



醫院管理局  
HOSPITAL  
AUTHORITY

# **ANNUAL REPORT ON SENTINEL EVENTS**

**1 October 2007 – 30 September 2008**

**HOSPITAL AUTHORITY  
HONG KONG**

**Jan 2009**

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# 1

## EXECUTIVE SUMMARY

1. On 1 October 2007, the Hospital Authority (HA) introduced a Sentinel Event Policy (the Policy) to further strengthen the reporting, management and monitoring of serious medical incidents. The Policy has enabled HA to learn from the reported events to improve the system and processes to enhance patient safety.
2. Under the Policy, a progress report will be published every six months. The first progress report (covered events of the first six months) was published in July 2008. This is the first annual report which covers all the sentinel events occurred from 1 October 2007 to 30 September 2008.
3. During the twelve month period ending 30 September 2008, a total of 44 sentinel events were reported (see Chapter 4). “Death of an in-patient (including suicide committed during home leave)” was the most common category of event (25 cases; 56.8%). The second most common category of event was “Retained instruments or other material after surgery / interventional procedure requiring re-operation or further surgical procedures” (10 cases; 22.7%). This was followed by “Surgery / interventional procedure involving the wrong patient or body part” (5 cases; 11.4%).
4. Twenty-six patients died in these events, including twenty-five patients who committed suicide and one maternal death associated with delivery. Such cases were classified under ‘extreme consequence’. The consequence was classified as ‘major’ or ‘moderate’ in ten cases and ‘minor’ or ‘insignificant’ in eight cases.
5. Important lessons learned from the root causes analysis of the events have been shared amongst all HA staff in the bi-monthly “HA Risk Alert”. System enhancement and work process reviews have been made to reduce the risk of occurrence of these events. Examples of these include revised workflow to enhance the counting of surgical gauzes, instruments, and guide wires to prevent inadvertent retention, use of 2D barcode technology as an adjunct for positive patient identification,

proposed standardized “Time-out Policy” to prevent wrong surgery / intervention being performed on wrong patients or at wrong sites.

6. Way forward: further measures and activities will be introduced to enhance patient safety, including:

- (a) To adopt a “Safe Culture, Safe System and Safe Practice” approach and to streamline the workflow to enhance the care process;
- (b) To make use of information system and technology to enhance safety in patient care, e.g. 2D barcode system;
- (c) To implement a “Safer Surgery” program, to adopt a pre-operative / peri-operative / post-operative check-list, Time-Out Policy, checking of integrity of instrument, correct counting of gauzes and instruments, and to enhance communication among team members;
- (d) To enhance clinical governance in patient care,
- (e) To improve communication amongst healthcare providers through a structured program and approach, e.g. adopting Crew Resources Management application in healthcare;
- (f) To conduct “Patient Safety Culture” survey to allow better understanding of organizational factors in HA for safety improvement;
- (g) To promulgate a “Just Culture” to facilitate a reporting, sharing and learning culture.

7. To facilitate the interpretation and implementation of the Policy, the HA’s Sentinel Event Review Panel has further clarified the categories of event to be reported.

# 2 INTRODUCTION

8. With the advances of innovative health technology in patient management and specialized patient care, the provision of healthcare is becoming more complex with many interconnected care processes. This gives rise to the potential occurrence of sentinel events. Noting that some of these adverse incidents are preventable, healthcare providers worldwide, including the HA, have been striving to introduce effective risk reduction strategies and measures to enhance patient safety and clinical quality.

9. A Safety Culture is being promoted across all HA hospitals. This includes translating the lessons learned from adverse incidents or potentially adverse incidents into concrete changes that will improve patient safety. A crucial cornerstone of clinical governance and patient safety management in HA was the implementation of the Sentinel Event Policy on 1 October 2007 to further strengthen the reporting, management, and monitoring of adverse incidents in public hospitals. The objectives of the Policy and the management of sentinel events are outlined in chapter 3.

10. Sentinel events are reported and subsequently managed to reduce adverse consequences. Reported events are investigated for the root causes. Risk reduction strategies are developed and action plans implemented accordingly. The lessons learned from these events are shared in the bi-monthly publication of 'HA Risk Alert' to raise the safety awareness of clinicians and managers.

11. This report is a summary of sentinel events reported by HA hospitals from 1 October 2007 to 30 September 2008, covering a review of the reported cases, learning points, recommendations made, and risk reduction actions taken to prevent re-occurrence of these events.

# 3 HA SENTINEL EVENT POLICY

## *Objectives of HA Sentinel Event Policy*

12. A sentinel event is defined as an “unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof”<sup>1</sup>. The Policy statement stipulates that “hospitals must report, investigate and respond to sentinel events promptly, and make necessary efforts to prevent similar events from happening in the future.”

13. The Policy seeks to ensure immediate and appropriate handling of sentinel events by senior management of the respective hospitals, and if necessary, the HA Head Office (HAHO) in order to:

- (a) Minimize harm to patients;
- (b) Minimize the impact of such events;
- (c) Support the staff involved with the events;
- (d) Investigate and understand the causes that underlie a sentinel event;
- (e) Improve the systems and procedures where necessary and appropriate to reduce the probability of recurrence of the event in future; to share the lessons learned among staff of different clusters of the HA; and
- (f) Maintain patients’ and the public’s confidence on the public healthcare system.

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<sup>1</sup> The US Joint Commission, sentinel event policy and procedures (2008)  
<http://www.jointcommission.org/SentinelEvents/PolicyandProcedures/>

### *Implementation of the reporting system*

14. On 1 October 2007, it became mandatory to report nine specified categories of sentinel events to HAHO within 24 hours of knowledge of their occurrences. After twelve months of implementation, a Sentinel Event Policy Group meeting was held to review the Policy and supplementary notes (Annex I) added to appropriate categories to clarify and facilitate interpretation.

The categories of these reportable sentinel events are:

- Category 1 Surgery / interventional procedure involving the wrong patient or body part;
- Category 2 Retained instruments or other material after surgery / interventional procedure requiring re-operation or further surgical procedure;
- Category 3 Haemolytic blood transfusion reaction resulting from ABO incompatibility;
- Category 4 Medication error resulting in major permanent loss of function or death of a patient;
- Category 5 Intravascular gas embolism resulting in death or neurological damage;
- Category 6 Death of an inpatient from suicide (including suicide committed during home leave);
- Category 7 Maternal death or serious morbidity associated with labour or delivery;
- Category 8 Infant discharged to wrong family or infant abduction; and
- Category 9 Unexpected deaths or serious disability reasonably believed to be preventable (not related to the natural course of the individual's illness or underlying condition). Assessment should be based on clinical judgment, circumstances and the context of the incident.

Actions by the hospital concerned

15. In the event that an incident falling within any of the above categories occurs, the hospital concerned will take the following actions:

- (a) Undertake immediate remedial actions to mitigate the harm to the patient;
- (b) Support the staff involved with the event;
- (c) Report the incident to HAHO via the HA-wide electronic Advanced Incident Reporting System (AIRS);
- (d) Disclose the event to the patient and his/her family in an open and honest manner;
- (e) Conduct a thorough root cause analysis on the incident, for the purpose of identifying possible underlying organizational deficiencies which may not be immediately apparent and which may have contributed to the cause of the event; and
- (f) Submit the report of the root cause analysis, including any proposed risk reduction strategies to prevent recurrence of similar event, to HAHO within eight weeks of the occurrence of the sentinel events.

Actions by the HA Head Office

16. The HAHO will follow up on the reporting of a sentinel event as below:
- (a) If the event has immediate major impact on the public healthcare system, disclose the event to the public;



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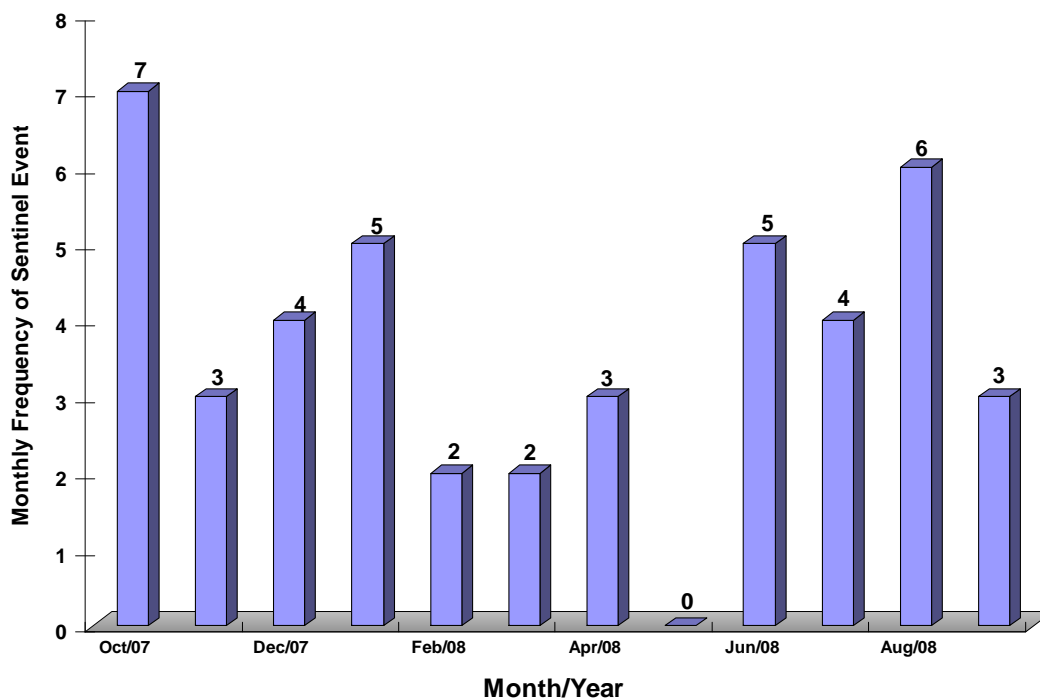
- (b) Regularly review, through the HA Sentinel Event Report Review Panel, all the submitted reports and recommend strategies across HA to reduce the risk of further recurrence of similar incidents through a sharing and learning process;
- (c) Issue, bi-monthly, a “HA Risk Alert” newsletter to all HA staff on the learning points from reported sentinel events; and
- (d) Compile, every six months, a report on sentinel events for submission to the HA Board and release to the public. Appropriate levels of confidentiality will be applied to the report to protect the identity of patients and staff concerned.

# 4

## SENTINEL EVENTS REPORTED FROM 1 OCTOBER 2007 TO 30 SEPTEMBER 2008

### *Frequency of Reportable Sentinel Events*

17. A total of 44 sentinel events were reported from 1 October 2007 to 30 September 2008. The frequency of the monthly reportable sentinel events is depicted in Figure 1:



**Figure 1: Monthly Frequency of Reportable Sentinel Events**

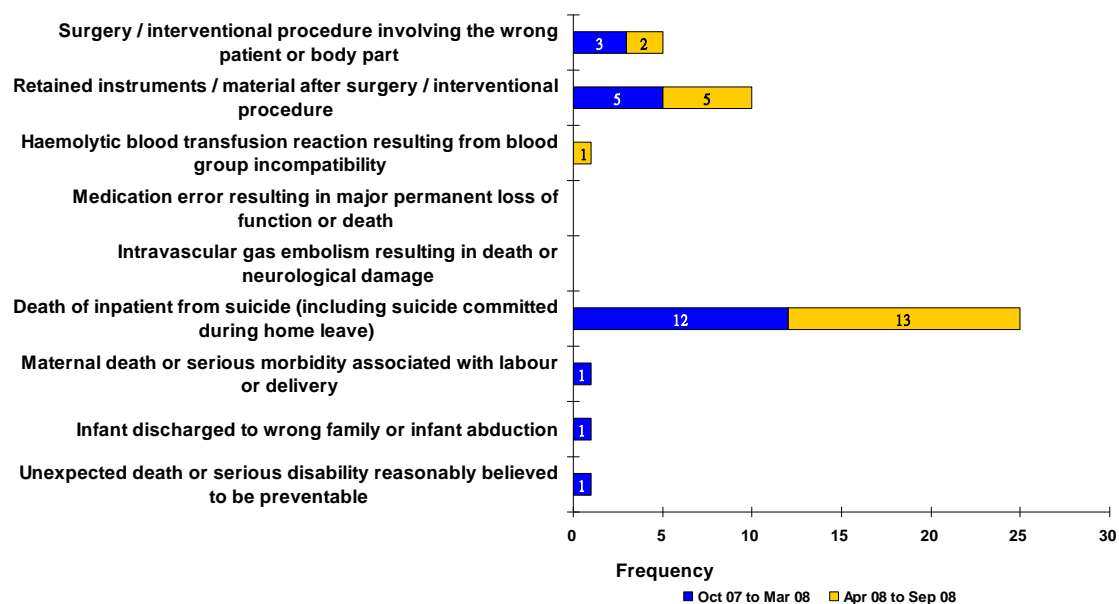
The incidence rate for these twelve months was 2.7 per 1,000,000 episodes of patient discharges and deaths/ attendances.<sup>2</sup>

<sup>2</sup> including total inpatient and outpatient discharges and deaths and ambulatory service attendances defined in HA Controlling Officer's Report: Vol 1B, 2008-2009

*Breakdown of Reportable Sentinel Events by Category*

18 The frequency of each category of the sentinel events is as shown below.

**Figure 2: Breakdown of Sentinel Events by Category**



**Figure 3: Comparison of Occurrences of Sentinel Events in the First and Second Six-month periods**

Category	1 Oct 07 to 30 Mar 08	1 Apr 08 to 30 Sep 08	Total Number
1.Surgery / interventional procedure involving the wrong patient or body part;	3	2	5
2.Retained instruments or other material after surgery / interventional procedure requiring re-operation or further surgical procedure;	5	5	10
3.Haemolytic blood transfusion reaction resulting from ABO incompatibility;	0	1	1
4.Medication error resulting in major permanent loss of function or death of a patient;	0	0	0
5.Intravascular gas embolism resulting in death or neurological damage;	0	0	0
6.Death of an inpatient from suicide (including suicide committed during home leave);	12	13	25
7.Maternal death or serious morbidity associated with labour or delivery;	1	0	1
8.Infant discharged to wrong family or infant abduction; and	1	0	1
9.Unexpected deaths or serious disability reasonably believed to be preventable (not related to the natural course of the individual’s illness or underlying condition). Assessment should be based on clinical judgment, circumstances and the context of the incident.	1	0	1
<b>Total Number</b>	<b>23</b>	<b>21</b>	<b>44</b>

These events are further analyzed as follows:

- **Death of an inpatient from suicide (including suicide committed during home leave): 25 cases (56.8%)**
  - 18 patients (72 %) committed suicide during home leave, 3 (12%) committed suicide in hospital, and 4 (16%) were found to be missing and committed suicide outside the hospital;
  - Twelve of these patients suffered from psychiatric illness while 13 had malignancies, chronic illnesses, or permanent disabilities.
  - The breakdown by hospital types of patient suicides is shown in Table 1:

<b>Setting</b>	<b>Frequency</b>
General acute hospitals	12
Psychiatric units within general hospitals	8
Psychiatric hospitals	4
Convalescence hospitals	1

Table 1: Breakdown by Hospital Types of Patient Suicides

- **Retained instruments or other material after surgery/interventional procedure requiring re-operation or further surgical procedure: 10 cases (22.7%)**
  - 3 cases involved retention of intravascular guidewire;
  - 3 cases involved retention of surgical gauze, and
  - 4 cases involved retention of instrument or other material. 2 cases involved laparoscopic instruments; 1 case involved retention of a part of the tap sleeve of external fixation system and the fourth case a broken part of suction catheter.

- **Surgical or interventional procedures involving the wrong patient or body part: 5 cases (11.4%)**
  - Mix-up of blood specimens of two patients leading to unnecessary blood transfusion to one patient and delayed transfusion to the other;
  - Mix-up of biopsy specimens of two patients leading to delayed diagnosis of prostate cancer for one patient and unnecessary radiation for the other;
  - A wrong patient's treatment regimen was retrieved from computer system leading to a patient receiving wrong radiation dosage;
  - Designated intraocular lens was implanted into a wrong patient leading to the need for an extra operation to correct the mistake;
  - Contamination of biopsy specimens of two patients leading to a patient receiving mastectomy.
  
- **Haemolytic blood transfusion reaction resulting from blood group incompatibility: 1 case (2.3%)**
  - A new born baby was transfused with inappropriate blood.
  
- **Maternal death associated with delivery: 1 case (2.3%)**
  
- **Infant discharged to wrong family or infant abduction: 1 case (2.3%)**
  
- **Unexpected death or serious disability reasonably believed to be preventable: 1 case (2.3%)**

### ***Outcomes of reported sentinel events***

19. The outcomes of the reported events are as follows:

- **Minor or insignificant consequence: 8 cases (18.2%)**
- **Major / moderate consequence: 10 cases (22.7%)**
  - 3 cases of retention of surgical gauze leading to reoperation;
  - 3 cases of retention of part of instrument leading to reoperation;
  - 1 case of delayed diagnosis of prostate cancer for one patient and unnecessary radiation for another;
  - 1 case of unnecessary blood transfusion to one patient leading to delayed transfusion to the other;
  - 1 case leading to receiving more than necessary extensive operation;
  - 1 case of implanting the incorrect intraocular lens leading to reoperation.
- **Extreme consequence (i.e. death): 26 cases (59.1%)**
  - 25 cases due to suicide;
  - 1 case of maternal death associated with delivery.

### ***Hospital settings where the sentinel events occurred***

20. Most of the events (70.4%) took place in general hospitals (Table 2):

<b>Setting</b>	<b>Frequency (%)</b>
General acute hospitals	31 (70.4)
Psychiatric units within general hospitals	8 (18.2)
Psychiatric hospitals	4 (9.1)
Convalescence hospitals	1 (2.3)

Table 2: Settings where the sentinel events occurred

### ***Individual sentinel events***

21. A summary of individual sentinel events are set out in Annex II.

# 5 **ACTIONS TAKEN AND DISCUSSION**

## *Implementation*

22. The Policy which marked the determination of HAHO in enhancing patient safety has been implemented for a year. To support the implementation of the Policy, open staff forums on the requirements and logistics in managing sentinel events have been held. The Advanced Incident Reporting System (AIRS) has also been enhanced to facilitate the reporting and monitoring of these events.

23. The progress (half-year) report was released in July 2008. The report identified the clinical risks and contributing causes for sharing and learning across HA. The report also highlighted measures to reduce the risks.

24. A post-implementation review of the policy, with contribution from seven clusters, was conducted. The reportable categories of events have been refined and clarified with examples (Annex I).

## *Management of sentinel events and follow-up*

25. Individual hospital have made timely responses on discovery of a sentinel event, especially to minimize harm and impact of the incident to the patient concerned, to support the staff involved, and to disclose the event to the public as appropriate. The HAHO worked closely with all hospitals in the management of the sentinel events.

26. The hospitals have conducted formal root cause analysis of the events and submitted reports within eight weeks.

27. An independent panel has been set up by HAHO to review the submitted root cause analysis reports and to make overall recommendations on risk reduction strategies / actions.

28. The HAHO has visited respective hospitals to obtain a better understanding of the sentinel events, and to discuss ways of reducing the recurrence of such events. The HAHO also conducts half-yearly follow-up visits to the involved hospitals to evaluate the effectiveness of improvement measures.

### ***Analysis of reported sentinel events***

#### **The incidence of reporting**

29. The total number of sentinel events in the first year was 44. In Australia, the Victorian Department of Human Services received 102 reports of sentinel events in 2007-2008<sup>3</sup> for approximately 1.3 million admissions to public health facilities during the above period. In the US, the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) received an average of 389 reports of sentinel events per year<sup>3</sup>. There is no international reference regarding the 'appropriate' or 'acceptable' level of sentinel event reporting for benchmarking.

#### **Types of sentinel event reported**

30. In HA, patient suicide remained the top reported sentinel event (25/44 cases, 56.8%). Retained instruments or other material after surgery / interventional procedure was the second most commonly reported sentinel event (10 cases, 22.7%), while surgery / interventional procedure involving the wrong patient or body part was the third (5 cases, 11.4%).

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<sup>3</sup> The US Joint Commission, sentinel event statistics: as of September 30, 2008  
<http://www.jointcommission.org/SentinelEvents/Statistics/>



31. The JCAHO and the Victoria Department of Human Services of Australia have also listed in their reports suicide and wrong patient or site to be the top three categories. In Victoria, seven out of 102 sentinel events (7%) were suicides in in-patient units, 37 were wrong patients or body parts (36%) and 11 were retained instruments after procedures (11%). There is a difference in definition of suicide in sentinel events by Hong Kong and Victoria, Australia. The former includes all inpatient suicide (including suicide committed during home leave) whilst the latter only refers to suicide in inpatient units.

32. According to the World Health Organization (WHO), approximately one million people died from suicide in the year 2000 with a global mortality rate of 16 per 100,000.<sup>4</sup> In Hong Kong, the suicide rate has increased from 11.5 per 100,000 in the year 1990 to 18.6 (n=1,278) in 2004, and 17.4 (n=1,183) in 2005.<sup>5</sup>

### **Contributing factors for the sentinel events**

33. The concerted efforts to identify root causes enable the hospitals to develop measures to improve and reduce occurrence of sentinel events. Despite the small number of cases in each category, a summary of key contributing factors for each category of incidents is summarized below:

- **Key contributing factors for retained instruments or material**
  - Counting of gauzes or instruments not adequately done or documented;
  - Inadequate communication when more than one team was involved
  
- **Key contributing factors for surgery / interventional procedure involving the wrong patient or body part**
  - Inadequate checking of patient identification to ensure correct patient receiving the correct treatment;
  - Multiple staff involved in a procedure; and

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<sup>4</sup> World Health Organization: suicide prevention (SUPRE)  
[http://www.who.int/mental\\_health/prevention/suicide/suicideprevent/en/](http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/)

<sup>5</sup> World Health Organization: suicidal rates, by gender, China, Hong Kong SAR, 1995-2004  
[http://www.who.int/mental\\_health/media/chinazhongk.pdf](http://www.who.int/mental_health/media/chinazhongk.pdf)

- Unclear role delineation and communication among team members

### **Risk Reduction Programs**

34. The HAHO has collaborated with clusters to improve and make changes in the systems and processes or workflow, so that the risk of re-occurrence of these sentinel events could be minimized.

#### **Prevention of in-patient suicide (including home leave)**

- Evaluate and replace hospital structures that may facilitate the suicidal act;
- Explore the possibility of developing a standard assessment tool for suicidal risk;
- Advice on appropriate handling of high risk patients in ward and during home leave;
- Educate relatives on seeking early medical advice when suicidal thoughts are suspected in patients during home leave or trial discharge.

#### **Retained instruments or other material after surgery / interventional procedure requiring re-operation or further surgical procedure**

- Redesign workflow to enforce checking of instrument integrity at the start and before end of operation;
- Review the system and workflow for gauze/ guidewire counting and documentation at the site immediately before the end of the procedure.

#### **Surgery / interventional procedure involving the wrong patient or body part**

- Allow “time out” to verbally check patients identity, procedure and site among all parties prior to surgical procedures;
- Check all relevant product information of designated patient-specific consumables as well as patient identification immediately before the procedure;
- Delineate clearly the roles and responsibilities of staff involved in an operation or procedure;

- Reinforce the principles of 5 rights (patient, drug, dose, time, and route) in medication administration especially chemotherapy.

### *Learning and Sharing*

35. The reported sentinel events, contributing factors, and learning points are shared in the 'HA Risk Alert' (HARA). Abstracts of local and international healthcare risk alerts are also included to raise staff awareness about patient safety. The HARA, first published in November 2007, is issued every two months thereafter.

# 6

## CONCLUSION

36. The implementation of the Sentinel Event Policy has facilitated the collaborative efforts of HAHO and cluster managers to improve patient safety at all levels of care through system review and work process enhancement. It also promotes the learning and sharing of safe practices so that safe design and safe culture will be continuously strengthened. This is a key element in enhancing a “Safe Culture” across the HA for patient safety.

# 7

## THE WAY FORWARD

37. From the valuable lessons learnt from the sentinel events in the past twelve months, strategic plans and improvement activities are being undertaken:

- (a) To adopt a “Safe Culture, Safe System and Safe Practice” approach and to streamline the workflow to enhance the care process;
- (b) To make use of information system and technology to enhance safety in patient care, e.g. 2D barcode system;
- (c) To implement a “Safer Surgery” program, to adopt a pre-operative / peri-operative / post-operative check-list, Time-Out Policy, checking of integrity of instrument, correct counting of gauzes and instruments, and to enhance communication among team members;
- (d) To enhance clinical governance in patient care;
- (e) To improve communication amongst healthcare providers through a structured program and approach, e.g. adopting Crew Resources Management application in healthcare;
- (f) To conduct “Patient Safety Culture” survey to allow better understanding of organizational factors in HA for safety improvement;
- (g) To promulgate a “Just Culture” to facilitate a reporting, sharing and learning culture.

ANNEX I

**SUPPLEMENTARY NOTES TO CLARIFY CATEGORIES OF SENTINEL EVENT**

**Categories 1:**

**Surgery / interventional procedure involving the wrong patient or body part**

Wrong body part refers to wrong site surgery or intervention, may not need to include a complication of inadvertent damage of surrounding body part, intervention procedure includes radiation and biopsy.

Blood transfusion is not included.

**Categories 2:**

**Retained instruments or other material after surgery / interventional procedure requiring re-operation or further surgical procedure**

It refers to cases of instrument or other material inadvertently left inside the body. Does not include retained instrument or other material which is known to AND documented by the operator at the time of the procedure, even though subsequent operation or intervention may be necessary for removal of the retained instrument or material.

**Category 3:**

**Haemolytic blood transfusion reaction resulting from ABO incompatibility**

Refers to the transfusion of any ABO incompatible blood, regardless of the severity of reaction or absence of haemolysis.

**Category 4:**

**Medication error resulting in major permanent loss of function or death of a patient**

**Category 5:**

**Intravascular gas embolism resulting in death or neurological damage**

**Category 6:**

**Death of an in-patient from suicide (including home leave)**

**Category 7:**

**Maternal death or serious morbidity associated with labor or delivery**

Does not include hysterectomy for massive post-partum haemorrhage.

**Category 8:**

**Infant discharged to wrong family or infant abduction**

**Category 9:**

**Unexpected death or serious disability reasonably believed to be preventable (not related to the natural course of the individual's illness or underlying condition). Assessment should be based on clinical judgment, circumstances and the context of the incident**

ANNEX II

**SUMMARY OF INDIVIDUAL SENTINEL EVENTS AND RECOMMENDATIONS FOR IMPROVEMENT**

**Category 1: Surgery / interventional procedure involving the wrong patient or body part**

**MIX-UP OF BLOOD SPECIMENS**

Manual laboratory test request forms were used during Clinical Management System (CMS) / Generic Clinical Request System (GCRS) downtime.

During delivery of specimens from ward to laboratory, in some wards, request forms and specimens from different patients were put into the same (one) bag. A batch of specimens and forms including that of patient A and patient B were delivered to the laboratory.

At the reception area of laboratory, an error occurred in pairing up the request forms and specimens from patient A and patient B, as the serial numbers appeared similar. Pre-printed “paired labels” were stuck onto the 2 sets of specimen and request form. As the request forms and specimens were wrongly paired up, the laboratory number affixed to patient A’s specimen was wrongly paired with the laboratory number of patient B’s request form and vice-versa.

The Haemoglobin (Hb) results of specimens A and B were released to the relevant wards and wrongly taken as that for patient B and A respectively. Patient A’s Hb result was reported as 6.2 g/dl (the result of patient B). Two units of blood were given. The Hb was re-checked on the next day and found to be 16.0 g/dl. This triggered off the delta check mechanism and the error was discovered. Patient B had her Hb re-checked which was found to be low. Blood was then transfused. This event resulted in delay in blood transfusion for one patient while another patient had unnecessary blood transfusion.

***Key contributing factors***

System factors

- a) The Clinical Management System (CMS) / Generic Clinical Request System (GCRS) was down for maintenance and staff had to revert to using the manual laboratory request system.
- b) The specimen was labeled with *a serial no.* torn from a corner of the manual request form and a handwritten *ID no.* affixed to the specimen for identification purpose during GCRS downtime. Checking of patient identity using two “standard” identifiers (name and ID Number) was not adopted.
- c) Specimens and request forms from different patients were placed together in the same bag.
- d) Computer checking (delta check system) could not spot the discrepancy to raise

alert of a possible specimen error.

Human factors

- e) Specimens from different patients were handled at the same time.
- f) Specimens and forms were wrongly paired up resulting in wrongly labeled specimen tubes.
- g) Failure to note the discrepancy between the laboratory result and the patient's clinical signs and symptoms to trigger a re-check of the test.

***Risk reduction strategies***

For ward staff

- a) To adopt the policy of "one bag for one specimen and form" when manual request form is used during GCRS downtime.
- b) To label specimen with pre-printed label with patient's name and ID number (rather than using the serial number of manual form).

For laboratory staff

- c) To handle one specimen at a time.
- d) To verify vigilantly the patient's identifiers on the label of the specimen against the request form.

IT system

- e) To minimize the frequency and duration of CMS / GCRS downtime by better coordination of all the IT maintenance activities.

**MIX-UP OF BIOPSY SPECIMENS**

Patient A attended a Day Centre for prostate biopsy twice nine months apart. Surgery for prostate cancer was suggested based on the second histopathology report. When the surgeon reviewed the medical record before operation, he found great discrepancies between the two histopathology reports and initiated further investigation. Subsequent DNA tests confirmed that the prostate biopsy taken from the first attendance belonged to Patient B who attended the same Day Centre on the same day. The mix-up resulted in delayed diagnosis of prostate cancer for Patient A and unnecessary radiotherapy for Patient B.

In preparation for biopsy sessions, a sheet of gum labels was collected from each patient's record and clipped together in sequence according to the appointment time on a clipboard. Identities of Patient A and B were verified when they arrived at the reception counter and before they entered the procedure room. Patients were called into the procedure room according to the order of their medical records laid out according to the appointment time. However, there was a change in the order of attendance of the two patients. The order of the medical records was altered accordingly, but without a corresponding adjustment in the sequence of the collected label sheets. Verification of patient identity prior to the labelling of specimens was not performed.



***Key contributing factors***

- a) Change in the sequence of biopsy session for the two patients.
- b) Biopsy specimens were labeled according to the sequence of label sheets laid out beforehand without further confirmation of the patient's identity.

***Risk reduction strategies***

- a) To check patient identity before taking and labeling any specimens.
- b) To avoid putting label sheets of different patients onto the same clipboard for subsequent use.

**WRONG RADIATION THERAPY REGIMEN GIVEN**

A patient received a prostate radiation therapy regimen which was meant for another patient. The former patient attended the clinic and presented his follow-up card. Radiotherapist A confirmed the patient's identity in the follow-up card, treatment record and prescription. Radiotherapist B intended to retrieve this patient's treatment data from the computer system but made the mistake of clicking the name of another patient on the list for prostate radiotherapy, which resulted in the wrong treatment regimen (wrong dosage) being uploaded into the machine. Radiotherapist C called the patient into the room according to the follow-up card. Radiotherapist A confirmed the patient identity again with the treatment record. After helping the patient to the couch, they checked the setup of the treatment parameters with the computer data but without further checking the name of patient on the retrieved computer data. As a result, wrong dosage of radiation was given.

***Key contributing factors***

- a) Failure to check the patient's identity against the data retrieved from the computer system.
- b) No explicit duty description for individual team members.
- c) Error-prone design of computer screen, e.g. information (patient's name) displayed on the computer monitor was in small font.

***Risk reduction strategies***

- a) To ensure the checking procedure is adequate to verify patient identification and the treatment to be given, including verification of the patient's identity with the uploaded treatment regimen. To adopt "Time Out" for the checking procedure.
- b) To define the duty and responsibility of individual team members.
- c) To explore safety measures to prevent picking the wrong patient from the patient list on a selection panel.

## **IMPLANATION OF INCORRECT INTRAOCULAR LENS**

Both Patients A&B were due to undergo cataract extraction and intraocular lens (IOL) implantation. Patient A required special IOL whilst Patient B required commonly used one. A special IOL was reserved for Patient A prior to the operation. Patient B took over Patient A's scheduled operation slot because the latter complained of dizziness and abdominal pain immediately prior to surgery. Patient B was sent to the operating room instead of Patient A. Both the circulating nurse and surgeon knew that Patient B had been swapped with Patient A. While reviewing Patient's B medical record, the surgeon was distracted by a phone consultation. The circulating nurse then presented Patient A's special IOL and the IOL Requisition Form to the surgeon for prescription. Later, the circulating nurse and scrub nurse confirmed the information of the reserved IOL against the prescription. Patient's B operation had been smooth. The circulating nurse later discovered the reserved special IOL was used. An immediate exchange of IOL was arranged for Patient B. Operation for Patient A was performed on the same day when a new special IOL was available.

### ***Key contributing factors***

#### **Process factor**

As a routine practice, all required reserved special lenses were brought inside the operating room before the operation session regardless the sequence of the operating list.

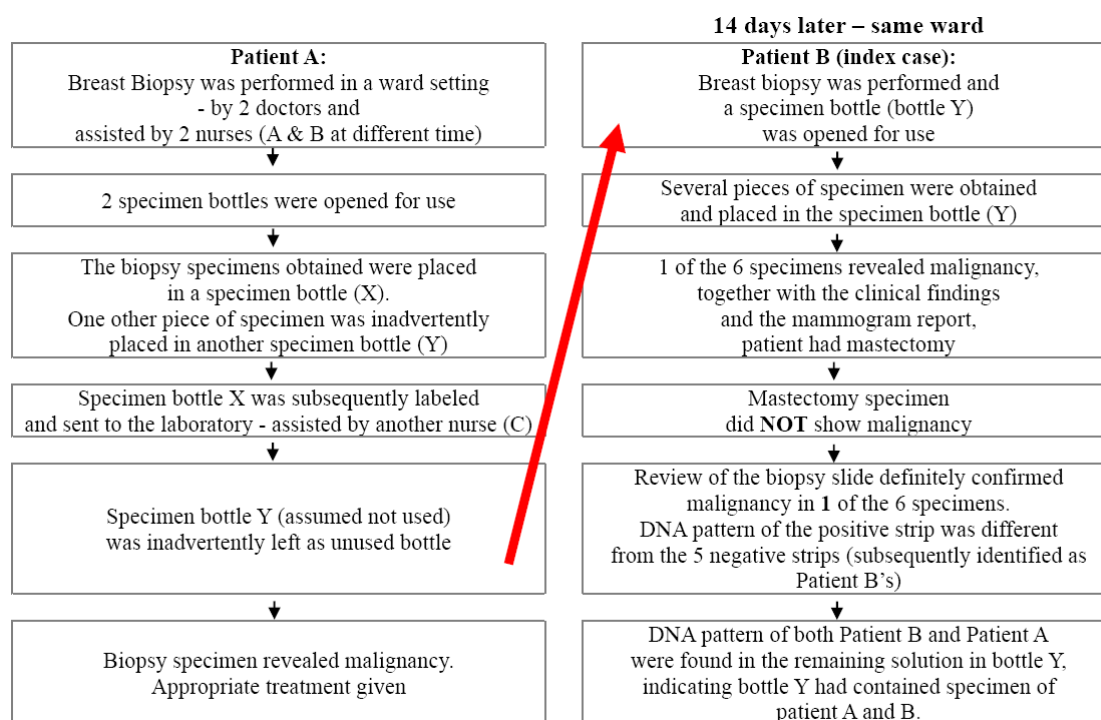
#### **Staff factor**

- a) Staff did not check the patient identifiers on IOL Requisition Form for the reserved special IOL.
- b) Surgeon was distracted during prescription.

### ***Key recommendations***

- a) To go through the information again in case of interruption.
- b) To retrieve lens only after the surgeon's review and prescription in the operating room.
- c) To ensure the correct lens for the correct patient by checking the patient against the identifiers on the prescription and IOL.

## CONTAMINATION OF BIOPSY SPECIMENS LEADING TO UNNECESSARY MASTECTOMY



\* It is the most likely occurrence of events as suggested by the Investigation Panel

### **Key contributing factors**

- Unlabelled the specimen bottle immediately after the procedure.
- Opened and presumed unused formalin specimen bottle was not discarded.
- Multiple staff involved in the biopsy taken procedure
- Roles were not delineated communication was broken down.

### **Risk reduction strategies**

- To delineate clearly who should do the labeling of specimens after the biopsy procedure
- To reinforce the importance of immediate labeling after the biopsy procedure.
- To discard any opened and unused specimen bottles after the biopsy procedure.
- To consider supplying formalin-filled specimen bottles with breakable seal
- To designate only one staff member to assist throughout the procedure.
- To improve documentation of the procedure, which should include the numbers of cores was obtained.

**Category 2: Retained instruments or other material after surgery / interventional procedure requiring re-operation or further surgical procedure**

**RETAINED GUIDEWIRES AFTER CENTRAL VENOUS CATHETERIZATION**

***Case 1***

Femoral venous catheterization was performed for a patient receiving an elective surgery by an experienced staff member. The femoral artery was accidentally punctured. A Cavafix was subsequently inserted into the antecubital fossa. The patient was discharged uneventfully. An out-patient PET-CT scan revealed a retained guidewire in the abdominal area.

***Case 2***

Femoral venous catheterization was performed for a critically ill patient in Intensive care Unit (ICU) by a trainee intensivist. The procedure was performed smoothly. Two days later, a retained guidewire was noted on a routine chest X-ray during a senior round.

***Case 3***

A central line was inserted in a patient in ICU with the use of guidewire. Resistance was noted during saline flushing and blood aspiration. Another catheter set was opened and a new guidewire was used to guide the removal of original and insertion of the new central venous catheter. Upon completion of the insertion procedure, a scheduled CT scan examination revealed a retained guidewire. It was likely that the first guidewire was left in-situ during the insertion process and the second guidewire had further advanced the first guidewire into the venous system.

***Key contributing factors***

System factor

- a) No protocol to confirm the removal / counting of the guidewire after procedure.

Human factor

- b) Staff might not be aware of the potential mishap of retaining a guidewire.

***Risk reduction strategies***

- a) To increase staff awareness of such potential mishap during training and supervision of the procedure.
- b) To allow only certified competent staff to perform central venous catheterization with the use of guidewire.
- c) To document the checking procedure in case notes / electronic record system:
  - i) Counting of guidewire must be performed at the end of the procedure;
  - ii) Counterchecking of the number and integrity of used guidewire(s) by another staff member.

## **RETAINED GAUZE IN PATIENT AFTER SURGERY**

### ***Case 1***

A patient underwent low anterior resection for rectal cancer. After operation, a curvilinear shadow was noted in X-ray imaging and retained raytec gauze was suspected. A CT scan was performed and retained gauze was confirmed.

### ***Case 2***

A patient had marsupialisation for Bartholin cyst performed in a day surgery centre. A few months later, patient noticed that a piece of gauze was passed out from the vagina.

### ***Case 3***

A patient experienced secondary haemorrhage 7 days after tonsillectomy. X-ray showed a radio-opaque line at the tonsillar bed. A blue yarn detached from raytec gauze was found and removed with endoscopic forceps.

### ***Key contributing factors***

- a) Multiple handovers for scrub nurses and circulating nurses (e.g. for meal breaks)
- b) Time constraint for thorough gauze counting and no practice of gauze counting in minor procedure like marsupialisation
- c) Ineffective communication between different disciplines and teams in the Operating Theatre – assumptions made without confirmation.
- d) The practice of cutting gauze led to the loosening and dislodgement of the yarn from gauze.

### ***Risk reduction strategies***

#### **Communication**

- a) To "speak up" when uncertainty of correct count occurs.
- b) To seek confirmation whenever there is doubt over the procedures.

#### **Documentation**

- c) To clearly document the "in and out" of used gauze / abdominal pads and the record should be traceable.
- d) To clearly document the number of gauze / abdominal pads used for packing throughout OT and other clinical units.

#### **Equipment**

- e) To use different raytec gauze for OT and other clinical units. One example is using double Raytec for hospital areas outside OT.
- f) To use raytec gauzes (which can be detected by X-ray) for all minor gynaecological operations.
- g) To procure raytec gauze of suitable size and higher British Pharmacopoeia (BP) standard for ENT operations to avoid cutting and yarn dislodgement.

**Rules and Procedures**

- h) To start the counting procedures again from the beginning after having been disturbed or interrupted.
- i) To allow adequate time to carry out the gauze counting procedures.
- j) To follow the rules of placing the used gauze/ abdominal pads in designated place.
- k) To undertake a final wound exploration before closure.
- l) To establish good practices for gynaecological procedures including application of Cusco speculum during vaginal swabbing and performing vaginal examination at the end of all gynaecological procedures which involve putting gauzes into the vagina.
- m) To abolish the practice of gauze cutting in all operations.

## **RETAINED PART OF INSTRUMENT AFTER SURGERY**

### ***Case 1: Retained Coating of Laparoscopic Instrument***

A segment (2cm x 0.4cm) of plastic insulated sheath of a laparoscopic instrument, used in a gynaecological laparoscopic surgery, was found retained inside a patient. During specimen retrieval, the surgeon transferred the specimen held by the instrument at the left side 5mm port, to a grasper forceps at the 10mm umbilical port. Difficulties were encountered during this manipulation. It was suspected that this manipulation caused a peeling off of the instrument coating by the 10 mm umbilical port trocar. The instrument integrity was not thoroughly checked before the end of operation. The peeling was noticed during cleansing of the instrument.

### ***Case 2: Retained sleeve of an Orthopaedic Tap***

A patient had emergency external fixation for fracture stabilization after road traffic accident. The sleeve of a fracture tap was detached and retained and not noticed. At the end of the operation, the missing sleeve was not detected during instrument count. Post-operative X-rays showed retained sleeve but this was not noticed. 7 months later, patient complained of foreign body sensation. X-ray revealed sleeve which was subsequently removed by surgery.

### ***Case 3: Retained Metallic Clamp Button from Stapler***

Patient had laparoscopic resection of rectum. Difficulties were encountered when firing the stapler. Patient developed fever post-operatively. Abdominal X-ray showed an oval hyperdense object in the pelvis region. It was confirmed to be the metallic clamp button from the stapler. It was then removed in the follow-up laparoscopic closure of ileostomy.

### ***Case 4: Retained suction catheter segment***

A convalescent patient with history of stroke required oropharyngeal suction for sputum was involved. During suction of sputum, a 10.5cm broken suction catheter with irregular ends was found in left nostril. The time when the catheter was left behind could not be determined. It was likely cause by biting off of the catheter by the patient.

### ***Key contributing factors***

- a) Difficult specimen retrieval in laparoscopic operation contributed to the peeling off of a piece of instrument coating.
- b) Failure to check the integrity of instruments before wound closure.
- c) Not reading the whole X-ray films thoroughly from the day of operation.
- d) Communication gap among team members led to delay and increase searching the missing part of instrument.

### ***Risk reduction strategies***

- a) To consider using instrument with non-insulated metal outer tube for specimen retrieval.
- b) To enforce the checking of instrument integrity before closure wound(s).

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- c) To standardize the instruments in used and delete any obsolete or unnecessary instrument.
- d) To use safely designed surgical device or instrument.
- e) To enhance the communication between working parties if any discrepancy.



**Category 3: Haemolytic blood transfusion reaction resulting from blood group incompatibility**

A premature baby with respiratory distress syndrome and neonatal jaundice had blood group B+ve and maternal derived anti-B antibody. The mother was group O+ve. Results were marked in the Blood Bank Laboratory Information System (BBLIS). Type O+ve blood should be given to this baby if transfusion was required. A request form for 3 units of red cells was sent to Blood Bank. Medical Technologist (MT) registered the request and noted the remark. She was distracted by a phone enquiry. One unit of B+ve red cells was issued. Ward staff were not aware that Group B+ve was issued. Blood was given to the baby. No major adverse reaction was observed during and after transfusion. Another MT discovered the mistake and informed ward staff.

***Key contributing factors***

System factors

- a) No automatic alert system is built in the BBLIS for such scenario.

Process factors

- b) Clinical departments were not aware of the Type & Screen (T&S) guidelines.

Staff factors

- c) MT was distracted by phone enquiry.

***Risk reduction strategies***

- a) To add the alert message in the BBLIS.
- b) To promulgate related guidelines and protocols to clinical departments.
- c) To re-engineer workflow and manpower strength of Core Laboratory to enhance safety and effectiveness.
- d) To redesign alert system in the BBLIS.

**Category 6: Death of an inpatient from suicide (including suicide committed during home leave)**

Twenty-five sentinel events on patient suicide were reported.

Three patients committed suicide in hospital, four patients found missing and committed suicide outside hospital while eighteen patients committed suicide during home leave. Around half of these patients suffered from psychiatric illnesses. Ten patients suffered from malignancies, chronic illnesses or permanent disability. Three patients were suffering with chronic illness with acute depression or anxiety.

***Key contributing factors***

Root Cause Analysis was conducted for all these cases but it was difficult to ascertain definite contributory factors. While the underlying conditions were certainly predisposing factors for depressive moods and negative feelings, none of these patients had shown any suicidal thoughts during their hospital stay or before home leave. On the other hand, it was quite possible that unpredictable changes had happened during their home leave periods.

***Risk reduction strategies***

Home leave is important in preparing our patients for integration back into the society and beneficial for their psychosocial well being. This practice should be supported.

To further enhance the safety of our patients, review could be made and improvement measures implemented regarding patient assessment, communication amongst staff members and with patients' families, as well as assessment of the ward environment for suicide risk.

**During hospitalization**

- a) To enhance the tools for assessing psychological and emotional status of oncology / chronically ill patients.
- b) To enhance communication among multidisciplinary teams.
- c) To aware the assessment and treatment plan by other colleagues.

**Before home leave / trial discharge**

- d) To assess and document suicidal risk of patient before home leave.
- e) To enhance communication between patients' relatives and hospital staff on care and management of patients during home leave / trial discharge.

**Category 7: Maternal death or serious morbidity associated with labour or delivery**

One rare event of maternal death associated with delivery was reported.

A patient presented with drop in blood pressure, uterine atony and bleeding half an hour after delivery. An emergency operation was immediately arranged in view of the uncontrolled bleeding. The patient was transferred to the ICU for post-operative management. She remained stable with no significant continual bleeding. A few days later, the patient presented with a sudden drop of blood pressure and succumbed despite active resuscitation.

The hospital had set up an investigation panel to look into the case. It was concluded that this was a very rare and unexpected situation and the cause was uncertain. The case was referred to the Coroners for investigation of the cause of death.

**Category 8: Infant discharged to wrong family or infant abduction**

A 1-year-old baby girl was admitted for suspected child abuse. She was brought to hospital by her grandmother and a detention order was sought. On admission, an identification wristband with security tag was applied to the patient's ankle. Three hours after admission, ward staff found the child missing. Hospital search was conducted but without success. The intact security tag of the patient was found in an empty cot near the ward exit.

Neither the grandmother nor the mother could be reached by phone. The situation was reported to the police. The CCTV recording could not be reviewed because of technical problems. There was no clue to the identity of the abductor. The case medical social worker (MSW) could not be contacted after office hours.

Eighteen hours after the reporting, the child was found in her grandmother's home by the Police. The grandmother subsequently brought the child back to hospital for further assessment, as advised by the Police.

***Key contributing factors***

Personal Factor

- a) Grandmother's fear of being blamed for causing the detention order and separating the child from her mother.

Equipment/ Environment Factors

- b) The wristband holding the security tag was detachable.
- c) Malfunctioning of the CCTV system caused failure in identifying the abductor.
- d) Ward design did not facilitate access and exit control of visitors.

Team Factor

- e) Failure to reach the case MSW urgently after office hours

***Risk reduction strategies***

Equipment

- a) To install alarm system in ward area, including the rear exit.
- b) To explore the use of a more advanced security tagging system.
- c) To check the functioning of CCTV systems regularly.

Parent education

- d) To remind parents or guardians of the consequences of taking patients away from hospital without permission.

Process

- e) To implement preventive measures according to the HA Guidelines on Prevention of and Response to Infant/Child Abduction.

Communication

- f) To develop effective communication channels among the Social Welfare Department, the Police and other relevant parties.

**Category 9: Unexpected death or serious disability reasonably believed to be preventable**

A disinfection incident in operating theatre was reported under this category.

Suspected contaminated instruments had been used on several patients in the Operating Theatre (OT) of a public hospital.

CIDEX has long been used to disinfect OT instruments. In order to enhance staff occupational safety, Cidex-OPA was introduced one month prior to the incident in Hospital X. However, the use of Cidex-OPA is contraindicated for bladder malignancy cases. CIDEX would still be used for disinfection of urological instruments.

Cidex-OPA at Hospital X was prepared in the preparation room of individual OT when required. CIDEX was prepared only in the Central Preparation Room of the 4/F in OT. A tray of sterile water was placed next to it for rinsing purpose. Hospital X used the same kind but different shaped trays (marked "CIDEX") as containers for CIDEX, sterile water, and Cidex-OPA. No other labeling was used to differentiate the solution in these trays.

The hospital had provided training on the use of Cidex-OPA for all OT staff. Briefing on the "new practice" of using CIDEX for disinfecting urological instruments and rinsing in a tray of sterile water was only conducted for staff working at the 4/F.

On the day of the incident, nursing staff disinfected the urological instruments from 4 trans-urethral retrograde prostatectomy cases in the Central Preparation Room by placing them firstly in the tray of CIDEX, then in the tray of sterile water placed next to the CIDEX.

In between, a nurse had to sterilize an ultrasound (USG) probe before and after its use for a brain abscess case. She came from the 2/F OT to assist a neurosurgical case at the 4/F OT and had no knowledge of the special disinfection arrangement in the Central Preparation Room. As no Cidex-OPA had been prepared in the preparation room of her theatre on that day, she went to the Central Preparation Room and placed the probe into the tray of transparent liquid next to the tray of CIDEX which she assumed to be Cidex-OPA (which actually was sterile water).

***Key contributing factors***

**System factors**

- a) Inadequate briefing / communication to ensure all staff were aware of the change of practice.
- b) No established system to go through a proper consultation and endorsement procedure before introducing a new practice. Inability to identify the inadequacy before implementation.

Task design

- c) The use of the same type of trays to hold both CIDEX and sterilized water, without labeling, or written standard procedural guideline.

Human factors

- d) The introduction of Cidex-OPA led the nurse to the assumption that the tray sitting next to the one holding CIDEX solution was Cidex-OPA.
- e) The nurse who immersed the USG probe had no knowledge of the new practice and with a wrong assumption, resulted in the incident.

***Risk reduction strategies***

- a) To clearly label the containers for disinfectants (the content).
- b) To inform all staff concerned of the change in practice before implementation.