How to Use Trigger Tools

www.1000livesplus.wales.nhs.uk
Acknowledgements

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This guide was published in April 2010 and will be reviewed in April 2012. The latest version will always be available online on the programme’s website: www.1000livesplus.wales.nhs.uk

The purpose of this guide

This guide has been produced to enable healthcare organisations and their teams to successfully implement a series of interventions to improve the safety and quality of care that their patients receive.

Further ‘Tools for Improvement’ guides are also available to support you in your improvement work:

- How to Improve
- How to use the Extranet
- A Guide to Measuring Mortality
- Improving Clinical Communication using SBAR
- Learning to use Patient Stories
- Reducing Patient Identification Errors

These are available from the 1000 Lives Plus office, or online at www.1000livesplus.wales.nhs.uk

Where reference is made to 1000 Lives Plus, this includes the work undertaken as part of the 1000 Lives Campaign and the second phase of this improvement programme - 1000 Lives Plus.

The guide uses examples from the former NHS organisational structures, and where possible this has been acknowledged.

We are grateful to The Health Foundation for their support in the production of this guide.
Improving care, delivering quality

The 1000 Lives Campaign has shown what is possible when we are united in the pursuit of a single aim: the avoidance of unnecessary harm for the patients we serve. The enthusiasm, energy and commitment of teams to improve patient safety by following a systematic, evidence-based approach has resulted in many examples of demonstrable safety improvement.

However, as we move forward with 1000 Lives Plus, we know that harm and error continue to be a fact of life and that this applies to health systems across the world. We know that much of this harm is avoidable and that we can make changes that reduce the risk of harm occurring. Safety problems can’t be solved by using the same kind of thinking that created them in the first place. To make the changes we need, we must build on our learning and make the following commitments:

- Acknowledge the scope of the problem and make a clear commitment to change systems.
- Recognise that most harm is caused by bad systems and not bad people.
- Acknowledge that improving patient safety requires everyone on the care team to work in partnership with one another and with patients and families.

The national vision for NHS Wales is to create a world class health service by 2015: one which minimises avoidable, death, pain, delays, helplessness and waste. This guide will help you to take a systematic approach and implement practical interventions that can bring that about. The guide is grounded in practical experience and builds on learning from organisations across Wales during the 1000 Lives Campaign and also on the experience of other campaigns and improvement work supported by the Institute for Healthcare Improvement (IHI).
Introduction

The concept of using Trigger Tools for case note review was developed by the Institute for Healthcare Improvement (IHI). Trigger Tools are designed to provide a measure of harm experienced by patients in terms of adverse events. In the IHI Global Trigger Tool, the definition used for harm is as follows:

“Unintended physical injury resulting from or contributed to, by medical care that requires additional monitoring, treatment or hospitalization, or that results in death.”

Traditional efforts to detect adverse events have focussed on voluntary reporting and tracking of errors. Trigger tools provide additional information often not ascertained by these methods and can provide a measure of harm in a system.

Trigger tools are not just an outcome measure of harm during healthcare but an important learning tool. They can be central to providing an organisation with insight into how its systems function to provide quality of care to patients.

This guide is designed as an adjunct to, not a substitute for Trigger Tool Training. It is strongly recommended that those undertaking case note reviews using the Trigger Tool have undergone training in their use.

When attempting to improve any system it is vital that there are measures associated that can indicate if the changes have led to an improvement. This is essential in healthcare for several reasons; firstly, the underpinning philosophy of all healthcare is to do no harm, and therefore an indication of the level of harm already in a system (a baseline) and a measure of the impact of changes on the amount of harm in that system is vital. Secondly, if you are to improve a process and thus reduce harm you need to understand both the level of harm already in the system and also the nature of the problem, namely what is the type of harm and where is it occurring?

Trigger Tools have the ability to provide a measure of overall harm in terms of the Adverse Event Rate usually in 1000 bed days and when undertaken on a regular basis can provide a measure for improvement. In addition Trigger Tools can provide a considerable amount of information about the healthcare system including where the harm is occurring and the degree of harm that patients experience. This focus on the patient also encourages a change in thinking so that adverse events that occur to patients are no longer considered as side effects of treatment, but as occurrences that can be avoided or mitigated against. The focus on harm rather than error moves attention away from individual blame and towards the systems in which patients are cared for.

It is important to also note however that Trigger Tools do not replace other ways of identifying harm such as incident reporting; rather the information gathered by using Trigger Tools can complement data gathered in other ways and together they can provide a much more complete view of systems.
Evidence Base

A range of approaches have been used to try and identify adverse events in association with medical care. These include: retrospective case note review; incident reporting; direct observation of care; staff and patient surveys; audit; complaints and surveillance systems.

The concept of using a Trigger Tool for the detection of adverse events was first described by Classen in 1991. The electronic tool was limited due to the need for customised software and expense. Rozich, Haraden and Resar adapted this electronic trigger tool methodology with the aim of broadening the scope and developing a robust, rapid, and comprehensive tool for detecting drug related adverse events. In a study involving 2800 records from 86 hospitals rates of adverse events identified were relatively consistent across the hospitals. Only 1.8% of adverse drug events identified by the trigger tool were also identified by the more traditional reporting methodologies such as incident reporting. Rozich et al also demonstrated that healthcare professionals could quickly and competently learn trigger tool methodology.

The IHI then developed a series of different trigger tools for the detection of adverse events in different care settings including surgical, perinatal, intensive and neonatal care. The knowledge gained from this work was used to develop the IHI Global Trigger Tool (GTT) in 2004 which is designed as a whole system measure. The IHI GTT consisted of a two stage review process with a primary reviewer, commonly nurses or pharmacists and a second review by an experienced physician. Experience of implementing the IHI GTT in a large hospital in the USA showed that harm rates were consistent, reproducibility between reviewers was high and cost was relatively low. A study looking at the impact of training showed that the following training in IHI GTT methodology reviewers achieved high levels of agreement on both the presence and severity of adverse events. The IHI also developed a UK version of the GTT in 2005.

In 2001 Vincent et al undertook a feasibility study to see if adverse events could be detected through hospital record review in the UK system. The study used a two-step review process as with the IHI GTT. Nurse reviewers used 18 predefined screening criteria to assess case records and any that screened positive were then screened by clinicians who identified any adverse events. Their results showed an overall adverse event rate of 11.7% in the case mix studied.

A UK study undertaken by Sari et al. also used a two-stage retrospective case note review and a two-part review form. As with the IHI GTT, the first stage reviews were undertaken by nurses and the second review by a trained hospital doctor. Of the 18 criteria, 10 were the same as in the UK GTT. Sari et al found that between 8.6% and 11% of hospital admissions were associated with adverse events and this was comparable with Vincent’s finding. A further paper by Sari et al evaluated the two stage retrospective review of case notes in comparison with incident reporting. They found that of the 110 admissions that had resulted in harm all of these were detected by the case note review but only 6 were detected by the incident reporting system.

An analysis in 2008 by Hogan et al of seven key data sources (Clinical Incident, Health and Safety Incident, Complaints, Claims, Inquest and Patient Administration databases along with case notes) indicated that case notes have the potential to identify the largest number of incidents and provide the richest source of information on such incidents.
Illustrating success / importance

**UK Global Trigger Tool**

Since October 2007 the UK Global Trigger Tool method has been used across Wales to collect adverse event data from all providers of secondary care. This represents the first measurement for harm at a national level in the UK and has provided an outcome measure for the 1000 Lives Campaign. This data has shown that 29,000 episodes of potential harm to patients have been avoided in the first twelve months of the Campaign (April 2008 to March 2009),

Baseline is represented by the mean average figure, from which the upper and lower limits have been derived.

Glan Clwyd Hospital, now part of Betsi Cadwaladar University Health Board (BCUHB), have been using the UK Global Trigger Tool consistently since 2005 as part of the Safer Patients Initiative and 1000 Lives Campaign. This hospital has achieved a sustained reduction in their Adverse Event Rate over this five year period from a median of 33.4 adverse events per 1000 bed days to 8.8 adverse events per 1000 bed days. This reduction has also been accompanied by a reduction in variation.

**Example from Ysbyty Glan Clwyd**

Adverse Event Rates per 1000 Admissions - YGC
Primary Care

For care which is provided by GPs there is no international method for measuring adverse event rates. This is in spite of a keen interest in safety from bodies like the Royal College of General Practitioners and the National Patient Safety Agency.

The development of the Primary Care Trigger Tool was an integral part of the 1000 Lives Campaign and is an area where Wales is among the leaders in improving safety in primary care.

One of the fundamental features of the new tool is looking at harm caused by failure to recognise or adequately manage a new presentation of an acute illness. If a patient’s problem does not respond to treatment or they develop an adverse reaction, they are likely to make another appointment. The patient may also visit out-of-hours services or an A&E department. It is these unscheduled re-attendances that are the triggers of possible harm. By noting which patients have made more than one appointment in a 10-day period, GP practices have the opportunity to go through each patient record and identify the reason for the re-attendance.

A trend in the triggers will provide the practice with areas for improvement and review.

The tool can also be used to highlight possible areas of improvement in the treatment and care of patients with chronic conditions who are taking at least three repeat medications. Possible triggers can include admission to hospital, abnormal blood test results or adverse drug reactions.

The tool is currently being trialled in a number of GP practices across Wales and every Health Board is supporting the development of the work.
How to Use Trigger Tools

References


2 Classen DC, Pestotnik SL, Evans RS, Burke JP. Computerized surveillance of adverse drug events in hospital patients. JAMA 1991;266(20):2847-51


6 UK Adverse Event Trigger Tool, Institute for Healthcare Improvement http://www.ihi.org/extranetng/content/d03978cc-f460-4fa9-967f-aa55f2ad27d3/0f699314-2498-44f9-9b3b-c15742845d0d/UK%20Adverse%20Event%20Trigger%20Tool%20Jan2005%20(v2).pdf


How to Use Trigger Tools

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Aim

Drivers

Interventions

The use of Trigger Tools as a measure of harm experienced by patients during healthcare

A reliable process for the selection and review of patient records.

A process for analysing results of the trigger tool review

Processes for reporting or communication of findings

Address themes or issues identified by the reviews

Apply exclusion criteria

Ensure any sample is random

Review all records

Establish a team of clinical staff trained in use of the trigger tool trained reviewers

Use appropriate trigger tool for clinical setting

Enter data gathered into a trigger tool analysis database

Report findings at partnership meetings, committees or board level as appropriate

Share learning with clinical staff

Undertake root cause analysis of incidents or themes identified

Undertake serious incident reviews

Review process of care to identify unreliable processes as indicated by levels of harm
How to Use Trigger Tools

The UK Global Trigger Tool (UK GTT)

To undertake Trigger Tool case note reviews a team of clinical reviewers is required. The team that undertakes the case note reviews should consist of at least three individuals trained in the use of the UK GTT. The reviewers should have a clinical background and should preferably include a nurse and a pharmacist. Another member of the team should be a senior doctor who does not need to be involved in initial reviews but is available to either confirm the findings or provide a clinical opinion where there is any uncertainty and help with attribution of the level of harm when adverse events are identified.

To ensure consistency it is preferable that the team of reviewers remains relatively stable over time. However, it is also important to consider succession planning and consider recruiting and training a core of reviewers.

A named link to someone in the Information Department who will generate the monthly randomised lists is also helpful. However, this person does not need to be involved in the case note reviews.

1. How to use the UK Global Trigger Tool (including Oncology Module)

■ The team should randomly select and retrospectively review 20 case notes each month (or 10 every 2 weeks). In order to do this you need a system to:
  □ Identify and list discharged patients for each month. This includes deaths not just live discharges.
  □ Identify those patients with a length of stay greater than 24 hours but less than 30 days.
  □ Exclusions - Notes to be excluded from the trigger tool case note reviews:
    □ Obstetrics
    □ Paediatrics
  □ Randomly select 20 case notes from this list using a random number generator.

■ Notes should be reviewed once the patient is discharged and discharge summaries and coding has been completed. To allow for the typing of discharge letters and clinical coding it is recommended that there is a delay in undertaking reviews for 3 months from the month of discharge.

■ Gather the notes required to a designated time and place.

■ Undertake the case note review using the UK GTT form as a template (Appendix 1) to search for triggers. (This form layout has been developed from the original UK GTT template by staff at Glan Clwyd Hospital, part of BCUHB.) The triggers are defined in Appendix 2.

■ Use all notes and do not favour the thin sets.
The review should include:

- The discharge summary
- The medication/prescription chart
- Laboratory results for that admission
- The operative/theatre documentation
- Nursing and medical documentation
- If time permits any other areas of the case notes

- Set a 20 minute time limit, once this is reached stop and move on to the next set of records.
- If there is more than one admission for an individual patient in a month, review the admission that was identified in the selection process.
- Once a trigger is identified review the notes in more detail to identify if harm occurred. If harm has occurred, rate its severity. (Appendix 4 - Severity ratings)

- Remember:
  - Triggers may not lead to harm
  - More than one trigger can contribute to one episode of harm
  - More than one trigger can contribute to several episodes of harm

- Record all the information gathered on the trigger tool UK GTT form. This includes triggers, any associated harm and the degree of harm.

- Enter all the data onto the UK GTT Analysis Spreadsheet. For instructions on the Analysis Spreadsheet see Appendix 6. Copies of the analysis tools for both the UK Global Trigger Tool and the version with the Oncology module can be found on the Resource page of the 1000 Lives Extranet.

- Other issues may be identified and these can be recorded in the comments section on the UK GTT form.

- The object is not to find every possible adverse event in every set of case notes reviewed. The 20 minute time limitation and the random selection of case notes aims to provide a practical measure over time and should be used to inform and evaluate the safety work in the health care organisation.

- To calculate the adverse event rate per 1000 days, use the following formula:
  \[
  \text{Total number of events} \times 1000 \\
  \text{Total length of stay}
  \]

Some literature/guidance on the IHI Global Trigger Tool advocates a “double review”. This is where 2 reviewers independently review each set of notes and discuss their findings to come to a consensus. This approach is recommended during training or whilst reviewers are inexperienced but for resource reasons this approach may not be sustainable in the long term.
Oncology Module
This module was developed by the staff at Velindre Cancer Centre with support from the 1000 Lives Campaign Team. The module is designed as an addition to the UK GTT and aims to identify adverse events experienced by patients being treated for cancer.

The same trigger tool methodology applies to this module.

The use of the Oncology Module at Velindre Cancer Centre as part of the UK GTT identified issues with specific processes of care that had not previously been considered to be problematic. These issues were then addressed by policy review, education and communication. The trigger tool enables monitoring over time to assess the effectiveness of these and other interventions.

The template for the UK GTT with Oncology module can be found in Appendix 3, the definitions for the oncology triggers are in Appendix 2.

Frequently Asked Questions about the UK Global Trigger Tool

Q. Is a sample of 20 notes in a large organisation statistically valid?

A. Trigger Tools use Statistical Process Control (SPC) methodology of small samples over time. The methodology is valid and has been used since the 1930s. A key factor in the success of this approach is to ensure that the process for selecting case notes is robust and therefore the notes selected are truly random. Trigger Tools have now been in use for 10 years and over 300 hospitals are now using them and obtaining consistent results.

Q. Are we likely to see any change in the adverse event rate by just sampling 20 notes?

For any changes to be seen reliable processes need to have been spread and sustainability maintained. If this is achieved then a change will be identified. However, this process may take a period of years. The methodology for using the tool must remain robust and consistent. The Trigger Tool may show a reduction in events related to specific interventions before a reduction is the overall adverse event rate is seen. For this reason analysis of all the Trigger Tool data is both important and helpful.

Q. Could the data from my organisation be used to compare with others?

The UK GTT is designed as a measure to track an organisation over time and identify whether or not care is becoming safer. It is not designed to benchmark between organisations. The Annual Operating Framework 2010 - 2011 for Wales states that LHBs and Trusts will be required to set appropriate local targets for the reduction of harm which will be assessed using the established Trigger Tool for hospitals and the Primary Care Trigger Tool. Local targets will be compiled as an all-Wales target for harm reduction.
Q. I am having trouble locating all 20 sets of notes - can I request more?

To allow for the typing of discharge letters and clinical coding it is recommended that there is a delay in undertaking reviews for 3 months from the month of discharge. If obtaining notes is still a challenge this could be extended up to 6 months maximum. If the 20 notes are still not available additional notes can be requested but this must be no more than an additional 5 sets of notes otherwise the randomisation will be not be maintained.

Q. What is the time lag between discharge and review?

As discharge summaries and coding need to have been completed, a delay from discharge to review of 3 months is optimal however up to 6 months is possible. A delay of more than 6 months is not recommended because of risk of disconnection from current interventions.

Q. If a patient has an adverse event that occurred prior to coming into hospital, does this count?

Yes, provided it meets the definition of harm related to medical care. All such events are counted because it is a measure of the patient’s experience of healthcare. It is important to note pre-admission events as the subsequent data analysis may indicate an opportunity for multi-disciplinary working across primary, secondary or tertiary care.
Primary Care Trigger Tool

Background

Traditional efforts to detect adverse events have focussed on voluntary reporting and tracking of errors. However public health researchers have established that only 10 to 20 percent of errors are ever reported and, of those, 90 to 95 percent cause no harm to patients. Primary Care needs a more effective way to identify events that do cause harm to patients. The use of a manual notes search to identify triggers, which are markers of adverse events, has been used extensively in hospital practice and its use is well established. This Tool has been devised to provide a practical and reliable means of identifying triggers in primary care.

This Tool does not replace conventional practices used to maintain safety in primary care such as audit, case review and significant case analysis. Rather it is a tool which sits in the background and, when used regularly, can demonstrate change in the amount of harm associated with medical interventions within a practice.

Definition of an “adverse event”

The primary care trigger tool has been independently developed, but its foundation follows from the work of the Institute of Healthcare Improvement (IHI) in developing the IHI & UK Global Trigger Tools.

The IHI Global Trigger Tool defines an adverse event as any physical harm to the patient. The question of whether the harm was preventable is not an issue in determining harm; such questions may produce a barrier to determining the cause of an adverse event.

The question that has been helpful is, “Would you be happy if this event in question happened to you?” if the answer is no, then it is probably an adverse event.

The IHI Global Trigger Tool specifically focuses on harm caused by acts of commission, rather than omission. Clearly a key feature of primary care is the early recognition and management of acute illness and so harm caused by a failure to recognise or adequately manage a new presentation of acute illness would be counted as an adverse event in the Primary Care Trigger Tool.

The tool categorises harm on a similar basis as the UK Global Trigger Tool and the National Coordinating Council for medication Error Reporting and prevention, that is:

- E: Temporary harm to the patient
- F: Temporary harm to the patient requiring intervention
- G: Permanent harm to the patient
- H: Harm requiring an intervention to sustain life
- I: Patient Death

(See Appendix 4)
The structure of the tool

The tool focuses on two areas of care:

- The management of patients presenting with a new problem (the acute care component)
- The management of patients with a chronic medical condition (the chronic care component)

(See Appendix 5 for a copy of the Primary Care Trigger Tool data collection sheet.)

Patients whose presenting problem does not respond to treatment or who develop an adverse reaction are likely to present at an unscheduled follow-up. They may also present to out-of-hours services or casualty. These unscheduled re-attendances are counted as triggers.

Surprisingly, re-attendance at the surgery has a better predictive value for harm than an out-of-hours attendance, but practices may find it easier to find and record out-of-hours attendances than unscheduled reviews. Either of these measures may be used for the tool, but the former is the preferred model and practices may need to develop solutions to facilitate the identification of these patients.

The chronic condition component is a more conventional notes review to look for the presence of triggers in those patients with chronic conditions.

Clinical or technical expertise

A suitably trained member of the Practice administrative staff can perform the IT searches and initial notes review. Judgements about harm and the category of harm require the input of a clinician.

How to perform the review

The trigger tool review should be performed regularly in order to demonstrate change. Improvement methodology suggests that at least six sets of data are necessary before any change can be discerned and so a two monthly review would enable change to be seen over a year.

The acute care component

- The practice should decide whether it is collecting unscheduled follow up appointments, or out-of-hours attendances.
- For unscheduled follow-up appointments, use practice systems, manual or IT, to identify those patients seen in the previous month who have consulted more than once in a ten-day period
- Review those notes and identify those who appear to have consulted for an unscheduled follow-up. Some practices have facilitated this by using a dedicated Read code, others by proactively noting and recording unscheduled follow-ups. Count those as triggers and look for evidence of harm.
For out of hours attendances, identify those patients who have attended
out of hours or casualty over the past month. For small practices, count
all of the patients, larger practices (>5,800 patients) may need to take a
random sample to give manageable numbers.

Review the notes of those patients and identify those who used the
out-of-hours service or casualty for help with a problem for which they
had attended their surgery within the previous ten days. Count those as
triggers and look for evidence of harm.

Where evidence of harm is found, grade the category of harm as
described above.

Harm is defined as:
‘Unintended physical injury resulting from or contributed to by medical care’
It should be judged from the perspective of the patient i.e. did this intervention,
or lack of intervention, by my doctor result in my suffering harm.

The chronic care component.

Use the information system to identify 20 patients who have:

■ A chronic disease heading (e.g. IHD, diabetes, chronic heart failure, COPD
or significant mental health disorder),

■ Who are taking at least 3 regular repeat medications

■ And who have been seen in the preceding 2 months.

Look at their notes, paper or computer, and identify triggers over the preceding 2
months.

With regard to haematology and biochemistry results we are principally looking
for evidence of change so that the following would count as triggers:

■ A fall of > 2 g/dl in Hb

■ A rise of 25% above baseline of serum creatinine

■ The development of abnormal LFT

■ Significantly abnormal [Na] <125 mmol/L or > 150 mmol/L

■ Significantly abnormal [K] <3 mmol/L or >6mmol/L

■ An INR >5

Helpful Tips for completion

Acute care component.

It is not necessary to trawl through these patients notes looking for other
triggers. The unscheduled follow up is the trigger and the notes are examined
to look for evidence of harm in relation to the initial presentation and
unscheduled follow up.
Identifying these patients is not always easy. It may be that a solution using Audit+™ may become available. Some practices may consider using a specific Read code to identify unscheduled follow-ups thus enabling an easy IT solution. Possible codes might be:

- 9N58 emergency appointment
- 9N5Z patient initiated encounter

Overall the acute care component is an important part of the tool and has demonstrated its effectiveness at picking up adverse event triggers in the delivery of care to patients presenting with acute problems.

**Chronic care component.**

It is usually straightforward to identify these patients using the practice information system.

It is then necessary to examine the notes of the individual patients, looking for entries in the preceding 2 months only. Look at clinical entries, letters and pathology results received in the previous 2 months only. With practice this can be achieved quickly. If triggers are found then look for evidence of harm and grade the degree of harm. Administrative staff can usually carry out the initial search; clinicians are probably in the best position to judge harm.

**Local examples of successes**

**Experience to date of one practice**

<table>
<thead>
<tr>
<th>Acute Care</th>
<th>Trigger</th>
<th>Harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unscheduled follow up in past month</td>
<td>68</td>
<td>16</td>
</tr>
<tr>
<td>Chronic care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital admission in previous 3 months</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Discontinuation of medication in past 3 months</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Abnormal Haematology or Biochemistry result in past 3 months</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Documented Adverse drug reaction in past 3 months</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>OOH consultation or A&amp;E attendance past 3 months</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**Summary of findings**

- 8% of patients attending more than once in a month were unscheduled follow-ups and a quarter of these showed evidence of harm.
- Over half of the chronic disease patients notes sampled revealed triggers in the previous 3 months and a quarter of these showed evidence of harm.
One surgery in Gwent changed their template for recording observations on under-5s. Another changed the way that they record and communicate information from home visits.

Both changes were made following use of the trigger tool.

**Primary Care Trigger Tool Frequently Asked Questions**

**Q. Why a tool for primary care?**

A. Primary care differs in the following ways

- The source and risk of harm differs from secondary care
- Rates of harm are lower and so a means of concentrating the search to maximise the chance of finding triggers is needed
- Provision of care is ongoing, you are not dealing with closed episodes of care

This is why it’s important to do both (acute and chronic) components of the trigger tool

**Q. Do I need to view all attendances or can I take a sample?**

A. You should look at all attendances, but bigger practices (a list size above 5,800) can choose a sample of 20 notes. Please indicate this on the data collection sheet.

**Q. How do I collect the data?**

A. A spreadsheet will be available which will help you to collate your data over time. The data will be yours but will also be aggregated at a national level to obtain a measurement of harm. Practice data will not be identifiable, but results will be available at a national level.

**Q. What support is available?**

A. An initial visit to your practice will be available from one of the GPs who developed the tool and continued support is available by phone or e mail.

**Q. How often should I run the trigger tool?**

A. Monthly is ideal, 6-weekly is acceptable but 2-monthly is the maximum interval.

**Q. Can our practice adapt the tool to suit our needs?**

A. The tool is not to be changed in any way as this will prevent your practice data being used as aggregated data at a national level.

**Reference**

1 Innovations Series 2007 IHI Global Trigger Tool for Measuring Adverse Events
   www.ihi.org/extranetmg/content/d03978cc-f460-4fa9-967f-aa55f2ad27d3/11962dba-0e96-43e0-89ee-f9f7c1
Reporting of Results for all Trigger Tools

Establish a mechanism for reporting the results from the Trigger Tool review. This will depend on the organisational structure but is appropriate should include the senior leadership team or partnership meeting and front line staff. Timely and regular reporting of lessons learnt from the reviews is important to ensure that the issues identified are addressed and improvements made.

Trigger Tool Top 10 Tips

For consistency, accuracy and to gain maximum benefits when using a trigger tool ensure that:

1. You are using the correct Trigger Tool for the clinical setting.
2. The trigger tool methodology is adhered to at all times. This includes correctly applying the inclusion/exclusion criteria.
3. There is a robust process for sampling/identifying and pulling records.
4. There is a correct randomisation process.
5. All notes selected are reviewed - do not exclude large volumes or those that are difficult to get hold of as this will introduce bias and skew the results.
6. Those undertaking the reviews have a clinical background.
7. There is consistency in who undertakes the reviews.
8. There is consistency of approach amongst the reviewers.
9. You use it as an improvement tool - the analysis tools provide a list of summary indicators (for example, frequently occurring triggers, conversion from trigger to harm) which can be used to target areas for improvement.
10. You share/communicate the learning from the reviews with colleagues and senior leaders.

Development Opportunities for Trigger Tools

The UK GTT can be used as part of a monthly mortality review. This has been successfully done in Glan Clwyd Hospital (now part of BCUHB). In Glan Clwyd they have found that using the tool to review deceased patients in addition to the corporate monthly review of 20 discharges is providing them with additional information which would not have been identified otherwise with different themes being identified from the triggers and types of harm.

The IHI has led in the development of a range of Trigger Tools details of which are available on the IHI site. Trigger Tools available include the Surgical, Perinatal, Paediatric and Adverse Drug Events. (www.ihi.org/IHI/Topics/PatientSafety/SafetyGeneral/Tools/IntrotoTriggerToolsforIdentifyingAEs.htm).
Helpful Resources

Links to online Campaign resources
www.1000livesplus.wales.nhs.uk

1000 Lives Campaign Extranet
www.ihi.org/extranetng

Further information on the use of the trigger tool is also available from the following documents which are all available on the Resources page of the 1000 Lives Campaign Extranet. www.ihi.org/extranetng/documents/index.aspx?contextGUID=d03978cc-f460-4fa9-967f-aa55f2ad27d3&action=view

Links to national and international online resources

Introduction to Trigger Tools for Identifying Adverse Events
www.ihi.org/IHI/Topics/PatientSafety/SafetyGeneral/Tools/IntrotoTriggerToolsforIdentifyingAEs.htm


Generating random numbers
http://support.microsoft.com/kb/828795
www.randomizer.org/form.htm

Links to other national patient safety campaigns

England
www.patientsafetyfirst.nhs.uk/content.aspx?path=/

Scotland
www.patientsafetyalliance.scot.nhs.uk/

Northern Ireland
www.hscsafetyforum.com/

Literature

UK Adverse Event Trigger Tool, Institute for Healthcare Improvement
www.ihi.org/extranetng/content/d03978cc-f460-4fa9-967f-aa55f2ad27d3/0f699314-2498-44f9-9b3b-c15742845d0d/UK%20Adverse%20Event%20Trigger%20Tool%20Jan2005%20(v2).pdf

Innovations Series 2007 IHI Global Trigger Tool for Measuring Adverse Events (please note the trigger tool in this document is different from the one used in this guide) www.ihi.org/extranetng/content/d03978cc-f460-4fa9-967f-aa55f2ad27d3/11962dba-0e96-43e0-89bb-390eef9f7c1/IHIGlobalTriggerToolWhitePaper2007.pdf
### APPENDIX 1

#### UK Global Trigger Tool Form

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<th>Harm indicate if yes</th>
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<th>Event description/comments</th>
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<td></td>
<td>Unplanned re-admission to hospital within 30 days</td>
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<td>“Sepsis”, Shock (septic &amp; anaphylactic) or cardiac arrest</td>
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<td>DVT/PE following admission evidenced by imaging &amp;/or D Dimers</td>
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<td>G7</td>
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<td>Complication of procedure or treatment</td>
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<td>Transfer to a higher level of care: 1. From another hospital 2. Within this hospital 3. To another hospital</td>
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#### Lab Test Module

##### Haematology

- High INR >5  
  - L1
- Transfusion  
  - L2
- Abrupt drop in Hb or Hct >25%  
  - L3

##### Biochemistry

- Rising urea or creatinine twice patients baseline  
  - L4
- Electrolyte abnormalities  
  - L5
- Na <120 or >160  
  - L5
- K < 2.5 or >6.5  
  - L6
How to Use Trigger Tools

### Hypoglycaemia <3mmol/l
- Trigger Code: L7

### Raised Troponin >1.5ng/ml
- Trigger Code: L8

### Microbiology
- MRSA bacteraemia: L9
- Clostridium Difficile: L10
- Vancomycin Resistant Enterococcus: L11
- Wound infection: L12
- Nosocomial pneumonia: L13
- Positive blood culture: L14

### Surgical Care Module
- Return to theatre: S1
- Change in planned procedure: S2
- Removal/injury or repair of organ: S3

### Intensive Care Module
- Readmission to ICU or HDU: I1
- Unplanned transfer to ICU or HDU: I2

### Medication Module
- Vitamin K: M1
- Naloxone (Narcan, Nalone, Narcanti): M2
- Flumazil (flumazepil, Anexate, Mazicon, Romazicon): M3
- Glucagon or 50% glucose: M4
- Abrupt medication stop: M5

### Comments

### Harm category

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<td>required intervention to sustain life</td>
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<td>contributed to the patient’s death.</td>
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### Table

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### Total number

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<td>Events</td>
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Appendix 2

Trigger Definitions

(Adapted from the document - UK Adverse Event Trigger Tool, Institute for Healthcare Improvement)

General care module

G1 Early Warning Score

If an early warning scoring risk assessment system is in use, then the lack of an early warning score or an early warning score requiring a response may be a precursor to an adverse event. A call for medical review is also a trigger.

G2 Patient Fall

A fall represents a failure of care. A fall that causes no harm may be the result of medications or failure to assess risk. Any fall that causes harm regardless of cause is an adverse event by definition. Review all the notes for evidence of over-sedation, lethargy or other conditions that may have contributed to a fall. Falls resulting in admission to the hospital need should be reviewed for causation and attributed as an adverse event if appropriate.

G3 Pressure Ulcers

Pressure ulcers are adverse events if they occurred during a hospitalisation (includes grade 1 pressure sores). If they occurred in the outpatient setting consider the aetiology (over sedation, etc.) to assess if an adverse event occurred.

G4 Re-admission Within 30 days

An adverse event may not manifest until after the patient has been discharged from the hospital, especially if the length of stay is minimal. Whilst reviewing the records look to see if this admission was within a 30 days from a previous hospitalisation or did the current admission result in another future hospitalisation? Examples of adverse events may include surgical site infection, deep vein thrombosis or pulmonary embolism. Planned re-admissions for scheduled care are not applicable.

G5 Shock (including sepsis or anaphylaxis) or Cardiac Arrest / Crash Calls

All cases of shock or cardiac arrests need to be carefully reviewed. Not all crash calls are adverse events. Cardiac or pulmonary arrest occurring intra-operatively or in the theatre recovery unit should always be considered as an adverse event. In the first 24 hours post-operatively, it is also very likely to be an adverse event.
A sudden cardiac arrhythmia with a resulting crash call may well be associated with no adverse event. Failing to rescue a patient due to lack of recognition of physiological change in signs and symptoms would be an adverse event.

**G6 Deep Vein Thrombosis (DVT) or Pulmonary Embolism (PE) during admission evidenced by imaging**

Development of a DVT or PE during a hospital stay should be considered as an adverse event. Even if all appropriate preventive measures appear to have been taken, from a patient’s perspective this is a harmful event. If the hospitalisation occurs due to a DVT or emboli look for medication-related or other recent healthcare events.

**G7 Complication of Procedure or Treatment**

Evaluate the reason for the procedure. The procedure itself may be required due to an adverse event. Look for complications from any procedures. Procedure documentation does not always identify the complications especially if they occur sometime after the procedure.

**G8 Transfer to Higher Level of Care**

Transfers include either within hospital, to another hospital, or to your hospital from another. Transfer to an intensive care unit or high dependency unit is a trigger that an adverse event may have occurred. Admission to intensive care or HDU may have occurred when a patient’s clinical condition deteriorated perhaps secondary to an adverse event. When reviewing this trigger, look for the reasons for the transfer and the change in condition. For example, in the case of admission to intensive care following respiratory arrest and intubation, if the respiratory arrest was a natural progression of an exacerbation of chronic obstructive pulmonary disease (COPD), it would not be an adverse event, but if it was caused by a pulmonary embolism that developed post-operatively, or over-sedation of a patient with COPD it would be an adverse event.

**Lab test module**

**Haematology**

**L1 High INR (>5)**

Look for evidence of bleeding to determine if an adverse event has occurred. An elevated INR in itself is not an adverse event.

**L2 Transfusion**

Procedures can require intra-operative transfusion of blood products for replacement of estimated blood lost, but this has become less common with ‘bloodless surgery’. Any transfusion of packed red blood cells (RBC’s) or
whole blood should be investigated for causation including excessive bleeding, unintentional trauma of a blood vessel, etc. Transfusion of many units within the first 24 hours of surgery, including intra-operatively and post-operatively, will commonly be related to a peri-operative adverse event. Exceptions would be where excessive blood loss occurred pre-operatively. Fresh frozen plasma and platelets can reflect system problems that include failure to plan changes in anticoagulants prior to surgery and the necessity to reverse quickly in order to do the surgery.

**L3 Abrupt drop in Hb or Hct (>25%)**

Any drop of 25% or greater in Hg grams or Hematocrit (Hct) requires an explanation. All bleeding associated events might commonly see this as a trigger. Smaller “drops” obviously can also be associated with adverse events, but the question as to whether harm occurred needs to be subjectively answered. Anticoagulant use is frequently observed to be associated with this particular trigger.

**Biochemistry**

**L4 Rising urea or creatinine (>2x baseline)**

Review laboratory records for rising levels of either serum urea or creatinine. If a change of two times greater than the patient’s baseline levels is found, review medication administration records for medications known to cause renal toxicity. Review doctors progress notes, the medical history and examination for other causes of renal failure, such as pre-existing renal disease or diabetes that could have put the patient at greater risk for renal failure. Subjective judgment may be needed to determine whether renal failure was event-induced if multiple factors are identified.

**L5 Electrolyte abnormalities Sodium (Na+ <120 or >160)**

Electrolyte imbalance can either precede or be associated with adverse events. Not all patients with electrolyte abnormalities will be symptomatic. Review the case notes for evidence of symptoms.

**L6 Electrolyte abnormalities Potassium (K+ <2.5 or >6.5)**

Electrolyte imbalance can either precede or be associated with adverse events. Not all patients with electrolyte abnormalities will be symptomatic. Review the case notes for evidence of symptoms.

**L7 Hypoglycaemia (<3mmol/l)**

Not all patients will be symptomatic. If the patient is not symptomatic there is probably no adverse event. Review for associated use of insulin or oral hypoglycemics with evidence of symptoms and commonly followed by administration of glucose (oral or intravenous). Often the signs and symptoms
description will be noted in the nursing records where lethargy, shakiness, etc. will be described.

**L8 Raised Troponin (>1.5 ng/ml)**
A post-operative increase in troponin levels may indicate a cardiac event. Reviewers will need to use clinical judgement as to whether a cardiac event has occurred.

**Microbiology**
A Health Care Associated Infection (HCAI) is defined as a localised systemic condition that results from an adverse reaction to the presence of an infecting agent or its toxins that was not present or incubating at the time of admission (infections developing over 48 hours after admission are usually included).

Any infection starting in hospital needs to be considered as HCAI unless clearly originating from outside the hospital. Any infection occurring in hospital is an adverse event. Exceptions might be the urinary tract infection from outside the hospital, or infection being treated but not contracted in hospital.

**L9 MRSA bacteraemia**
MRSA bacteraemia is a blood stream infection caused by Methicillin Resistant Staphylococcus Aureus (MRSA). Review the microbiology reports for any positive MRSA bacteraemia.

**L10 Clostridium Difficile (C. difficile)**
If a patient is, or has been, on multiple antibiotics this adverse event may be observed. Review the microbiology reports for any positive C. difficile toxin positive results, this is an adverse event.

**L11 Vancomycin Resistant Enterococcus (VRE)**
Review the microbiology reports for any VRE. If VRE is identified in a patient, review the records for any HCAI.

**L12 Wound infection**
Review records (including clinical notes) for a wound infection including central line insertion site, surgical site or other wound infection. Any infection occurring in hospital is an adverse event. Exceptions might be a wound infection being treated but not contracted in hospital. Note a positive microbiology report is not an accurate diagnosis of a wound infection. There needs to be clinical confirmation.
**L13 Nosocomial (Health Care Associated) Pneumonia**
Any pneumonia diagnosed in the ICU needs to be looked at carefully. Nosocomial pneumonia should be considered where pneumonia is diagnosed after 48 hours of hospital admission. Re-admissions could also represent pneumonia from a previous hospitalisation, particularly if antibiotic resistant.

**L14 Positive blood culture**
A positive blood culture at any time during hospitalisation must be investigated as an indicator of an adverse event. Contamination of blood cultures occurs at around 10%, therefore a positive blood culture by a contaminant is not an adverse event. A positive blood culture of clinical significance should be regarded as an adverse event.

**Surgical care module**

**S1 Return to Theatre**
A return to surgery is a trigger to check whether an adverse event occurred during the previous surgery. An example of an adverse event is a patient who had internal bleeding following the first surgery and required a second surgery to stop the bleeding. Patients who have a second surgery that is exploratory, but does not reveal anything (looking for bleeding, or a suspected retained surgical instrument) would be considered as an adverse event. Sometimes a return to theatre after a previous surgical procedure is planned and is therefore not an adverse event. For example a procedure that must be completed in stages or a procedure that is completely unrelated to the first procedure and the result of another diagnosis, such as pacemaker insertion after a bowel resection. It is important to distinguish whether the additional procedure was planned.

**S2 Change in planned procedure**
An unexpected change in surgical procedure can be the result of unexpected findings after the procedure has started, a change in clinical condition during the procedure or due to an adverse event occurring during the procedure. When the procedure on the post-operative note is different from the procedure planned in the pre-operative note or documented in the surgical consent, a reviewer should look for details as to why the change occurred. An unexpected change in procedure due to equipment failure or missing equipment is an adverse event if the patient experienced additional pain, time in the hospital, is x-rayed immediately post operatively or other harm as a result of the different procedure.

**S3 Removal / Injury or repair of organ**
Review theatre notes and postoperative notes for evidence that the procedure included repair, injury or removal of any organ. Except in cases of trauma, where organ injury or suspicion thereof is the reason for surgery, this may indicate an operative event damaging the organ.
Intensive care module

I1 Re-admission to Intensive Care Unit (ICU) or High Dependency Care

Any re-admission to the ICU has a high probability of an event occurring. Look for a relationship to a precipitating adverse event. Examples might be pulmonary oedema secondary to excess fluid administration or an aspiration.

I2 Unplanned transfer to ICU or High Dependency Care

Transfer to an intensive care unit or cardiac care unit is a trigger that an adverse event may have occurred. The admission to intensive or critical care may have occurred when a patient’s clinical condition deteriorated perhaps secondary to an adverse event. When reviewing this trigger, look for the reasons for the transfer and the change in condition. For example, in the case of admission to intensive care following respiratory arrest and intubation, if the respiratory arrest was a natural progression of an exacerbation of chronic obstructive pulmonary disease (COPD), it would not be an adverse event, but if it was caused by a pulmonary embolism that developed post-operatively, or over-sedation of a patient with COPD it would be an adverse event.

Medication module

M1 Vitamin K

If Vitamin K was used as a response to a raised INR, review the chart for evidence of bleeding. The laboratory reports should indicate a drop in haematocrit or guiac-positive stools. Check the progress notes for evidence of excessive bruising, gastrointestinal (GI) bleed, hemorrhagic stroke, large haematomas or other bleeding episodes.

M2 Naloxone

Naloxone (Narcan, Nalone, Narcanti) is a powerful opiate (narcotic) antagonist. If it has been used, over dosage of opiates (narcotics) is a frequent finding.

M3 Flumazil

Flumazil (flumazepil, Anexate, Mazicon, Romazicon) is used to reverse the effects of benzodiazepine sedation. If administered, look for the reason for this and assess if harm occurred. Over-sedation in an elderly patient requiring administration of Flumazil would be an adverse event.

M4 Glucagon or 50% glucose/dextrose

The administration of glucagons or 50% glucose/dextrose suggests the patient may have experienced an adverse event related to hypoglycaemia. The chart
should be reviewed for associated use of insulin or oral hypoglycaemics with evidence of symptoms which are commonly associated with hypoglycaemia followed by administration of glucose/dextrose or glucagon (oral or intravenous).

M5 Abrupt medication stop
In the doctors orders, whenever “hold” or “stop” a medication order appears, look for the reason this was done. Frequently it indicates an adverse event of some kind.

Oncology module (Oncology Tool Only)
O1 Mucositis/stomatitis
Patients undergoing radiotherapy and/or chemotherapy with a grade 3-4 toxicity that requires IV hydration because of erythema, oedema or ulcers. Patients may also require parenteral or enteral nutritional support

O2 Skin desquamation
Radiation dermatitis/desquamation resulting in grade 2-4 toxicity. From moderate to brisk erythema or a patchy moist desquamation in skin folds up to generalised exfoliative or ulcerative dermatitis and/or skin necrosis

O3 Palmar plantar syndrome (Hand-foot skin reactions)
Grade 3 and above toxicity following chemotherapy, causing skin changes or dermatitis which results in pain and interferes with the patient’s normal functions.

O4 Diarrhoea
Patients who develop grade 2-4 toxicity causing at least 4 episodes of loose stools within 24 hours which may be as a result of radiotherapy and/or chemotherapy. Incontinence may be associated with this. Physiologic consequences requiring intensive care or hemodynamic collapse.

O5 Constipation
Patients with a normal daily bowel action who develop constipation and do not have their bowels opened for more than 3 days. Have patients received stool softener or specific bowel care as per management plan?

O6 Dysphagia
Grade 2-4 toxicity - patients requiring predominantly pureed, soft or liquid diet up to complete obstruction (unable to swallow saliva).
07 Aspiration
Aspiration pneumonia that develops due to the entrance of foreign materials that enter the bronchial tree, usually oral or gastric contents (including food, saliva, or nasal secretions). Depending on the acidity of the aspirate, a chemical pneumonitis can develop, and bacterial pathogens (particularly anaerobic bacteria) may add to the inflammation.

08 Vomiting
Grade 2-4 toxicity which means at least 2 episodes of vomiting in 24 hours which require IV fluids. Physiological consequences may require intensive care due to hemodynamic collapse. Have patients received adequate antiemetics and/or referral and review to Palliative care teams for symptom control management?

09 Urinary Tract Infection (UTI)
A urinary tract infection whether hospital-acquired or not.

010 Neutropaenia
Grade 2-4 toxicity with a neutrophils count of 1.0 - 1.4 x10⁹ /1 or lower. Not all patients will be symptomatic; if the patient is not symptomatic there is probably no adverse event.

011 Thrombocytopaenia
Grade 2-4 toxicity with platelets between 50 - 74 x10⁹ /1 or below. Not all patients will be symptomatic; if the patient is not symptomatic there is probably no adverse event.

012 Hyperglycaemia
Blood glucose level higher than 18 nmol/l.

013 Hypercalcaemia
Blood calcium level 2.6mmol/l or above with demonstrable symptoms of hypercalcaemia (constipation, excessive thirst, fatigue, anorexia, nausea, vomiting, increased urination, bone pain, confusion and depression. Symptoms are more common at high calcium blood values (3mmol/l). Severe hypercalcaemia 3.75-4 mmol/l is considered a medical emergency: at these levels, coma and cardiac arrest can result.
**014 Extravasation**

The administration of IV drugs into the surrounding tissue, by direct exposure i.e. the cannula has punctured the vein. In mild cases, extravasation can cause pain, reddening, or irritation on the arm where the cannula is inserted. Extravasation of cytotoxic drugs needs to be treated immediately as severe complications easily and quickly develop causing severe skin damage may including tissue necrosis.

**015 Vascular access infection**

Includes all peripheral cannulas and central lines such as Hickman and PICC lines.

**016 Unexpected medical or surgical emergency/sudden death**

May include bowel perforation, haemorrhage, and fractures.

**017 Sudden onset confusion.**

Any known or unknown cause requiring investigation and treatment.
### Appendix 3

**UK Global Trigger Tool with Oncology Module**

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### General Care Module

- Lack of early warning score, score/trigger requiring response or doctor called
- Any patient fall
- Pressure ulcers
- Unplanned re-admission to hospital within 30 days
- “Sepsis”, Shock (septic & anaphylactic) or cardiac arrest
- DVT/PE following admission evidenced by imaging &/or D Dimers
- Complication of procedure or treatment
- Transfer to a higher level of care:
  1. From another hospital
  2. Within this hospital
  3. To another hospital

### Lab Test Module

**Haematology**

- High INR >5
- Transfusion
- Abrupt drop in Hb or Hct >25%

**Biochemistry**

- Rising urea or creatinine twice patients baseline
- Electrolyte abnormalities
  - Na <120 or> 160
  - K < 2.5 or >6.5
- Hypoglycaemia <3mmol/l
- Raised Troponin >1.5ng/ml
### Microbiology

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### Surgical Care Module

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### Intensive Care Module

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### Medication Module

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<td>Glucagon or 50% glucose</td>
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<td>Abrupt medication stop</td>
</tr>
</tbody>
</table>

### Oncology Module

<table>
<thead>
<tr>
<th>Event Description/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucositis/stomatitis</td>
</tr>
<tr>
<td>Skin desquamation</td>
</tr>
<tr>
<td>Palmar plantar syndrome</td>
</tr>
<tr>
<td>Diarrhoea</td>
</tr>
<tr>
<td>Constipation</td>
</tr>
<tr>
<td>Dysphagia</td>
</tr>
<tr>
<td>Aspiration</td>
</tr>
<tr>
<td>Vomiting</td>
</tr>
<tr>
<td>UTI</td>
</tr>
<tr>
<td>Neutropaenia (neutrophils below 1)</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
</tr>
<tr>
<td>Hyperglycaemia (above 18 mmols/l)</td>
</tr>
<tr>
<td>Hypercalcaemia (Calcium above 2.6mmol/l)</td>
</tr>
<tr>
<td>Extravasation</td>
</tr>
<tr>
<td>Vascular access infection</td>
</tr>
</tbody>
</table>

### How to Use Trigger Tools

- **Microbiology**
  - MRSA bacteraemia
  - Clostridium Difficle
  - Vancomycin Resistant Enterococcus
  - Wound infection
  - Nosocomial pneumonia
  - Positive blood culture

- **Surgical Care Module**
  - Return to theatre
  - Change in planned procedure
  - Removal/injury or repair of organ

- **Intensive Care Module**
  - Readmission to ICU or HDU
  - Unplanned transfer to ICU or HDU

- **Medication Module**
  - Vitamin K
  - Naloxone (Narcan, Nalone, Narcanti)
  - Flumazil (flumazepil, Anexate, Mazicon, Romazicon)
  - Glucagon or 50% glucose
  - Abrupt medication stop

- **Oncology Module**
  - Mucositis/stomatitis
  - Skin desquamation
  - Palmar plantar syndrome
  - Diarrhoea
  - Constipation
  - Dysphagia
  - Aspiration
  - Vomiting
  - UTI
  - Neutropaenia (neutrophils below 1)
  - Thrombocytopenia
  - Hyperglycaemia (above 18 mmols/l)
  - Hypercalcaemia (Calcium above 2.6mmol/l)
  - Extravasation
  - Vascular access infection
### Harm category

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>contributed to or resulted in temporary harm to the patient &amp; required intervention.</td>
</tr>
<tr>
<td>F</td>
<td>contributed to or resulted in temporary harm to patients &amp; required initial or prolonged hospitalisation.</td>
</tr>
<tr>
<td>G</td>
<td>contributed or resulted in permanent patient harm.</td>
</tr>
<tr>
<td>H</td>
<td>required intervention to sustain life</td>
</tr>
<tr>
<td>I</td>
<td>contributed to the patient’s death.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total no. Triggers</th>
<th>Trigger Codes</th>
<th>Total Length of Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. Events</td>
<td>Event Codes</td>
<td>Harm Category</td>
</tr>
</tbody>
</table>

The Oncology Module was developed the Velindre Cancer Centre with support from the 1000 Lives Campaign.
Appendix 4

Severity Ratings

The IHI Global Trigger Tool adapts the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) Index for Categorizing Errors.

NCC MERP brings together leading health care organizations to meet, collaborate, and co-operate to address the interdisciplinary causes of errors and to promote the safe use of medications.

Although originally developed for categorizing medication errors, these definitions can be easily applied to any type of error or adverse event.

The IHI Global Trigger Tool counts only adverse events — harm to the patient (as defined above), whether or not the result of an error.

**Category E:** Temporary harm to the patient and required intervention

**Category F:** Temporary harm to the patient and required initial or prolonged hospitalization

**Category G:** Permanent patient harm

**Category H:** Intervention required to sustain life

**Category I:** Patient death
## Appendix 5

### Primary care trigger tool

<table>
<thead>
<tr>
<th>Practice</th>
<th>Date</th>
<th>List Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Acute Care Component** - Please choose one of the triggers below NOT both

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients seen in previous month on more than one occasion in ten days.</td>
<td></td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td></td>
</tr>
<tr>
<td>Patients who have attended either OOH or A&amp;E in the last month.</td>
<td></td>
</tr>
</tbody>
</table>

**Trigger:** Number of patients seen in past month as an unscheduled review.

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients who have used an out-of-hours provider within ten days of a consultation (either every patient or sample of 20 if list size above 5,800).</td>
<td></td>
</tr>
</tbody>
</table>

Please indicate with a ✓ if you have reviewed all notes or just a sample, giving the sample size

<table>
<thead>
<tr>
<th>All notes</th>
<th>Sample</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Chronic Care Component

**20 sets of notes to be reviewed**

<table>
<thead>
<tr>
<th>Grade of harm</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of triggers</th>
<th>Number showing harm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hospital admission in previous 2 months**

**Discontinuation of medication in past 2 months**

**Abnormal Haematology or Biochemistry result in past 2 months**

**Documented adverse drug reaction in past 2 months**

**OOH consultation or A&E attendance past 2 months**

<table>
<thead>
<tr>
<th>Grade of harm</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E</td>
</tr>
</tbody>
</table>

### Summary

**Total number of acute and chronic care triggers**

**Total number of patients showing evidence of harm**

**Harm rate (number of patients harmed/ List size )**
Appendix 6

UK Global Trigger Tools analysis spread sheet

Overview of pages within the tool and instructions

Content page

Enter your organisation name and the first month of data here. Date format (MM YYYY). This can be located within the Setup section of the content page, which is highlighted by the red box.
**Data entry**

Perform the case note review and enter the relevant data into the Data Entry sheet.

Enter the results of the review of your 20 case notes here. Click the ‘Store in database’ button to add this month to the database.

**Data Entry Sheet**

Enter the results of the review of your 20 case notes here. Click the ‘Store in database’ button to add this month to the database.
**Viewing performance**

View your performance on the Bar charts or Run charts sheets.

**Bar charts**

Display bar chart of selected analysis. Choose from list available. Click on the arrow to the right of the drop down box to display full list of indicators. Then click on the indicator which you want to view in the chart.

**Illustration of the Pareto charts included within the analysis tool**
Run charts
Display run chart of selected analysis. Choose from list available. Click on the arrow to the right of the drop down box to display full list of indicators. Then click on the indicator which you want to view in the chart.

Note that the data required for the Extranet can be found in a table on this sheet.

Illustration of run charts included within the analysis tool
**Database**

This sheet contains the data for all the months for which you have entered data in the Data entry sheet.

**How do I move around?**

Use the Navigation bar at the top of each screen to move between sheets. Click on the button for the sheet you want such as:

**How do I print charts?**

On the Charts sheet, click on the printer icon (see right) to print out the chart on A4 paper.

*If you require any modifications to the spread sheet, please contact 1000 Lives Plus on (029) 2082 7651. [www.1000livesplus.wales.nhs.uk](http://www.1000livesplus.wales.nhs.uk)*
Improving care, delivering quality

If we can improve care for one person, then we can do it for ten.

If we can do it for ten, then we can do it for a 100.

If we can do it for a 100, we can do it for a 1000.

And if we can do it for a 1000, we can do it for everyone in Wales.

www.1000livesplus.wales.nhs.uk