



# Report

## Top 10 Patient Safety Issues Thailand 2023



 **ECRI The Healthcare Accreditation Institute (Public Organization)**





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# Top 10 Patient Safety Issues Thailand 2023

## Foreword

Top 10 Patient Safety Issues Thailand 2023 marks a significant milestone as the first report of its kind for Thailand. It is my honor to introduce this comprehensive document, which serves as a vital resource for healthcare organizations across our nation. In our ongoing journey towards becoming high-reliability organizations, it is crucial that we remain vigilant and proactive in addressing patient safety issues. To this end, the Health Accreditation Institute, Thailand, in collaboration with ECRI, has meticulously compiled Thailand's Top 10 Patient Safety Issues 2023. This report is specifically tailored to help healthcare entities in Thailand anticipate and respond to the imminent challenges in patient safety. Furthermore, it provides actionable recommendations crafted by esteemed healthcare experts in our country, accompanied by additional resources to assist in overcoming each identified concern.

When it comes to tackling patient safety challenges across the healthcare continuum, organizations must think innovatively and foster cross-stakeholder collaborations. ECRI adopts the 'Total Systems Safety' approach to patient safety, as advocated by the Institute for Healthcare Improvement (IHI) Patient Safety Congress. This approach encompasses various dimensions that contribute to a culture of safety, including cultivating leadership, governance, and cultures that reflect a deep commitment to safety; engaging patients and families as partners in designing and producing care; fostering a healthy, safe, and resilient environment for the workforce; and supporting continuous and shared learning to improve safety and quality of care.

I would like to express my deepest gratitude to all the dedicated professionals, healthcare staff, and contributors involved in the creation of this report. Your unwavering commitment to patient safety and your invaluable contributions have made this endeavor possible. By leveraging the insights presented in this report, we have the opportunity to effect positive change in our healthcare system and enhance the safety and well-being of our patients.

I urge all healthcare organizations to immerse themselves in the valuable knowledge provided within this report, embracing the recommendations and utilizing the additional resources made available. Let us unite in our shared commitment to building a safer and more reliable healthcare system, one that instills trust and confidence in the hearts of patients and their families.

Dr. Piyawan Limpanyalert  
Chief Executive Officer  
Healthcare Accreditation Institute, Thailand  
Public organization

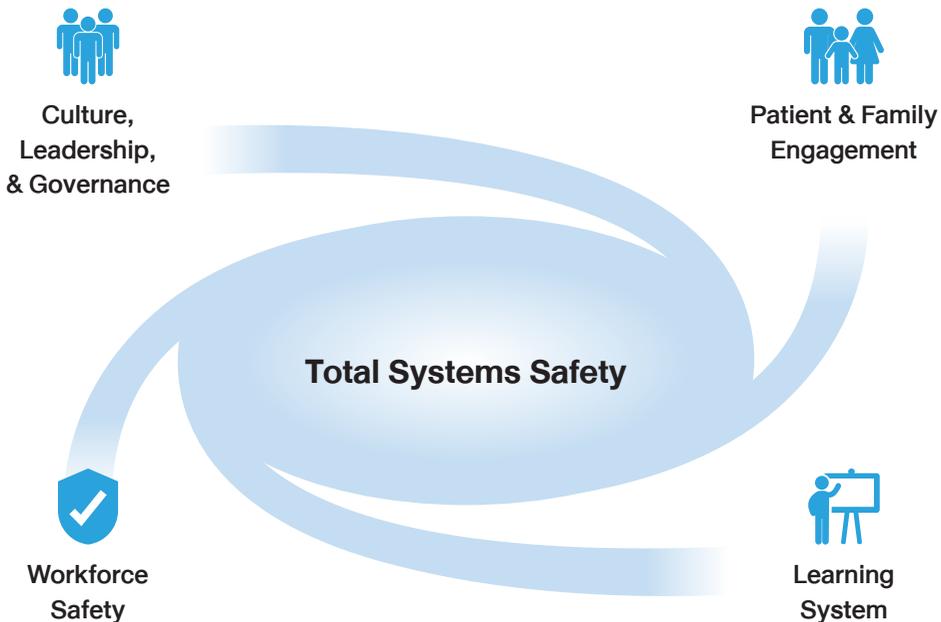
## Introduction

In the pursuit of becoming a high-reliability organization, healthcare entities must strive to stay up-to-date and proactive with issues affecting patient safety. This year, Health Accreditation Institute, Thailand, together with ECRI, has put together Thailand's Top 10 Patient Safety Issues 2023 which will cater specifically to help healthcare organizations in Thailand stay vigilant to impending patient safety challenges. This list will be accompanied by actionable recommendations put together by Thailand's healthcare experts as well as additional resources to aid in overcoming each concern.

When addressing patient safety challenges across the healthcare continuum, organizations need to think innovatively while advocating for cross-stakeholder collaborations to solve issues. The approach ECRI adopts to deal with these challenges is the 'Total Systems Safety' approach to patient safety, which was brought about by the Institute for Healthcare Improvement (IHI) Patient Safety Congress towards attaining total patient safety.

### Total System Safety:

Figure. 1 of Total System Safety





- Cultivating leadership, governance, and cultures that reflect a deep commitment to safety.
- Engaging patients and families as partners in designing and producing care.
- Fostering a healthy, safe, and resilient environment for the workforce.
- Supporting continuous and shared learning to improve safety and quality of care.

Healthcare organizations will have to aim to achieve more by having greater inter-departmental collaboration regarding current and future planning and processes, as well as reaching out to more stakeholders to ensure a coordinated effort for patient safety is achieved.

## Methods

In 2016, Thailand adopted a national policy known as “**Patient and Personnel (2P) Safety**” which aimed to improve the quality and safety of healthcare by highlighting key preventable harms to promote and enforce major changes in Thailand’s healthcare system. As part of the implementation initiatives, the National Reporting and Learning System (NRLS) was developed to serve as the country’s medical harm database from 2017.

From the data collected, several critical preventable harms were identified and highlighted by the Health Accreditation (HA) Institute of Thailand to minimize patient and personnel risk. Using the HA 2P Safety Goals standards and multidisciplinary expert opinions, the institute was able to highlight the potential essential standard for patient safety topics. Statistical data collected on Thailand’s National Reporting and Learning System (NRLS) were contributed by event reports from various hospitals and health organizations throughout Thailand.

The team used scientific literature such as event reports, root cause analyses, medical device alerts, problem reporting, and evaluation, reported medication safety problems; accident investigations; lessons learned from consultation work; and other internal and external data sources to identify key contributing factors for the essential principles.

The analysis consideration includes severity, frequency, breadth, insidiousness, and profile of causes related to the incidents.

- *Severity*: How serious would the harm to patients be if this safety concern were to occur?
- *Frequency*: How likely is it that the safety concern will occur?
- *Breadth*: If the safety concern were to occur, how many patients would it affect?

- *Insidiousness*: Is the problem difficult to recognize or challenging to rectify once it occurs?
- *Profile*: Would the safety concern place a lot of pressure on the organization?

A survey and workshop were conducted to identify key contributing factors to the cases related to the essential principles. In the absence of a detailed root cause analysis report, experts' opinions and experience were used to hypothesize potential risks.

Information that was gathered from the survey and workshop was then streamlined for each case related to the essential principles.

ECRI further researched and provided key recommendations to mitigate identified risks within each essential principle. A final top 10 essential principles were conceived through a voting program, voted by Thailand's healthcare community.

Figure. 2 of The diagram below illustrates the process as mentioned:





## Medication Errors

### Issue and Background:

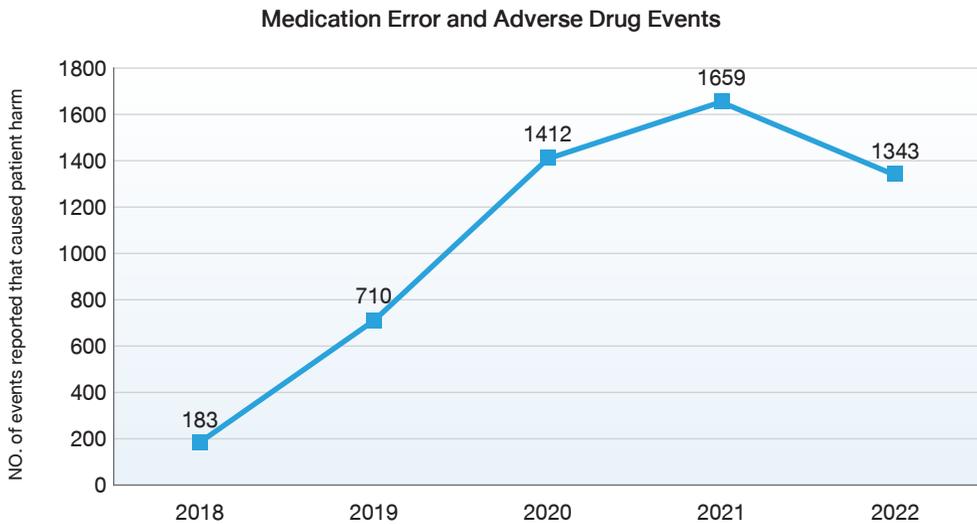
Medication errors are preventable events that result from the inappropriate use of medication leading to patient harm. Global statistical data indicates that the financial cost of medication errors under the supervision of a healthcare professional is estimated to be USD 42 billion annually.

Medication errors occur at different stages of the medication use process and its effects can range from no notable effects to death. For example, milder cases of medication error may trigger new temporary or permanent issues for the patient, such as itching, rashes, or skin disfigurement. Whereas severe cases of medication error can cause injury, disability, and death. The impact of such cases can be devastating to both patients and their families, as medication error is an easily preventable problem.

The medication use process typically covers prescription, transcription, dispensing, administration, and monitoring practices. Medication errors are most common at the prescribing stage. Errors usually include healthcare providers writing the wrong medication, the wrong route or dose, or the wrong frequency. These global prescribing errors account for almost 50% of medication errors. Data indicates that nurses and pharmacists identify anywhere from 30% to 70% of medication-ordering errors.

Based on Thailand's NRLS record, the issue of medication error has also shown a rise in reported cases over the past 5 years, with an increase of 6.33% between 2018 to 2022.

Figure. 3 of patients harmed due to medication errors from the year 2018 to 2022 based on Thailand's NRLS reporting.



### Contributing Factors:

The occurrence of medication errors can be contributed to weak design or compliance with medication use practices and human factors. This report will focus on issues that are a result of errors during the prescription, dispensing and administration process of medication which represents the highest number of events reported in Thailand.

#### Prescription

- Non-compliance to guideline practices that may be caused by the weak design of medication use practices and human factors such as fatigue, poor environmental conditions, or staff shortages.
- Duplicate prescription whereby orders for two or more identical medication, or the same therapeutic class reaches the patient.
- Transcription errors of clinicians or healthcare workers such as poor handwriting, use of abbreviations, and confusion between similar drug names.
- Errors caused by the CPOE design and usability issue, for example, lack of field to enter administration route information in the system confusing information.

- 
- Poor communication amongst clinicians and other healthcare workers results in inadequate handoffs and loss of information due to the prescription being transmitted verbally.
  - Lack of patient history information may result in the wrong medication being prescribed to the patient.

### Dispensing

- Non-compliance to process guidelines during the dispensing process which may include a lack of prescription verification against patient diagnosis or allergy.
- Hazardous or inappropriate storage of medication may confuse when dispensing the medication.
- Drug names that sound or look alike and similar drug packaging can confuse different types of medications.
- Fast paced and non-systematic environment that may lead to distraction during the dispensing process.
- Pharmacy Information System design and usability issues may cause the incorrect medication to be dispensed.

### Administrating

- Non-compliance to administration SOP such as a lack of independent double-checking during drug administration (*i.e. Double-checking medication administration involves two individuals verifying the same information*)
- Physical environment distraction or interruptions during administration.

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Evaluate the procedural steps the organization has established to support safe medication use and monitor the effectiveness of those procedures.
  - Standardize the medication reconciliation processes (SOP process) to support ongoing quality and patient safety initiatives, regulatory and accreditation requirements, and operational efficiencies.

- Reinforce to staff the importance of the consistent use of the procedural steps and high-leverage strategies the organization has established to support medication safety.
- ▶ When a medication error occurs, empower staff to speak openly and help determine whether a procedural step was missed or followed incorrectly and if other latent failures contributed to the error.
  - Identify and address organizational factors that contribute to rushed or inaccurate medication histories, such as shortened appointment times and incomplete medication lists.
  - Recognize “good catches” when staff identify medication reconciliation errors before they reach a patient.
- ▶ Ensure effective communication between medical staff by limiting the use of verbal or phone orders and ensuring that such orders are authenticated and signed by the ordering provider.
  - Nurses should have access to pharmacists or the ordering physician if they have concerns regarding the patient’s medications.
- ▶ Medication management: separating look-alike drugs, capitalizing different letters in the names of sound-alike drugs, secure dangerous drugs by limiting access to locked areas.
- ▶ Ensure effective design of computerized provider order entry (CPOE) systems, bar-coded medication administration (BCMA) systems, and automated dispensing cabinets (ADC) – to be suitable for the medical staff requirements and ease of use to limit error.

## PATIENT & FAMILY ENGAGEMENT

- ▶ Promote patient and family involvement in their care across all healthcare settings. Active, involved, and aware patients are valuable resources for identifying errors.
  - Engage patients when prescribing new medication and before medication administration to reinforce the importance of maintaining a current medication list and bringing it to every healthcare encounter.
  - Include the reason for taking the medication on the home medication list and throughout all documentation systems for medication orders, care planning, and discharge planning.
  - Use patient navigators to educate patients on the use of portals and encourage their use to double-check current medication lists.
  - Design a communication, disclosure, and optimal resolution process to engage patients and families when a medication error occurs.



## WORKPLACE SAFETY

- ▶ Ensure staff has a distraction-free environment during the intake or admission process to collect and document a patient's medication information.
  - Nurses preparing medications should be able to do so in an environment free of distractions (e.g., wear medication administration 'do not disturb' aprons).
  - Assess clinical workflows to identify latent and active failures that may contribute to unsafe working environments that lead to an increased risk of staff committing medication errors.
- ▶ Nurture a culture of high reliability, where staff are sensitive to operations and feel safe to report system issues that can lead to medication reconciliation errors.
- ▶ Provide psychological and social support to practitioners if a medication error occurs.

## LEARNING SYSTEM

- Maintain staff awareness and provide continuing education programs for clinical staff in the correct procedure for safe medication use (compliance to SOP, double checking).
- Review and incorporate strategies from organizations such as ISMP and the Joint Commission into high-alert medication safety protocols.
- Review information about medication safety risks and errors that have occurred in other organizations and take action to prevent similar errors.

## References

- <https://www.who.int/initiatives/medication-without-harm>
- <https://www.ncbi.nlm.nih.gov/books/NBK519065/?report=classic>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7362775/>

## Infection Prevention and Control

### Issue and Background:

Infection control prevents or stops the spread of infections in a healthcare environment. The infection, prevention, and control (IPC) practice is an evidence-based approach to preventing the spread of avoidable infections in a healthcare environment. Effective IPC requires continuous action throughout the health system, including policymakers, facility managers, health workers, and those who access health services. IPC affects all aspects of healthcare, such as hand hygiene, surgical site infections, injection safety, antimicrobial resistance as well as how hospitals operate during and outside of emergencies. Currently, there are two recommended precautionary processes to prevent the spread of infection in a healthcare setting:

- Standard Precaution for All Patient care: Based on a risk assessment and make use of personal protective equipment use that protects healthcare providers from infection and prevents the spread of infection from patient to patient.

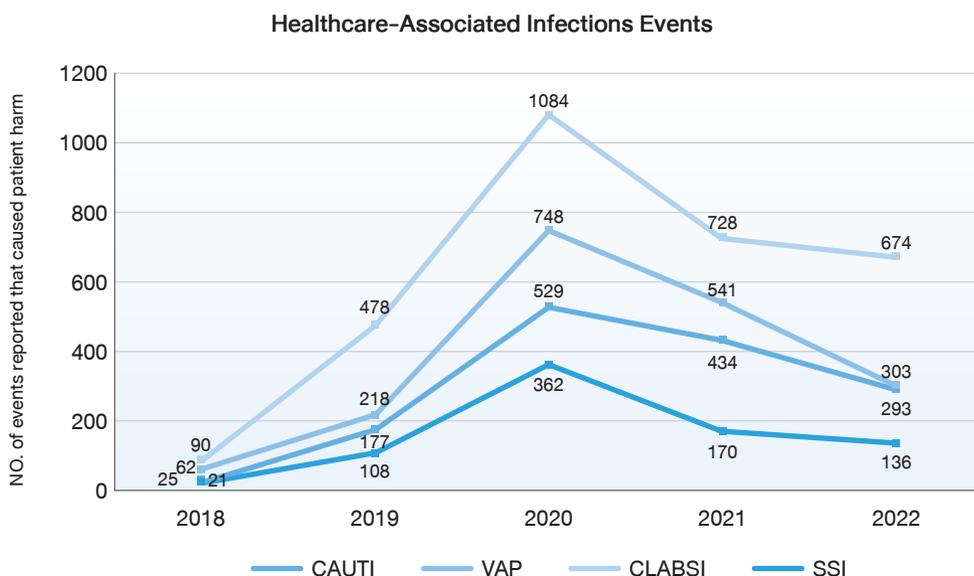
- Transmission-Based Precautions: The second tier of basic infection control and are to be used in addition to Standard Precautions for patients who may be infected or colonized with certain infectious agents for which additional precautions are needed to prevent infection transmission (e.g., isolation).

The impact of bad IPC practices in a healthcare institution can result in a spike of adverse events to patients, namely healthcare-associated infections (HAI). HAI can lead to death or disability in severe cases, while minor cases are usually treated with antibiotics that may contribute to the spread of antimicrobial resistance in the community moving forward.

Thailand's NRLS statistics have shown a steady increase in infection cases including catheter-associated urinary tract infection (CAUTI), ventilator-associated pneumonia (VAP), central line-associated bloodstream infection (CLABSI), and surgical site infection (SSI), with a spike in the year 2020.



Figure. 4 of patients harmed due to HAIs from the year 2018 to 2022 based on Thailand’s NRLS reporting.



### Contributing Factors:

#### CAUTI: Catheter Associated Urinary Tract Infection

- Poor implementation and monitoring of aseptic procedures and infection control guidelines.
  - Lack of knowledge on proper IPC practices
  - Lack specific protocol/instructions on-site
- Lack of compliance and monitoring to existing policies on catheter need assessment and management:
  - Unnecessary catheterization
  - Prolonged use of catheter
  - Changing time of urine collection bag

#### VAP: Ventilator-Associated Pneumonia

- Lack of compliance to guidelines and practices
  - Oral hygiene
  - Intubation protocol
  - Wean respirator protocol
  - Long-term ventilation
- Malfunctioning ventilator
- Reprocessing of single use medical items
- Ineffective cleaning of ventilator system
- Use of unsuitable high-level disinfectant compromising quality and effectiveness of medical items

#### CLABSI: Central Line-Associated Bloodstream Infection

- Poor hygiene practices leading to the contamination at the site of catheter insertion.
- Lack of compliance and monitoring to existing policies on catheter need assessment and management:
  - Unnecessary catheterization
  - Prolonged use of catheter
  - Lack of catheter insertion review by more experienced clinician
  - Lack of compliance to maximal sterile barrier precaution during insertion

#### SSI: Surgical Site Infection

- Long duration of operation
- Surgical instrument breakdown during surgery. Spotting, staining and corrosion of surgical instruments can impair its function, potentially leading to infection in the patient or damage to the surrounding tissue.
- Poor infection control practices/guidelines
  - Ineffective preparation before surgery (e.g. choice of antiseptic and antiseptic preparation, draping materials and body hair at the site of the incision)
  - Poor hygiene practices
  - Ineffective sterilization of surgical instruments
  - Improper ventilation/air filtration in the Operating room

## Actionable Recommendations:

Effective IPC practices are crucial in ending avoidable HAIs and are a key component of effective, high-quality, and most importantly safe health service delivery.

## Catheter Associated Urinary Tract Infection (CAUTI)

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Monitor compliance with policies and procedures by implementing random audits.
  - Ensure a simplified version of the guideline is readily available in the appropriate care setting.
  - Standardization of catheter care protocol to reduce infection incidences.
    - Use a physician reminder system to ensure the optimum duration of catheterization.
    - Ensure aseptic practices of insertion and maintenance of catheter.
    - Avoid unnecessary catheterization by conducting a daily review of catheter necessity.
- ▶ Consider adding the criteria for catheter assessment and practice to be conducted together by doctor and nurse.
- ▶ Ensure proper and clear communication between medical staff especially during the handover process (Establish a specific CAUTI communication project with clear objectives and process).
- ▶ Advocate the use of ‘bundles’ of interventions and document the rate of compliance with bundled components. The documented compliance will act as a benchmark for quality assurance and performance improvement.

### PATIENT & FAMILY ENGAGEMENT

- ▶ Encourage patient involvement by sharing treatment steps with the patient so that the patient can remind the doctor as well.



### LEARNING SYSTEM

- ▶ Regularly conduct publicity, education, skill training, implementation inspections, and effect evaluation for medical staff.
  - Conduct protocol and procedure training via video instead of written instructions.

## Ventilator-Associated Pneumonia (VAP)

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Implement intervention strategies to address pneumonia prevention and ventilator safety.
  - Develop a cleaning protocol for oral care and ensure the patient is provided with it daily.
  - Request the dentist to assist in teaching the nurse the right technique to provide oral care.
  - Halt the use of chlorohexidine and use a small toothbrush instead.
- ▶ Require compliance and monitoring of the weaning protocol. (e.g., Ambulatory muscle exercise)
  - Proper positioning of the patient during intubation.
  - Consider early ambulation and avoid re-intubation.
- ▶ Ensure single use of breathing circuits (do not reprocess single-use medical items) and routine cleaning of ventilators.
- ▶ Ensure the availability of consumables in the department.
- ▶ Advocate the use of ‘bundles’ of interventions and document the rate of compliance with bundled components. The documented compliance will act as a benchmark for quality assurance and performance improvement.

### LEARNING SYSTEM

- Regularly conduct publicity, education, skill training, implementation inspections, and effect evaluation for medical staff.

## Central Line–Associated Bloodstream Infection (CLABSI)

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Strict indication and policies for CVCs use, appropriate selection of catheters and sites, and appropriate CVC handling, surveillance, and quality control
  - Replace central lines placed during an emergency as soon as possible or according to local establish guidelines or within 48 hours.
  - Replace administration sets other than sets used for lipids or blood products according to local establish guidelines or every 96 hours.
  - Assess the need for the central line daily. Promptly remove any central line that is no longer required.
  - Implement and ensure monitoring of maximal sterile barrier (MSB) precaution during insertion, ensuring compliance with routine high-quality aseptic techniques.
- ▶ Limit the use of CVC to critical care areas, ICU, and angiography.
- ▶ Use a strict aseptic technique when inserting central venous catheters.
  - Ensure good hand hygiene by washing hands with soap, water, or alcohol-based gels or foams.
  - Frequent changing of gloves to prevent the growth of microbial.
  - Disinfect the catheter hubs, injection ports, and connections before accessing the line.
- ▶ Ensure comprehensive communication amongst staff.
- ▶ Advocate the use of ‘bundles’ of interventions and document the rate of compliance with bundled components. The documented compliance will act as a benchmark for quality assurance and performance improvement.

### LEARNING SYSTEM

- ▶ Continuous education and training of healthcare personnel



## Surgical Site Infection (SSI)

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Maintain an aseptic technique and adhere to infection control procedures in the operating room.
- ▶ Ensure compliance with safe surgery practices.
  - Frequent changing of gloves to prevent the growth of microbial.
  - Use of surgical caps that covered the surgeons' ears and necks.
  - Use of contact precaution gowns.
  - Appropriate hair removal at surgical site.
  - Routine wound irrigation with normal saline or with saline containing bacitracin or an antibiotic.
- ▶ Ensure continuous aseptic practice training to new surgeons and nursing allied team. (includes procedures during emergency response, communication, risk management, simulation, etc.)
- ▶ Implement engineering control methods. (E.g., ensure optimal air changes per hour)
- ▶ Advocate the use of 'bundles' of interventions and document the rate of compliance with bundled components. The documented compliance will act as a benchmark for quality assurance and performance improvement.

### LEARNING SYSTEM

- ▶ Monitor infection control practices and trends in the surgical suite.

### References

[https://www.who.int/health-topics/infection-prevention-and-control#tab=tab\\_1](https://www.who.int/health-topics/infection-prevention-and-control#tab=tab_1)

## Patient Identification

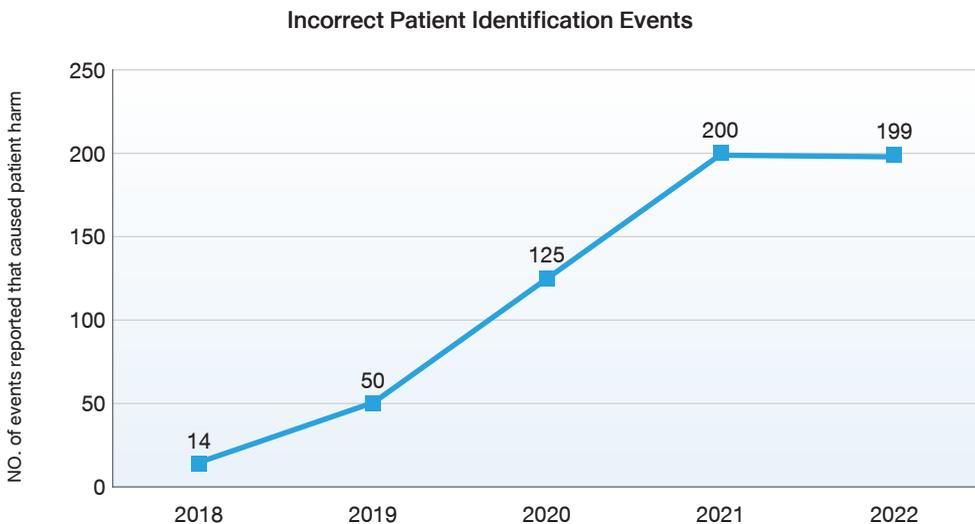
### Issue and Background:

A patient's care trajectory consists of many critical junctions that require patient identification. Positive patient identification is an important part of the healthcare system. In the situation that a patient is misidentified, incorrect information may be shared amongst the healthcare professionals resulting in inaccurate diagnostics and therapeutics.

One of the main areas of concern is when multiple healthcare providers and specialists are involved in caring for a patient. For instance, frequent miscommunication may occur during patient movement, handover, transfer, diagnosis, medication management, infusion, transfusion management, and when in receipt of medical treatment including surgical procedures, devices, as well as implantation. The result of this may be that a healthcare provider issues the wrong treatment plan, the wrong medication, or the wrong transplants. This can lead to a patient facing harm or distress in mild cases while leaving irreversible effects or death in severe cases.

According to Thailand's NRLS, there has been an increasing trend in the number of patient identification cases with 14 in the year 2018 and 199 in the year 2022.

Figure. 5 of patients harmed due to incorrect patient identification events from the year 2018 to 2022 based on Thailand's NRLS reporting.





## Contributing Factors:

Some of the issues that may be contributing to the rise of cases are:

### People

- Environmental distractions during the patient identification verification process.
- Lack of understanding on the various methods and processes when identifying patients; such as staff are unaware of multiple patient identifiers that are being used.
- Staff are desensitized to the patient identification process due to an overload of patients.
- Patients reluctant to provide information due to privacy/PDPA concerns.

### Process

- Shortcuts and workarounds taken during the patient identification process.
- Use of close-ended questions during patient identification confirmation (i.e., staff recite patient name and date of birth instead of asking the patient to provide the identifiers).
- Lack of protocol to identify misrepresented patients. (i.e., Jane Doe, John Doe)
- Admitting a patient under another patient's medical record or creating duplicate records at registration.
- Using a room number or bed assignment to identify a patient who has been moved to a different room or bed.
- Asking about the patient's identity without using two acceptable identifiers and checking the patient's identification band.
- Administering a patient's medications before confirming the patient's identity with bar-code scanning.

### Technology

- Use of inappropriate identification system design.
- Low quality bands are used for patients that may easily loosen or fall off during the care process.

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Communicate leadership's expectation that patient identification is essential for safe patient care and is an organizational priority.
- ▶ Assess the organization's patient identification practices and experience to identify strengths and opportunities for improvement.
  - Standardize and communicate patient identifiers used specifically for clinical purposes and general purposes to all staff.
  - Adopt high-quality wristbands with standard features for patient identification bands to improve usability and readability throughout the patient care trajectory.
  - Ensure that other routine processes requiring patient identification (e.g., specimen collection and labelling, Universal Protocol) apply error prevention strategies.
  - Develop a system or protocol to identify patients with no background information or who are unresponsive (i.e., temporary identification measures).
  - Establish a protocol to use workstations to verify patient identity at the bedside as well as during and before any procedures.
- ▶ To manage PDPA concerns, use a risk-based approach when using patient information online and in-person. (i.e., using Line to transmit patient information)
- ▶ Consider technology, such as bar coding, radio-frequency identification (RFID), and biometric methods, to improve patient identification processes, while addressing its limitations.
- ▶ Incorporate strategies to improve the usability of health information technology (IT) systems and to minimize the risk of human errors leading to wrong-patient mistakes.

### PATIENT & FAMILY ENGAGEMENT

- ▶ Ask open-ended questions during patient identification.
- ▶ Reaffirm the practice to patients as an important safety precaution designed to protect the patient.



### LEARNING SYSTEM

- ▶ Evaluate near misses and safety events to identify risks and contributing factors associated with patient identification failures.
- ▶ Ensure continuous research on techniques that may reduce the chances of misidentification of patients.
- ▶ Ensure that all staff who have duties relating to patient identification receive training about the organization's policy and the importance of adhering to it.

### References

<https://www.ecri.org/components/HRC/Pages/RiskQual16.aspx?tab=1>

## Diagnostic Errors

### Issue and Background:

A diagnostic error is understood as a failure to provide an accurate and timely explanation of a patient's health situation to the patient, family, or other healthcare workers. Diagnosis in primary care areas represents the highest potential risk for errors as healthcare professionals are required to make quick decisions due to the large volume of patients. The three main categories that diagnostic error fall under - either separately or overlapping - are:

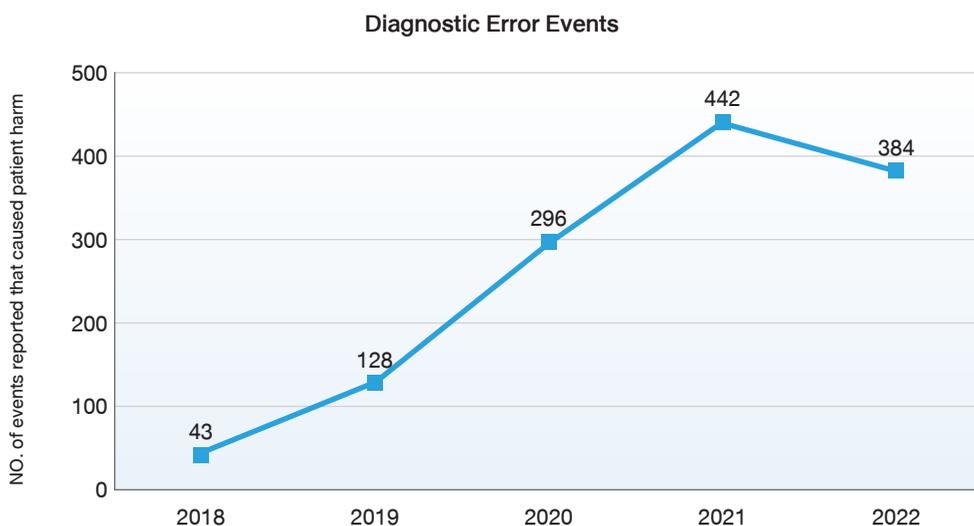
- **Delayed diagnosis:** These cases arise when a diagnosis should have been made earlier. For example, a delayed diagnosis of cancer is extremely common as there are very few good guidelines on making a timely diagnosis, and many illnesses aren't suspected until symptoms persist, or worsen.
- **Wrong diagnosis:** For example, if a patient who is having a heart attack is informed that their pain is caused by acid indigestion. The original diagnosis is found to be incorrect because the true cause is discovered later.
- **Missed diagnosis:** These cases arise when a patient's medical complaints are never explained. For example, patients with chronic fatigue or pain fall into this category, as well as patients with more specific complaints that are never accurately diagnosed.

Globally, this issue has become more prevalent leading to patient harm that can range from no harm to significant harm. For example, consequences from this issue may cause delayed or omitted medications or treatments, unnecessary or harmful treatment, health complications, and psychological repercussions to the patient which may include morbidity or death in severe cases.

From the data reported by hospitals in Thailand NRLS, there has been an observation that there is a gradual increase in diagnostic error events up to the year 2021, with then a slight drop in cases in 2022, as seen in the diagram below:



Figure. 6 of patients harmed due to diagnostic error events from the year 2018 to 2022 based on Thailand's NRLS reporting.



### Contributing Factors:

Some of the most common predictors of missed diagnosis are due to:

#### Existing policies and protocols

- Incomplete protocol in place to guide patient diagnosis.

#### Poor practice

- Lack of comprehensive medical information from the patient (e.g., Poor communication between doctor and patient).
- Diagnosis bias by clinicians based on previous cases.
- Incorrect test assigned for the sample.
- Consultation of various specialists (fragmented treatment).
- Contaminated or mixed-up samples.
- Incomplete or improper physical exam by the physician (cognitive bias).
- Lack of patient-centric patient care.

### Staffing Issues

- Inadequate staffing levels
- Increased workload
- Poor work environment
- Limited staff experience, education, or competency
- Lack of material resources
- Poor communication
- Poor care transitions
- Limited skills mix of staff in the unit
- Lack of teamwork.

### Technology

- Unable to conduct thorough diagnosis due to lack of diagnostic equipment or test (e.g., malfunctioning medical equipment)
- Overreliance on new technologies (e.g., AI)

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Use leadership rounding to identify productivity pressures on staff that may prevent them from performing needed tasks.
- ▶ Take a clinically informed supply purchasing approach to ensure that adequate, appropriate supplies and equipment are available as well as ensure the functionality of diagnostic equipment by ensuring scheduled maintenance is performed for staff to perform necessary diagnostic activities.
- ▶ Evaluate staffing plans and create staffing strategies, considering how frequently demand surges or patient complexity affects staffing adequacy.
- ▶ Use simulation training to help clinicians become aware of their biases and visualize their potential outcomes. Consider training with “cognitive forcing strategies”, such as intentional consideration of other diagnoses.



## PATIENT & FAMILY ENGAGEMENT

- ▶ Ensure comprehensive patient information is available to aid patient diagnosis.
  - Prepare a comprehensive patient information form and ensure that the patient provides as much information before diagnosing (communicate & build rapport with the patient)
  - Proper documentation of patient information (during registration/admissions, during hospital stay)
  - Ensure information is accessible to clinicians (e.g., availability of real-time interoperable health information exchange, CPOE system design should display all relevant info)

## LEARNING SYSTEM

- ▶ Utilize the electronic health record system and patient safety event database to identify trends in diagnosis errors and use that information to inform any process improvement work.
- ▶ Conduct RCAs on all serious safety events related to errors in diagnosis.

## References

- [https://www.ecri.org/components/HRCAlerts/Pages/HRCAlerts032421\\_Diagnostic.aspx](https://www.ecri.org/components/HRCAlerts/Pages/HRCAlerts032421_Diagnostic.aspx)
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## Safe Surgery

### Issue and Background:

Medical issues such as injuries, cancers, and cardiovascular diseases are among the few common health issues requiring surgical intervention. Wrong-site surgery is a general phrase that consists of surgeries and procedures that are conducted on the wrong patient or the wrong anatomical site of the patient which may include the incorrect body part or the wrong side of the body.

Although rare, unsafe surgical care may result in substantial harm to patients such as lifelong physical impairment at the affected site or possibly to healthy structures that have sustained trauma. In severe cases, wrong-site surgery can even lead to the death of a patient.

Several categories of wrong-site surgery are defined as follows.

#### Wrong-side surgery

This category is useful in describing surgical procedures that involve extremities or distinct sides of the body. The operative field in which the procedure is carried out is generally some distance away from the originally intended operative field, such as on the opposite arm or leg. In many of these cases, the operative field and the OR should have been set up in a certain way for the surgery, but may have been set up differently for the other side of the body.

#### Wrong-level or wrong-part surgery

This category includes surgical procedures that are performed at essentially the correct site but at the wrong level or part of the operative field. The correct part of the body is prepared for surgery, but the surgical procedure is performed on the wrong part of the field. An example of this type of procedure would be a lumbar laminectomy performed on the space between the fourth and fifth lumbar vertebrae (L4-5) instead of the space between the fifth lumbar and the first sacral vertebrae (L5-S1).

### Categories of wrong-site surgery

#### Wrong-patient surgery

This category includes procedures that are performed on patients who were not scheduled for a procedure at all, were not scheduled for the procedure that was performed, or were scheduled for a different procedure than the one that was performed. Wrong procedures carried out at intended sites may also be included in this category. This classification depends primarily on the misidentification of the patient.

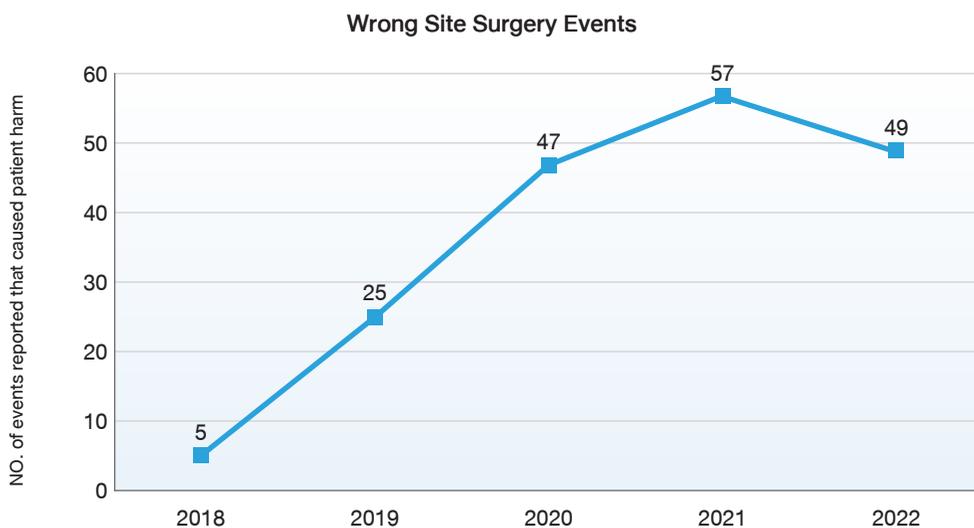
#### Wrong-implant procedures

Wrong-implant procedures are also considered a type of wrong-site surgery. Wrong-implant procedures, such as when the wrong intraocular lens implant is placed during cataract surgery, are known to have occurred in gynecology and ophthalmology and are likely to occur in other specialties.

According to Thailand's NRLS statistics, there has been an increase in the number of wrong-site surgery events occurring over the past 5 years, with the year 2018 only having 5 cases and the year 2022 having 49 cases in total.



Figure. 7 of patients harmed due to wrong-site surgery events from the year 2018 to 2022 based on Thailand's NRLS reporting.



### Contributing Factors:

#### Lack of compliance with existing policies or guidelines

- Surgical site documented incorrectly during the presurgical process (e.g., informed consent form, the preoperative checklist)
- Lack of preoperative planning (e.g., verify implant type and size, instruments required)
- Lack of checklist for minor or non-invasive procedure
- Lack of compliance with existing policies leading to patient identification issues

#### Communication

- Ineffective communication (e.g., failure to involve patient during identification, failure to communicate changes or corrected information)
- Communication or transcribing error (e.g., multiple surgeons/anesthetists/nurses involved in the case, changing position, etc) without system to hand-over information.

- Staff members who fail to speak up despite noticing a wrong-site procedure in the process.
- Incorrect information from patients and families

### Omission of critical information

- Emergency cases with unusual time pressure resulting in an incomplete assessment of the surgical site.
- Surgeons who ignore staff questions regarding laterality
- Unusual physical characteristics, including morbid obesity and physical deformity.

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Ensure that organizational policies and procedures facilitate the prevention of wrong-site surgery.
  - Consider the use of a role-based time-out procedure.
  - Ensure that site marks remain visible when prepped and draped.
  - Use a standardized electronic form or template that requires inputting the exact description of the surgical site or side, or else the procedure cannot be scheduled.
  - Require the scheduler to verbally read back the information regarding the site and side to the physician's office.
  - Require a process in the preadmission phase to ensure that consent has been obtained and that the form matches the scheduled procedure.
  - Request that the physician's office submits the scheduling request and consent forms together.
  - Using the 'knife check' protocol as part of the verification process (*i.e., scalpel or scope is not handed to the surgeon until after final verification is completed*).
  - Communication with patients/family member on the procedure details should be embedded in the system/process, surgeons and senior surgical team members are responsible to initiate.



- Use a checklist in major, minor, and non-invasive procedures to guide the performance of patient safety measures to ensure no requisite steps are overlooked.
- Operative/invasive procedure verification checklist
- Preoperative verification process: a reconciliation of the schedule, consent, history, and physical examination
- ▶ Introducing a risk management tool that includes a protocol for double-checking the correct surgery site.
- ▶ Monitor compliance with policies and procedures by implementing scheduled random audits.

#### **PATIENT & FAMILY ENGAGEMENT**

- ▶ Encourage patient involvement and verification of the operative site and procedure.

#### **WORKPLACE SAFETY**

- ▶ Ensure that providers understand that wrong-site surgery events are considered never events and encourage a safety culture where staff is empowered to speak up if they perceive a problem.

#### **LEARNING SYSTEM**

- ▶ Conduct a root cause analysis for all wrong-site surgery cases.
- ▶ Understand and disseminate information on the causes of wrong-site surgery.
- ▶ Educate providers and staff about the organization's commitment to preventing all cases of wrong-site surgery.
- ▶ Ensure that providers understand that wrong-site surgery events are considered never events and encourage a safety culture where staff is empowered to speak up if they perceive a problem.

## **References**

- <https://www.ecri.org/components/HRC/Pages/SurgAn26.aspx?tab=2>
- <https://www.ecri.org/components/PSOPlus/Pages/e-lert083016.aspx>
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## Infection and Exposure for Healthcare Personnel

### Issue and Background:

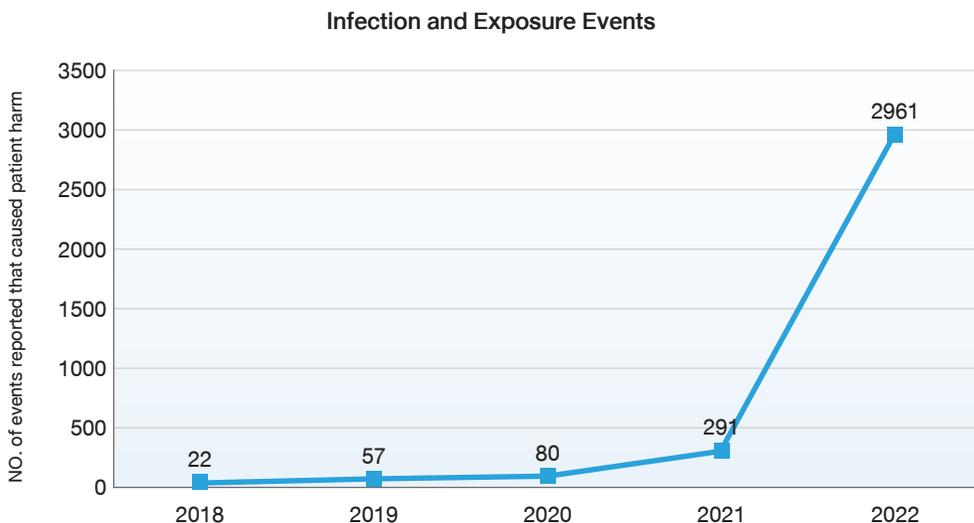
Working in healthcare is hazardous. Potential exposure to airborne infectious diseases, such as Covid-19, TB, and the H1N1 virus, or blood or other potentially infectious materials is a hazard for any worker in patient care and support service areas.

Healthcare personnel can be exposed to infectious materials through sharp injuries, contaminated medical supplies, and equipment, contaminated surfaces, or contact between potentially infectious body fluids and mucous membranes or nonintact skin. Personnel who become infected due to occupational exposure pose an enormous risk to patients and can have possible severe consequences, such as the transmission of infectious diseases.

The prevention of infectious disease transmission among healthcare workers and patients is a critical component of safe healthcare delivery in all healthcare settings.

Healthcare personnel infection and exposure events in Thailand increased exponentially in the last two years, with near to 3,000 reported events in 2022. While it can be concluded that COVID-19 contributed substantially to the sudden spike, sufficient analysis must be performed to identify effective risk reduction strategies in other areas such as sharp injuries, PPE policy, and worker immunization.

Figure. 8 of patients harmed due to infection and exposure events from the year 2018 to 2022 based on Thailand's NRLS reporting.





## Contributing Factors:

### Poor infection control practices

- Lack of compliance with infection control SOP
- Incorrect selection and use of PPE (e.g., the wrong type of PPE for the task, masks not fitted properly)

### Lack of healthcare personnel health requirement policies

- Healthcare personnel are not routinely screened. Routine screening would potentially be able to interrupt chains of infection through early detection.
- Healthcare personnel may not have proper vaccinations.

### Poor engineering controls

- Lack of ventilation and appropriate air exchange in the hospital
- Clogged air filters
- Leaking or contaminated air ducts

### No comprehensive protocol for the management of patients with infectious diseases.

- Inappropriate patient isolation
- Ineffective patient screening during admission

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Develop protocols for addressing work-related and community-acquired infectious diseases and exposure incidents; steps should include notifying infection prevention and occupational health staff and recording such occurrences when appropriate.
- ▶ Implement engineering control methods.
  - Ensure proper ventilation, use negative-pressure air systems, and ensure there are sufficient air changes per hour for the care area. Perform proper and timely maintenance of ventilation systems to ensure the required air change rate is achieved and sustained.
  - Consider adopting technologies such as UV disinfection devices as a supplement to normal cleaning and disinfection processes.
  - Lab: Use the appropriate class of biosafety cabinet with filtration and proper airflow when handling infectious samples. Perform maintenance as scheduled. Replace filters according to requirement.
- ▶ Strict adherence to infection control policies (suspected or infectious disease patients) by patients, visitors, and staff.
  - Ensure the use of PPE on the patient (to reduce source emission) and healthcare workers (to reduce recipient exposure)
  - Personal measures are instructed to patients, visitors, and clinical staff.
- ▶ Carefully control the use and exposure to any respiratory assist devices (high-flow oxygen masks, nebulizers) by only allowing their use in designated, containment areas or rooms

### WORKPLACE SAFETY

- ▶ All healthcare workers should have access to an employee health (occupational health) department or infection control nurse.
- ▶ Perform health inventories-including immunization status and history of conditions that increase the person's chance of contracting or transmitting infectious diseases-before personnel begins duty or a new work assignment.
- ▶ Conduct routine screening for staff and primary vaccination for all medical staff.
  - Implement a multifaceted vaccination program if one is not in place.
  - Review the vaccination status of personnel at least annually.



### PATIENT & FAMILY ENGAGEMENT

- ▶ Educate patients, families, and visitors regarding infection and control issues that are relevant to them. (e.g., hand hygiene, respiratory hygiene, cough etiquette, vaccination, and other routine infection prevention strategies)

### LEARNING SYSTEM

- ▶ Investigate past events of personnel infected on duty to determine the root cause.
- ▶ Train and educate staff regarding infection prevention and control. Periodically assess staff members' knowledge of and adherence to recommended practices.
- ▶ Share learning with all relevant personnel regularly.

### References

<https://www.cdc.gov/coronavirus/2019-ncov/your-health/risks-exposure.html>

## Laboratory/Pathology Inaccuracies

### Issue and Background:

Laboratory testing contributes to the accuracy of the diagnostic process. Although catastrophic lab-testing-related errors are rare, they can lead to significant disruptions to the plan of care, such as missed infusion treatments, cancelled surgical procedures, delays in care, diagnostic error, and death.

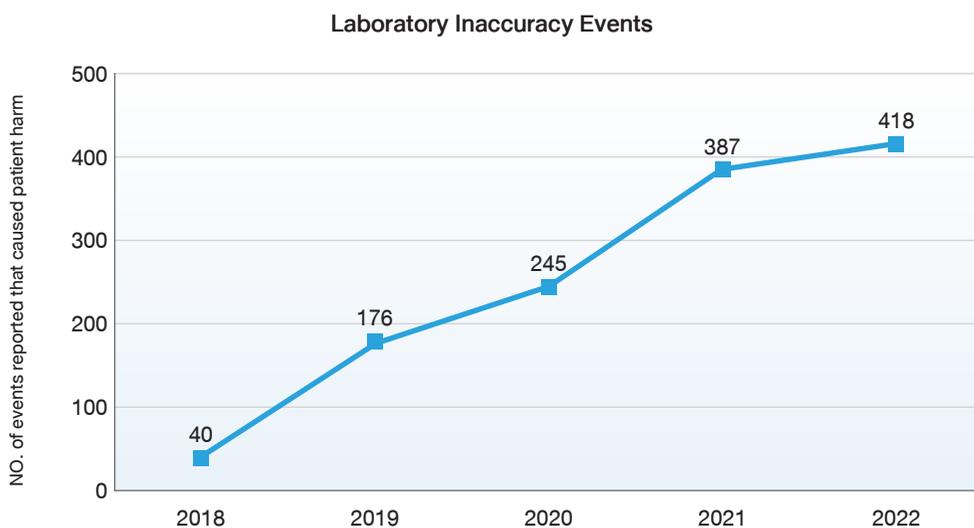
Contrary to its name, laboratory events rarely happen within the four walls of the laboratory. While laboratory events are usually detected within the four walls of the laboratory, they rarely happen within the four walls of the laboratory. **The majority of laboratory events occur in the pre-analytic phase of testing, which involves test selection and ordering, specimen collection and handling, and specimen transport.** ECRI PSO analysed 26,458 (US Data) laboratory events that occurred in 2019 and found the top types of events are specimen quality problems/contamination and mislabelled specimens. However, events do also occur during the post-analytic phase of testing, which involves results reporting, test interpretation and follow-up, and specimen storage.

Therefore, strategies to reduce diagnostic errors involving laboratory testing must entail all phases of laboratory testing and engage all stakeholders in that process.

In Thailand, there has been a growing number of laboratory inaccuracy events over the years, with the events reported increasing tenfold in 5 years.



Figure. 9 of patients harmed due to laboratory inaccuracy events from the year 2018 to 2022 based on Thailand's NRLS reporting.



### Contributing Factors:

**Lack of adherence to policy, protocols, or orders, specifically in the collection of patient samples and test result management.**

- Improper storage of samples before or after testing
- Lack of proper patient identification during sample labelling.

**Design of the Laboratory Information System contributing to data input error, transfer error, and output error. (e.g., confusing displays or controls)**

**Poor communication among staff or team members leads to missing or delayed results.**

- Insufficient communication during shift change
- Lack of verification that critical laboratory results reach the intended clinician.

### Poor inventory management

- Lack of available laboratory reagents

### Laboratory equipment error or breakdown

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Plan and implement a scheduled maintenance system/plan for all lab equipment.
- ▶ Conduct regular internal QC of testing analyzers to ensure the results are accurate and reproducible. Laboratories must ensure that results cannot be released if QC is out of range.
- ▶ Adopt bar-coding systems for specimen labelling to reduce intrinsic risks associated with paper-based test requests and to track ordered tests and document results.
- ▶ Ensure the proper process for sample collection, transfer, processing, and reporting is in place.
- ▶ Develop standardized patient identification and specimen labelling procedures that are simple enough for staff to follow every time. Verify that the written procedures address each step of the sample collection process. Consider the use of checklists to reduce reliance on memory.
- ▶ Ensure that all specimens are labelled and verified before patients leave the sample collection area or before conducting sample collection.
- ▶ Adopt standardized approaches for “stat” and other priority requests.
- ▶ Report urgent and/or critical laboratory results directly to the clinician, OR, or procedure room. The recipient should read back the results for verification and document confirmation of receipt.
- ▶ Regularly manage reagent inventory to prevent a shortage of lab reagents.

## References

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4049056/>
- <https://pubmed.ncbi.nlm.nih.gov/16729864/>



## Blood Safety

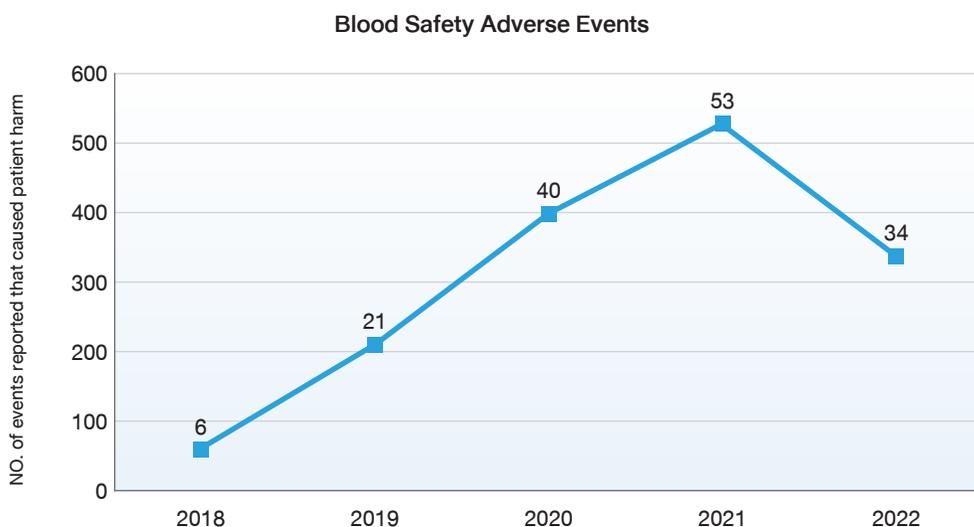
### Issue and Background:

Every day, patients around the world receive life-saving blood transfusions. Although blood transfusion is a common procedure conducted in health facilities, it still carries many risks to the patient requiring it. Risks abound if the blood transfusion process is mismanaged: the patient or patient’s blood type can be misidentified, resulting in a “wrong blood in tube” (WBIT) error; or the patient may be transfused with blood carrying an infectious agent or other bloodborne pathogen.

Staff members must be cautious and maintain vigilance to ensure safe, effective administration of blood products.

In Thailand, the number of blood safety adverse events reported has steadily increased from the year 2018 to 2022, with a maximum number of 53 cases in the year 2021.

Figure. Number 10 of patients harmed due to blood safety adverse events from the year 2018 to 2022 based on Thailand’s NRLS reporting.



## Contributing Factors:

### Lack of compliance with blood transfusion guidelines

- Independent double-checks not performed before a blood transfusion to ensure correct patient identification.
- Improper identification and tracking of blood products when they depart from the blood bank.

### Lack of understanding regarding blood safety measures among staff

- Protocol and policies not well communicated.

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Ensure the availability of organizational policies in place regarding all aspects of blood transfusion management.
  - Blood and blood products logistic process must have a clear protocol and communicated with all relevant personnel
  - Use multiple patient identifiers and other systems to ensure that the patient receives the correct blood or blood product. Implement other safety and fail-safe policies to reduce the likelihood of wrong blood-in-tube errors.
  - Consider implementing an RFID or other monitoring system to track blood and blood products in and once they leave storage. Such a system should be used to reduce errors and near misses.
  - Implement independent double-checking to minimize the risk of error at the final administration check before the transfusion of blood and blood products.



### PATIENT & FAMILY ENGAGEMENT

- ▶ Where possible, patients should give ‘valid consent’ for transfusion based on appropriate information and discussion, however signed consent may not be a legal requirement depending on local guideline.
- ▶ Involving patient in their care continuum

### WORKPLACE SAFETY

- ▶ Ensure all staff involved in the blood collection & transfusion process are trained.
  - All staff who collect blood and blood products from the laboratory or blood bank must be trained and know the correct processes for blood collection, including taking appropriate documentation to identify the patient and the product required.

### Reference

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## Health Information Security

### Issue and Background:

An increase in the number of new and evolving cybersecurity threats and incidents has caused many healthcare organizations to be on high alert. With the adoption of new technologies with interconnectivity and new clinical applications (e.g., telemedicine), the threats have increased exponentially. A cyberattack can disrupt hospital operations, expose confidential protected health information (PHI), damage a facility's reputation, and in extreme cases, cause patient harm. Some of the top cyber threats include data breaches, malware, ransomware, phishing, theft of critical information, distributed denial of service, and in critical cases account takeovers. Leaving data and assets of many organizations vulnerable. The healthcare sector has continuously become a common target for cybercriminals with a substantial increase in the number of incidents over the years.

The healthcare industry has grown to become a key target for many cyber threats due to several factors:

- **Access to Sensitive Data:** Healthcare institutions have clear and easy access to many patients' sensitive data including health and payment card information.
- **Critical Infrastructure:** Cybercriminals prefer to target industries that are more likely to pay the ransom demand. Healthcare institutions are a good example as there is an urgent need to restore the operation of the healthcare facility as soon as possible due to the high number of critical care patients.
- **Internet of Medical Things:** Healthcare institutes are becoming more reliant on networked and integrated devices and systems to aid in the care of their patients. These integrated devices may have poor security, allowing cybercriminals to have easier access to sensitive data and crucial organisational information.

Health information security focuses on three aspects: 1) protecting patients' data confidentiality, 2) ensuring data integrity, and 3) assuring data availability. A threat to either of these components could result in legal issues or financial losses for hospitals and healthcare providers as there will be a great amount of distress caused to patients and their families.



## Contributing Factors:

### Shortage of IT resources

- Outdated technologies and security features

Lack of cybersecurity and governance policies to manage the use of IT in the hospital.

Lack of awareness and knowledge of cybersecurity risks among clinicians

Legacy systems/specialized systems (e.g., lab analyzers) run on outdated systems.

- Lack of patches contributes to cybersecurity risk.

Governance team lacks support from the leadership.

Lack of business continuity management (e.g., cyber resilience)

IT department often works in silos.

- Not involved in patient safety efforts

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

#### ► Availabilities of Policies

- Develop an Incident response plan that takes into consideration medical devices and the continued delivery of patient care. The plan should also endorse post-incident steps (e.g., enforcing organization-wide password resets after an attack, factory resetting, and replacing compromised hardware and software as necessary). Conduct tabletop exercises to practice incident response plans.

► Availabilities of Policies

- Develop an Incident response plan that takes into consideration medical devices and the continued delivery of patient care. The plan should also endorse post-incident steps (e.g., enforcing organization-wide password resets after an attack, factory resetting, and replacing compromised hardware and software as necessary). Conduct tabletop exercises to practice incident response plans.
- Review and ensure appropriate security control measures are in place. E.g., ensure users have appropriate access based on their roles – that is administrator versus clinician. Enable multifactor authentication (MFA) as appropriate. Audit user logs.
- Conduct a cybersecurity gap analysis to identify vulnerabilities to manage risk.

► Ensure availability of IT infrastructure.

- Information security requires that the IT infrastructure has configuration management, change management, and logging and monitoring in place.
- Consider investing in software/tools to prevent cyberattacks, rather than reactive approaches following attacks. Conduct a risk assessment on any potential tools/services.
- All back-up facilities should be regularly monitored and updated.

► Risk assessment

- A risk-based approach through enterprise assessment should be conducted as part of mitigation strategy to seek potential technological integration vulnerabilities.

## LEARNING SYSTEM

- Create cyberculture amongst medical staff by providing cybersecurity/ cyber awareness training. (e.g., not click on malicious links, never open unexpected or untrusted attachments, never plug an unknown USB into their computer) Health facilities should frequently assess and identify gaps in knowledge.

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## Antimicrobial Resistance (AMR)

### Issue and Background:

Antimicrobial resistance (AMR) is an issue that occurs when microbiomes such as bacteria, viruses, fungi, and parasites mutate over time and no longer have the intended response to medication. The medication used against these microbiomes include antibiotics, antivirals, antifungals, and antiparasitic treatments. The ineffectiveness of the medication to the microbiomes threatens the successful prevention and treatment of infections and increases the risk of a particular disease spreading. In severe cases, the inability to have these diseases treated may lead to serious illnesses and potential death.

Due to there being a deficit in new or improved antibiotic development, therefore, efforts to overcome this issue should be directed towards promoting more rational prescription practices at all levels as well as strengthening the ability to accurately identify the microorganisms responsible for infections before prescribing any form of medication.

Despite the increased focus on the importance of antimicrobial stewardship in healthcare (for example, this topic was highlighted in ECRI's Top 10 Patient Safety Concerns in 2020 and 2019), antibiotics are still being prescribed unnecessarily, when no longer needed, in the wrong dose, and with the wrong indications—any of which can increase antimicrobial resistance. As antimicrobial resistance increases, it limits the number of treatment options for affected patients and endangers the public at large.

In Thailand, a preliminary study on the burden of AMR has revealed that AMR causes approximately 38,000 deaths annually and that overall economic losses due to AMR are as much as 1,200 million USD. While Thailand has made great strides in resolving antimicrobial resistance under Thailand's national strategic plan on antimicrobial resistance 2017-2022 (e.g., Reducing antibiotic prescribing rates from 43.5% to 22.1% (out of 3 087 582 and 5 098 334 outpatient visits, respectively) in upper respiratory infection; from 45.7% to 19.3% in acute diarrhea (out of 624 452 and 1 251 650 outpatient visits, respectively); and from 68.4% to 45.6% (out of 1 330 707 and 2 506 235 outpatient visits, respectively) in uncomplicated wounds over 2014–2019), there still exist challenges in mitigating the issue (e.g., Data from Thailand's working group on surveillance of antimicrobial consumption indicates that during 2017-2019, antimicrobial consumption in humans increased by 20.9% (from 68.7 to 83.0 defined daily dose per 1000 inhabitants per day)).

## Contributing Factors:

Antibiotics being prescribed unnecessarily, when no longer needed, in the wrong dose, and with the wrong indication.

Limited public understanding/awareness contributing to incomplete consumption of antibiotic courses., patients insist on getting an antibiotic they don't need.

Lack of infection control measures

Accessibility of antibiotics (patients can buy antibiotics anywhere at any time)

## Actionable Recommendations:

### CULTURE, LEADERSHIP & GOVERNANCE

- ▶ Implement a multidisciplinary process to monitor staff adherence to standard policies and contact precautions.
- ▶ Continued implementation of Rational Drug Use Policy
- ▶ Evaluate the organization's antimicrobial stewardship program to ensure it aligns with current guidelines and recommendations as well as ensure it is well communicated with all medical staff
- ▶ Optimize antibiotic prescriptions for patients. Choose the right dose, duration, and route for patient treatment.
- ▶ Strengthen policies, programs, and implementation of infection prevention and control measures within the care areas.



## LEARNING SYSTEM

- ▶ Gather data such as culture contamination rates, provider prescribing patterns, and adverse event reports for inappropriate antibiotic use – monitor habits and identify areas where antibiotic use can be decreased. Consider the use of antimicrobial order forms to track the dispensing of antibiotics.
- ▶ Share information and strategies among providers – work collaboratively across care settings (with other healthcare networks and organizations)
- ▶ To educate clinicians and the public to stop antibiotics right away if the infection is identified as non-bacterial, instead of finishing the antibiotic course.

## PATIENT & FAMILY ENGAGEMENT

- ▶ Public Education
  - Generate considerable attention to the topic of antimicrobial resistance, developing public engagement materials and effectively guiding the social debate about antimicrobials and resistance in social media.
  - Direct healthcare workers to educate patients and their family members about antibiotics at the point of clinical care. Regulate and promote the appropriate use and disposal of quality medicine. E.g., to stop the intake of antibiotics if the infection is identified as non-bacterial, instead of finishing the antibiotic course.

## References

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## Conclusion

To identify patient safety hazards, we must first ensure events are reported. Continuous event reporting is fundamental to improving patient and personnel safety to ensure the identification of safety hazards and risk mitigation strategies to enhance safety across the continuum of care. Healthcare personnel need to report any incidents where a patient lodges a complaint, medication error occurs, medical device malfunctions, or when anyone – patient, staff, or visitor – is injured or involved in a situation with the potential for injury. To facilitate comprehensive event analysis and identification of root causes, event reporting should be conducted in a systematic method to ensure extensive information is available for quantitative analysis as well as for monitoring purposes moving forward. This will ensure all factors, including systemic errors (e.g., communication issues, inconsistent processes, inadequate staffing) can be considered and recognized as hazards, allowing such issues to be addressed, therefore eliminating event reoccurrence, and improving patient safety.



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