signs suggesting pneumonia	<b>Positive</b> Patient fully recovers
		<b>Negative</b> Patient’s condition worsens, for example due to atypical pneumonia or she has a severe allergic drug reaction <b>(Non-preventable harm)</b>
	<b>Inappropriate</b> Patient has a viral infection with non-specific signs	<b>Positive</b> Patient fully recovers <b>(Potential for harm)</b>
		<b>Negative</b> Allergic drug reaction <b>(Preventable harm)</b>
<b>Act of Omission</b> No prescription	<b>Appropriate</b> Patient has viral infection	<b>Positive</b> Patient fully recovers
		<b>Negative</b> Patient develops secondary infection and is hospitalized <b>(Non-preventable harm)</b>
	<b>Inappropriate</b> Patient had bacterial pneumonia	<b>Positive</b> Patient fully recovers <b>(Potential for harm)</b>
		<b>Negative</b> Patient admitted as an emergency. Could this have been prevented through earlier ABx use? <b>(Preventable harm)</b>

**Case 1: Example of learning during the Trigger Tool process**

Context:

*A 17 year old female patient presents with fever no cough and a sore throat. The examination discovers purulent tonsillitis temp 38.7 and enlarged tender nodes.*

Potential Harm:

*GP diagnoses bacterial tonsillitis, takes swab then recollects patient is allergic to penicillin and prescribes Erythromycin 800mg bd. Patient fully recovers. During trigger tools process the GP realises Penicillin Allergy not documented and updates the Practice Management Systems [PMS].*

Potential for harm: yes

Did harm occur? no

**Case 2: Example of non-avoidable harm**

Context:

*Same above scenario: A 17 year old female patient presents with fever no cough and a sore throat. The examination discovers purulent tonsillitis temp 38.7 and enlarged tender nodes. No penicillin allergy.*

*The GP takes a swab and starts Phenoxymethyl penicillin 1000mg bd. The patient recovers from tonsillitis but returns 7 days later with vaginal thrush. The Swab confirmed strep tonsillitis.*

Did harm occur: yes.

Harm Description: *The patient developed vaginal thrush in response to Penicillin.*

Harm Category: 2

Was action appropriate: yes



**Case 3: Example of severity 3 level of harm**

Context:

Same above scenario with no penicillin allergy. The GP takes a swab and starts amoxicillin 500mg tds. The patient presents 3 days later feeling worse with wide spread itchy morbilliform rash. The GP notes an arc of haemorrhage on the soft palate. The swab result finds no strep isolated.

Diagnosis is likely Epstein Barr virus infection with hypersensitivity reaction to amoxicillin.

Did harm occur: yes

Harm description: patient had an Epstein Barr virus infection and developed hypersensitivity reaction to inappropriate amoxicillin prescribing.

Harm category: 3

Was action appropriate: no presentation fitted EBV infection and amoxicillin should be avoided plus unnecessarily broad antibiotic

**Case 4: Example of potential level 4 severity**

Context:

Same above scenario but with documented penicillin allergy. GP takes swab and prescribes doxycycline as an alternative.

Patient recovers and presents 2 weeks later and asks about a recommendation for a Lead Maternity Care provider referral as she had seen Family Planning 4 weeks ago and had confirmed pregnancy. At the last visit, because she was so unwell and you were running late, she forgot to talk about this.

Did harm occur: potentially

Was action appropriate: debatable but more likely no as an alternative option was available in this at risk gender related age group?

## CLASSIFY THE HARM

### SEVERITY

Grade the severity of harm using the following table.

**Table 2: Severity scale**

Severity	Definition
1	Any incident with the potential to cause harm
2	Mild harm: inconvenience, further follow-up or investigation to ensure no harm occurred
3	Moderate harm: required intervention or duration for longer than a day
4	Prolonged, substantial or permanent harm, including hospitalization

### PREVENTABILITY

Based on recorded evidence or using professional judgement, determine as best as possible where the harm originated and whether it was preventable or not. This will help you prioritise improvement activities.

**Table 3: Preventability Scale**

Severity	Definition
1	Not preventable and originated external to this practice (secondary care / other provider)
2	Preventable and originated external to this practice <b>OR</b> not preventable and originated in this practice
3	Potentially preventable and originated in this practice
4	Preventable and originated in this practice

## INCIDENTAL FINDINGS AND ADDITIONAL INFORMATION

Reviewers may wish to add some of their incidental findings to the results. In some cases these findings may provide additional insight, context and opportunities for improvement.

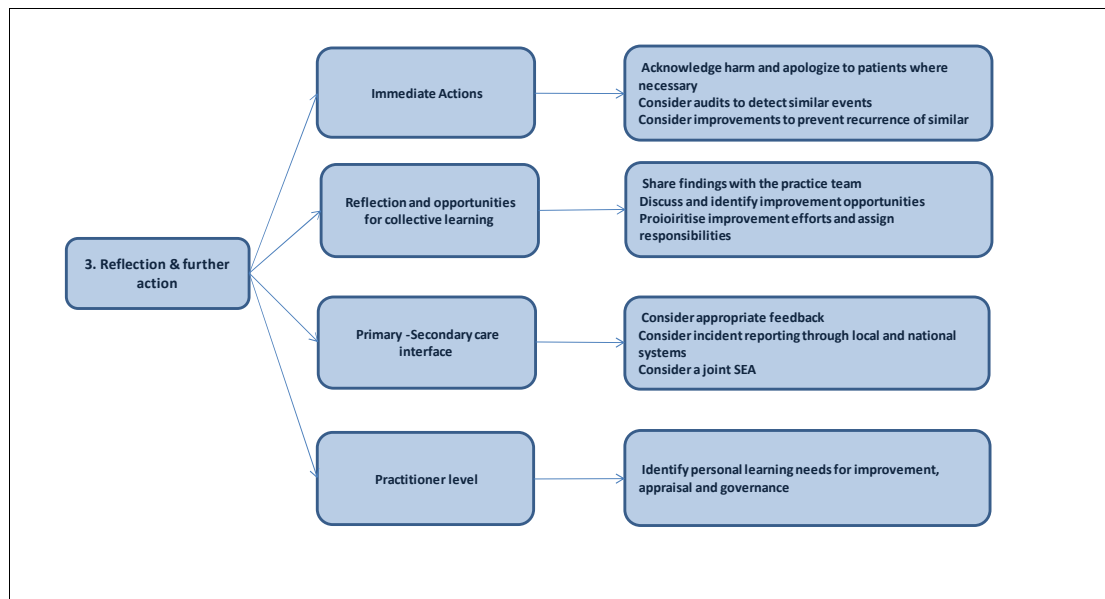
The reviewer should also consider whether there is sufficient evidence to analyse the harm events in a meaningful manner, and the degree of certainty with which the harm characteristics were judged. There may be a need to further explore harm events by reviewing certain records again in more detail and at greater length.

It may also be useful to consider the systems and processes underpinning the decisions and actions taken in individual cases.

The reviewer may also have to consider utilizing other improvement tools, for example significant event analysis (SEA).

## STEP THREE: REFLECTION AND FURTHER ACTION

Figure 4: Reflection & further action



The clinician or practice team can use the review process and results in a number of ways. Some of the possible actions are described in more detail below:

### IMMEDIATE ACTIONS

- Arguably, the first task for the clinician or practice is to acknowledge the detected levels of harm, irrespective of whether errors had occurred.
- In those instances where an error occurred it may be necessary to apologise to affected patients.
- With regard to those patients where harm was detected - there may still be an opportunity to intervene to prevent further progression or alleviate complications.
- It may be possible through early, targeted intervention to prevent similar harm to other patients.

Two examples:

1. A reviewer may have detected a female patient with severe migraine attacks thought to be complicated by the combined hormonal contraceptive pill
2. The reviewer found a case of Warfarin and Aspirin being co-prescribed.

In both examples an audit or focused review of similar records may identify other cases and help to prevent future harm.

## REFLECTION AND OPPORTUNITIES FOR COLLECTIVE LEARNING

### SHARING AND REPORTING THE FINDINGS

The clinician or practice team may wish to share and collectively reflect on the review findings as part of routine educational or business meetings.

It is recommended that every practice team member is included whenever possible, including those that did not participate to the process. This may help to identify individual or practice-based learning needs which require to be addressed in the short or medium term.

It may also be useful and necessary to share specific findings with relevant stakeholders, for example:

- Other general medical practices.
- Secondary care

### DISCUSS AND IDENTIFY IMPROVEMENT OPPORTUNITIES

An example of the educational application of the trigger tool:

#### **Table 4: Example of improvement opportunity**

A GP trainee detects 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 that patients prescribed anticoagulants require more intensive monitoring during illness is shared with clinical team members during the practice meeting.

## PRIORITISING IMPROVEMENT EFFORTS

In any review (e.g. a sample of 25 medical records) it is likely that a number of avoidable harm incidents will be identified, mainly of a low grade of severity.

In considering how they can prevent or reduce harm and improve care quality the review team will need to prioritise actions.

Risk priority numbers can be utilised to make decisions about what to prioritise based on severity, likelihood of recurrence, detection, preventability and origin (Refer Table 6 below)

The decision about what to prioritise is probably best decided through discussion, taking into account the following factors:

- Severity & likelihood of it occurring again
- Origin & Preventability
- A feasible solution exists within the practice

**Table 5: Prioritising improvement efforts**

Harm incident characteristic	Low = 1	Medium = 2	High = 3
<b>Severity</b>	1	2 & 3	4
<b>Occurrence</b> (Likelihood of event occurring again or its relative frequency)	Yearly or less	Monthly or less	Weekly or less
<b>Detection</b> (Likelihood of event being detected)	Audit, automatic inspection or 'shut off'	Double-check process in place	Requires manual inspection or no known method
<b>Preventability</b> (Perceived ability of reviewer or team to prevent future events through intervention)	Harm is recognized and accepted complication of appropriate clinical care	Additional resources have to be earmarked	Feasible changes to systems and addressing individual learning needs will suffice
<b>Origin</b> (Health care setting where harm originated)	Secondary care	Mixed	Primary care

## PRIMARY AND SECONDARY CARE INTERFACE

### Consider appropriate feedback

If a practice discovers concerning and frequent events relating to secondary care, it would be appropriate to approach the relevant groups for feedback and discussion.

### Consider a joint Significant Event Analysis

If a serious harm was discovered involving care across the interface, a joint serious adverse event review may be the appropriate action to take.

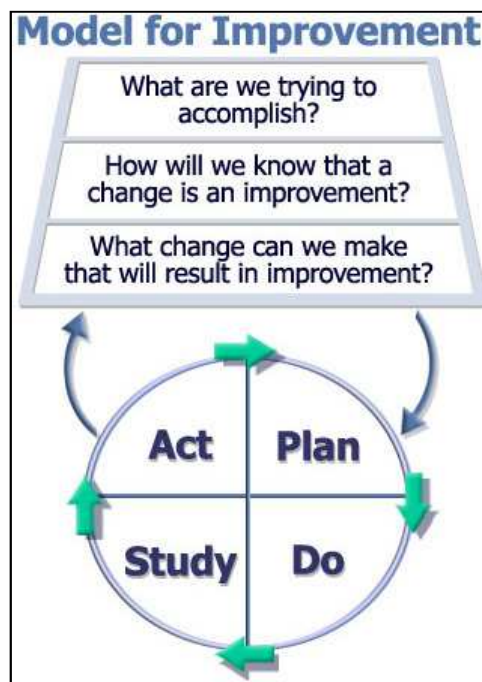
## PRACTITIONER LEVEL

### Identify personal learning needs for improvement, appraisal and governance

While the aim of the review is for systems improvement, there may be occasions when doctors and nurses recognise knowledge gaps within the practice. -

## UNDERTAKING IMPROVEMENT

Different improvement methodologies are available. One method that is currently promoted extensively in all UK patient safety initiatives is the IHI model for improvement. This method consists of three questions and a PDSA cycle.



Regular application of the trigger tool has a number of potential benefits:

Additional harm may be detected (providing further opportunities for improvement) with each review

Comparison of serial measures may provide evidence of efficacy of improvement initiatives

Further educational needs may be identified

It provides a measure of an individual clinician or practice's commitment to safety to a variety of potential stakeholders.

These benefits may be realized by repeating reviews within the same patient population. We recommend that reviews should take place at **three monthly intervals** and that the **same method** should be followed wherever possible.

We recommend that a folder is developed to document trigger tool reviews. This could be an electronic folder or a physical one and this is kept for subsequent appraisal. The team needs to decide what they want to keep for each review but we would advise that Significant Event Analyses, Audits, PDSAs and the actual trigger tool review are documented. This folder may be used in the future as a reminder of past work to plan audits for effectiveness of improvement. It may also be helpful in terms of audits for MOPS/Nursing CME or Competencies. Finally it is potentially a valuable source of evidence to external agencies of a practice engaging in quality improvement work.



## APPENDIX 1: TRIGGER DEFINITIONS

Note: The 'review period' is 3 months

1	≥2 consultations with a prescribing practitioner in the same general practice within 7 days	Multiple consults can be the result of the patient being very unwell, needing review or the treatment not progressing as predicted. Look for unintended events from other care/treatment that required consultation with others afterwards.
2	New diagnosis of cancer within 3 months	New diagnosis of cancer within the review period.
3	New Allergy/Adverse reaction add to PMS	There is an allergy/adverse drug reaction documented through the 'alert' system in the PMS within the review period.
4	Cessation of medications	Look for 'stop' or 'discontinue' of medication and the reason that this was done. This may be due to factors such as drug interactions, development of side-effects, or medication no longer indicated. It may also be related to a prescription error. Do not count medication initiated as a trial unless there was a premature stop to the trial
5	Reduction in medication dose	Look for change in the dose of a medication and the reason for the decrease in dose. This may be due to factors such as change in medication regimen, development of side effects, or drug interactions.
6	Out of hours / A&E attendance within the review period.	Look for the reasons, could indicate for example an inadequate response to GP initiated treatment, incorrect diagnosis, inability to access GP review or deterioration of the patients health.
7	Hospital discharge	Refers to <i>any</i> unplanned (e.g. emergency admission) or planned admission (e.g. elective surgery) during the period of review. The discharge correspondence and the period just before and after the admission should be screened for the presence of potential patient safety incidents.
8	Hb < 100	Refers to haemoglobin of < 100.0 g/dl recorded during the period of review. It is a prompt to consider the possibility of a patient safety incident and general care of a patient and does not by itself signify error or harm.
9	eGFR <35	Patients with results outside of range have a greater risk of experiencing an adverse event. The lab value is only a trigger, so look for evidence of harm.
10	Death within review period.	

