UNIT NO. 3

SIGNIFICANT EVENT ANALYSIS

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ABSTRACT

Significant event analysis (SEA) is a method of clinical quality audit involving a qualitative method of reviewing and learning from a single event or case, which is thought to be 'significant' by a member of the healthcare team. It is different from conventional criterion based medical audit, which is quantitative in its approach. A significant event can be administrative or clinical in the clinical practice. Significant events include: (1) Confirmation of good practices, (2) Near miss, (3) Errors and (4) Adverse events. SEA is a team-based activity with emphasis on learning from the event and changing practice (where possible) in order to reduce the occurrence of the event in future. It provides a structured way by which an event/ case is reviewed and is successful in an environment where the team members are open to share and report in a 'no-blame' setting. The focus is centered on the team looking at "what happened" and "why" with the aim to learn from the event and change for the better. Four questions are asked: What happened? Why did it happen? What have you learned? What have you changed? The SEA report is made on the answers to these four questions. SEA has been shown to be a useful adjunct activity to conventional audit.

INTRODUCTION

Significant event analysis (SEA) is a method of clinical quality audit involving a qualitative method of reviewing and learning from a single event or case, which is thought to be 'significant' by a member of the healthcare team. It is different from conventional criterion based medical audit, which is quantitative in its approach.

SEA traces its origins back to the development and use of a research method developed during World War II by Dr Flanagan called the *Critical Incident Technique* described in 1957[1]. The aim was to reduce speculation and guesswork during review and focus on establishing the facts. The initial critical incident technique was widely used as a research method in other disciplines, especially social sciences.

In the mid 1990s, a randomized controlled trial involving 20 mixed practices in England was undertaken to ascertain the usefulness of SEA in the primary healthcare setting[2]. Ten randomly assigned practices were tasked to do either SEA or conventional audit for 12 months. The researchers concluded that SEA was a worthwhile activity, which can enhance performance review. It can be promoted as an adjunct to conventional audit but not as a replacement. The modern method of SEA combines the review of a single case/ event with the scientific rigours of research methodology.

Currently, in the United Kingdom, SEA is widely promoted and a required activity in primary health care for various organisational and professional requirements. It is a fundamental part of the vocational training programme requirements for the award of the Diplomate Membership of the Royal College of General Practitioners (MRCGP)[3].

It is also a requirement for the clinical quality section of the award for the MCFP (Singapore) for doctors with a GDFM. The requirement is three SEA or a clinical audit.

DEFINITION OF A SIGNIFICANT EVENT

A significant event may be defined as "Any event thought by anyone in the team to be significant in the care of patients or the conduct of the practice." (Pringle et al, 1995)[4,5]. The word "significant" is not explicitly defined and so implies that a certain degree of latitude as to the exact types significant events is possible. Significant events can comprise of clinical events or administrative events in a healthcare practice. Table 1 lists examples of significant events.

Table 1. Examples of significant events

Administrative events
o Case notes misfiled
o Dispensing errors
o Laboratory report received, not acted upon
o Wrong patient information
o Breach of medical confidentiality
o Complaints from patients or patient's relatives
o Case Sheets not available during consultation
o Communication failures between staff
Clinical events
o Prescribing error, leading to accidental overdose requiring hospitalization
o Prescribing error, patient given paracetamol despite known drug allergy
o Insufficient specimen obtained with performing a cervical smear
o Missed diagnosis of acute appendicitis
o Delayed diagnosis of cancer
o Unexpected death in the clinic
o Poor control of blood pressure leading to stroke

TYPES OF SIGNIFICANT EVENTS

There are at least 4 types of significant events. They are described below with an example of each type for illustration.

1. Confirmation of good practice (celebration)

The event could highlight the work processes or systems in place, which had resulted in a favorable outcome in patient care. This component in SEA allows for good practices to be identified and due credit given.

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Example:
The team of doctors and nurses responded well to the collapse of a middle-aged man who presented with severe chest pain. He was suspected to have acute myocardial infarction. All necessary equipment for resuscitation was within easy access and patient was resuscitated promptly. The ambulance was called immediately and the patient was transported to the hospital. The patient later recovered in the cardiac intensive care unit in hospital. The lessons learnt are having the necessary equipment for resuscitation within easy access and the staff prepared for such an event results in successful rescue.

2. Near Miss (incident)

In this situation, an event or omission of, or a sequence of events and omissions, arising from clinical care fails to develop further, whether or not as a result of compensating action, thus preventing injury to a patient.

Example:
A elderly patient was hypotensive with a blood pressure of 90/50 mmHg. It was discovered she was prescribed with Enalapril 10mg three times a day instead of once a day. Fortunately, no adverse event had occurred up to the time of blood pressure measurement during routine consultation. The dosing regimen was corrected. The lesson learnt is the need to consciously check the frequency of dosing to make sure that this is correct.

3. Error (mistake)

The failure to complete a planned action as intended. It can also be as a result of the use of an incorrect sequence of actions to achieve a specific aim. The error may result in a critical event leading to injury or even death.

Example:
Failure to check patient's identity with that in the case folder. As a result, patient's consultative details were written into the wrong case folder. When the patient tried to collect medication at the pharmacy, the name of the patient and that of the patient sticker on the prescription form did not tally. The error was discovered by the pharmacy staff and action taken to correct the error. The lesson learnt is the need to consciously check that the patient and case folder tallies before beginning the consultation.

4. Adverse event (accident)

An adverse event occurs when physical and/ or psychological injury to a patient happens as a result of an event or the omission arising during clinical care. Adverse events are usually critical events.

Example:
A patient who had a known allergy to non-steroidal anti-inflammatory agents was prescribed voltaren for headaches and developed an anaphylactic reaction. He was admitted to the hospital for observation and treatment. The lesson learnt is the need to consciously confirm that the patient does not have a known allergy to a medication to be prescribed.

USES OF SEA

Regular use of SEA by a healthcare team can help to:

- Identify gaps in the system
- Identify learning needs
- Identify areas where a conventional audit may be useful
- Address risk management issues
- Facilitate reflective learning
- Promote patient safety
- Improve patient care
- Facilitate team building and improve team dynamics
- Increase respect and trust between healthcare team members.

PITFALLS AND SUCCESS FACTORS

SEA is meant to be a team-based activity with emphasis on learning from the event and changing practice (where possible) in order to reduce the occurrence of the event in future. It provides a structured way by which an event/ case is reviewed. This method of analysis derives its success and implementation in an environment where the team members are open to share and report in a 'no-blame' setting.

The focus is centered on the team looking at "what happened?" and "why?" The main emphasis is to learn from the event and change for the better. Hence the team identifies problems in the system and not focus on the mistakes of the member in the care team. Mature and open group dynamics is essential for success for this method of review. Taken with a correct attitude, SEA is a worthwhile and useful complementary activity to conventional audit.

The selection of topics for SEA is also important as wrong selection can lead to potential misunderstanding and conflict in the healthcare team. Some events that are deemed inappropriate for discussion include:

- Events where individuals or group of staff have a hidden agenda
- Events that highlight poor individual performance (e.g. lateness, work attitudes, work difficulties, skill competence etc)
- Events pertaining to personal matters
- Events where confidentiality may be breached (e.g. state of staff health)
- Issues such as pay or working-hours.

FORMAT OF A SEA

Four questions are asked: What happened? Why did it happen? What have you learned? What have you changed?[5,6,7] The SEA report is made on the answers to these four questions (Table 2).

Most practices can implement SEA as part of its ongoing clinical quality initiative. It should involve a multi-disciplinary team approach. In a small GP practice, this can comprise of

the clinic assistants, and doctor(s). For larger organizations such as group practices and the polyclinics, where nursing staff and paramedical staff form part of the team, these are also included.

The SEA team should set aside time for event reporting and analysis. A regular time slot, for example one hour every two months can be a good start. A champion for the team can be appointed to administer the meeting, remind healthcare staff to record significant events and ensure documentation and submission of SEA reports for evaluation. It is helpful to draw up a list of core events comprising of clinical and administrative matters that should be discussed (Table 1 lists some examples). The list is not exhaustive and members of the SEA team could come up with a core list applicable to the nature of their practice. Other events deemed of significance can also be noted and discussed.

The team should go through the list of significant reports received for systematic discussion. The following main conclusions can be derived from the discussions:

1. Celebration of good practices
   The event highlights examples of good practices and serves to encourage staff on a job well done.
2. No action
   In this situation, nothing more could be done to improve the outcome. An example would be a patient who has end-stage renal failure who does not want any dialysis and after being referred to the hospital for severe fluid overload dies as a result.
3. A conventional audit is needed
   Sometimes, as a result of SEA, a problem is identified which would serve as starting point for audit. An example for audit would be the number of asthmatics who are classified and treated appropriately with inhaled corticosteroids.
4. Immediate change
   Deficiencies in the system can also be uncovered as a result of SEA. An example would be the implementation of clear processes to ensure abnormal laboratory results are brought immediately to the attention of the doctor.

The format for reporting significant events for SEA used in the west of Scotland deanery comprises the following: (Table 2). The report consists of answers to the four questions asked[8].

Table 2. The Four Questions to Ask in a SEA and Report

1.	**What happened?** In this section of the report, all of the facts relating to the identified significant event should be described so that those reading the report can get a clear picture of the event- including dates and times. The significant event being described should be evaluated because it deals with a quality of care or patient safety issue, or has personal impact on staff or an effect on the practice as a whole.
2.	**Why did it happen?** In this section clear reasons should be provided as to why the event occurred based on the evidence collated from those directly and indirectly involved. This allows the team to identify and focus on the issues that may require to be addressed.
3.	**What have you learned?** An explanation should be given of any learning you and the team have identified. For example, these may be related to learning issues concerned with therapeutics, disease management or administrative procedures. However, it could also reflect a learning experience in dealing with patients, colleagues, staff, or other organizations.
4.	**What have you changed?** With most significant events, a change in some aspect of care is required to improve the quality of care and/or minimize the risk that a similar event will occur. If this is the case then a description of the change actually implemented should be given rather than a "wish list" of thoughts, which may minimize risk but have not yet been carried out. On occasions it may not be possible to implement change either because the likelihood of the event happening again is so rare or because change is out of the control of the individual or the organization. If this is the case, then the reasons behind this should be clearly documented. Finally, significant events need not necessarily be adverse events or near misses, but can reflect high quality care. In this case, the reason for not changing any aspect of care can be easily documented, as it is obviously not required.

Reproduced from RCGP Scotland- Revalidation Toolkit [section 3A(3) Good Clinical Care (Review on Clinical Practice- Significant Event Analysis)].Acknowlegments to Bowie P, Mckay J and Lough M.7

APPLYING THE PRINCIPLES TO AN EVENT

A sample of a SEA report is presented in Table 3.

Table 3. Significant Event Analysis (Case study) SEA report

Title: A near miss event on the prescription of antibiotics to a patient with known drug allergy
Date of significant event: 29 September 2004
Date of significant event meeting: 2 October 2004
Date report complied: 3 October 2004

What happened?

A patient visited the polyclinic in the morning and was attended to by a medical officer. He was diagnosed to have upper respiratory tract infection and given medications including antibiotics- amoxycillin. When the patient went to the pharmacy counter to collect his medication, the pharmacist casually asked if he had any drug allergy to which he replied being allergic to penicillin. The pharmacy called the doctor on the telephone and informed him of the allergy. The medication was then changed to erythromycin.

Why did it happen?

The doctors, nurse managers, and pharmacy manager discussed the event at a clinic meeting and identified the following issues that could have contributed to the event: The patient was a first time visitor to the polyclinic and hence there were no previous medical records. The doctor who attended to the patient did not ask him if he had any drug allergy when prescribing amoxycillin, neither did the patient volunteer the information on drug allergy. It was not the routine of the pharmacist to routinely ask for drug allergy. There was also a high volume of prescriptions to process. The allergy was noted only because the pharmacist happened to casually ask for the information on allergy for this particular patient. A potential adverse event of drug allergy was avoided.

What has been learned?

A history of drug allergies is an important piece of information needed from the patient in order to prevent the accidental prescription of medications to which the patient may be allergic to. Prescribing amoxycillin in a patient with a known allergy to penicillin could have resulted in a anaphylactic reaction and possible clinical complications and even litigation. Patients may not voluntarily offer such information and it is the responsibility of medical staff to ask the patient.

What has been changed?

The clinic decided to implement the following: Reminders to check for drug allergy are placed strategically to remind doctors during consultations. They are also encouraged to enter allergy information into the electronic system capturing patient's particulars so that an electronic alert can be generated for subsequent visits. Also, allergies are to be clearly written in red ink and stamped chopped "DRUG ALLERGY" in patient case notes. In addition, pharmacy technicians dispensing medications to patients also need to ask patients for a history of drug allergy. They should then inform the doctors concerned.

Name: Dr ABC

Signature:

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FURTHER READING

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LEARNING POINTS

- **Significant event analysis (SEA) is a method of clinical quality audit involving a qualitative method of reviewing and learning from a single event or case, which is thought to be 'significant' by a member of the healthcare team.**
- **A significant event can be administrative or clinical in the clinical practice.**
- **Significant events include: (1) Confirmation of good practices, (2) Near miss, (3) Errors and (4) Adverse events.**
- **SEA is a team-based activity with emphasis on learning from the event and changing practice (where possible) in order to reduce the occurrence of the event in future.**
- **The focus is centered on the team looking at "what happened" and "why" with the aim to learn from the event and change for the better. Four questions are asked: What happened? Why did it happen? What have you learned? What have you changed?**
- **The SEA report is made on the answers to these four questions.**
- **SEA has been shown to be a useful adjunct activity to conventional audit.**