



ECRI Institute  
PSO Deep Dive

# Patient Identification: Executive Summary

- ▶ In-depth look at patient safety events related to patient identification
- ▶ Systems-focused learning
- ▶ Leadership strategies
- ▶ Online resources



## ECRI INSTITUTE PSO

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## MISSION STATEMENT

ECRI Institute PSO is a federally listed patient safety organization that is a component of ECRI Institute.

ECRI Institute, a nonprofit organization, dedicates itself to bringing the discipline of applied scientific research in healthcare to uncover the best approaches to improving patient care. As a pioneer in this science for nearly 50 years, ECRI Institute marries experience and independence with the objectivity of evidence-based research.

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## ECRI INSTITUTE UNDERTAKES SEVERAL INITIATIVES TO PROMOTE ACCURATE PATIENT IDENTIFICATION

*ECRI Institute Patient Safety Organization's Deep Dive: Patient Identification* (Volume 1) summarizes an analysis of more than 7,600 wrong-patient events occurring between January 2013 and August 2015 and reported to the PSO event report database. Based on the findings, recommendations and mitigation strategies are provided. The report is available for members at [https://www.ecri.org/components/PSOcore/Pages/DeepDive0816\\_PatientID.aspx](https://www.ecri.org/components/PSOcore/Pages/DeepDive0816_PatientID.aspx)

*ECRI Institute's Health Technology Assessment Information Service's* report *Patient Identification: Literature Review* (Volume 2) is an evidence-based review of the clinical literature that addresses key questions about the prevalence and causes of patient identification errors and identifies effective interventions for decreasing wrong-patient mistakes. The report is available for members at <https://www.ecri.org/components/SpecialReports/Pages/80816.aspx>

The *Partnership for Health IT Patient Safety*, a private sector initiative, has assembled a multi-stakeholder workgroup to clarify the role of health information technology (IT) in either mediating or preventing patient identification errors by reviewing the evidence, sharing solutions, identifying challenges and barriers, considering product features and functionality, and creating recommendations for safe practices. Its findings are published in its report *Health IT Safe Practices: Toolkit for the Safe Use of Health IT for Patient Identification*. The Partnership's recommendations and Toolkit will be publicly available at <https://www.ecri.org/resource-center/Pages/HITPartnership.aspx>.

ECRI Institute encourages its members to review these reports. More information is available at <http://www.ecri.org/patientid>.

## Acknowledgments

ECRI Institute PSO thanks its collaborating member organizations and partner patient safety organizations (PSOs) for sharing their patient identification events for this Deep Dive™ report. Over the course of five Deep Dive projects, participating healthcare organizations have learned multiple patient safety lessons from the aggregated analysis of shared events.

ECRI Institute PSO encourages its members to review *Patient Identification: Deep Dive* (Volume 1) and the accompanying report *Patient Identification: Literature Review* (Volume 2). Members are also encouraged to enlist a multidisciplinary team of representatives from senior leadership, clinical departments and care settings, medical staff, pharmacy, ancillary services, registration and scheduling, admissions, information technology, risk management, patient safety, quality improvement, and other areas to discuss the applicability of the findings to their organizations. As this analysis demonstrates, wrong-patient errors can occur at multiple points during a patient's healthcare encounter and can involve nearly anyone on the patient's healthcare team. Safe patient identification requires multi-pronged solutions to engage team members and patients.

In addition to the many individuals at ECRI Institute who contributed to this report, ECRI Institute PSO acknowledges the following individuals for their insights about this report:

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### About ECRI Institute PSO

ECRI Institute PSO is one of the first patient safety organizations (PSOs) to be federally certified under the provisions of the Patient Safety and Quality Improvement Act (PSQIA).

PSQIA gives healthcare organizations a unique opportunity to voluntarily share their safety surveillance data in a protected environment so PSOs can aggregate and analyze the data. The law also charges PSOs with the responsibility to share the findings and lessons learned. The release of *ECRI Institute PSO Deep Dive: Patient Identification* (Volume 1) is in keeping with that responsibility.

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# Executive Summary

*For its fifth Deep Dive analysis of a patient safety topic, ECRI Institute PSO selected patient identification. Safe patient care starts with delivering the intended interventions to the right person. Yet, the risk of wrong-patient errors is ever-present for the multitude of patient encounters occurring daily in healthcare settings.*

*Many patient identification mistakes are caught before care is provided, but reports submitted to ECRI Institute PSO illustrate that others do reach the patient, sometimes with potentially fatal consequences.*

*In addition to their potential to cause serious harm, patient identification errors are particularly troublesome for a number of other reasons, including:*

- ▶ *Most, if not all, wrong-patient errors are preventable.*
- ▶ *Incorrect patient identification can occur during multiple procedures and processes, including but not limited to patient registration, electronic data entry and transfer, medication administration, medical and surgical interventions, blood transfusions, diagnostic testing, patient monitoring, and emergency care.*
- ▶ *Patient identification mistakes can occur in every healthcare setting, from hospitals and nursing homes to physician offices and pharmacies.*
- ▶ *No one on the patient's healthcare team is immune from making a wrong-patient error. Mistakes have been made by physicians, nurses, lab technicians, pharmacists, transporters, and others.*
- ▶ *Many patient identification errors affect at least two people. For example, when a patient receives a medication intended for another patient, both patients—the one who received the wrong medication and the one whose medication was omitted—can be harmed.*

*Given that correct patient identification is fundamental to safe care, the Joint Commission has made accurate patient identification one of its National Patient Safety Goals since 2003 when the first set of goals went into effect. The Joint Commission is not alone in advocating for safe practices to ensure correct patient identification. The National Quality Forum lists wrong-patient mistakes as serious reportable events and also considers patient identification as a high-priority area for measuring health information technology (IT) safety. Even the media has called attention to the issue. Of the 25 “shocking medical mistakes” listed by cable news network CNN in 2015, at least 6 involved wrong-patient errors.*

*Despite the attention given to correct patient identification, mistakes continue to occur.*

## Understanding Patient Identification

ECRI Institute PSO uses the following definition of “patient identification,” adapted from the Australian Commission on Safety and Quality in Health Care:

“Patient identification is the process of correctly matching a patient to appropriately intended interventions and communicating information about the patient’s identity accurately and reliably throughout the continuum of care.”

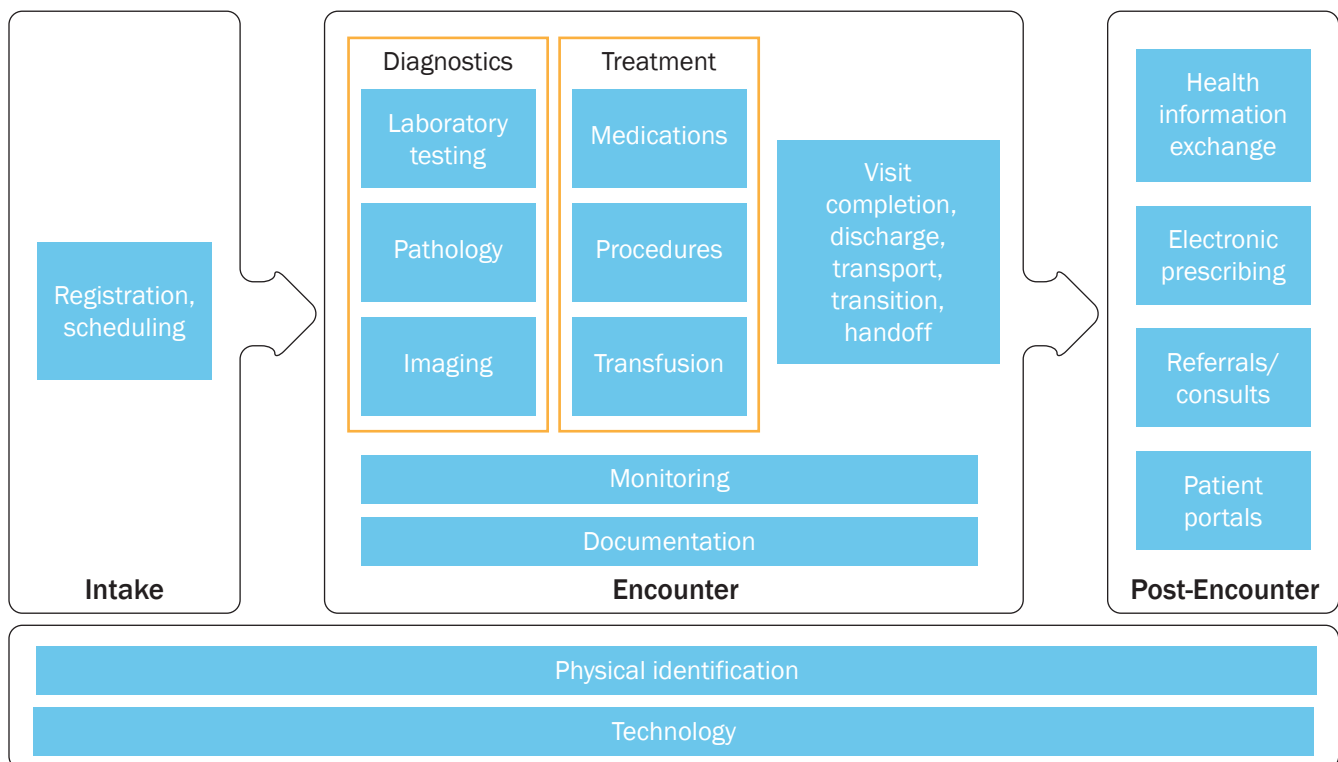
As shown in **Figure 1**, patient identification occurs throughout the patient’s encounter in the care continuum. ECRI Institute PSO developed a care process map to conceptualize a patient’s movement through any healthcare setting and to show key points when patient identification is necessary.

The patient’s care process involves three distinct phases for analyzing patient identification events:

- ▶ Intake (i.e., registration, scheduling)
- ▶ Clinical encounter (e.g., diagnosis, treatment, monitoring, discharge/visit completion)
- ▶ Post-encounter (e.g., referrals, health information exchanges, electronic prescribing)

Underlying all three phases is physical identification of the patient using at least two patient identifiers as well as various technologies with features that facilitate patient identification. These technologies include electronic health records (EHRs), computerized

**Figure 1. Patient Identification Care Process Map**



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provider order entry (CPOE) systems, bar-code scanners, physiologic monitors, electronic prescribing capability, and more. While the inappropriate use of these technologies can contribute to wrong-patient errors, when used properly these systems also play a role in preventing identification mistakes.

## What ECRI Institute PSO Found

For its Deep Dive on patient identification events, ECRI Institute PSO analyzed 7,613 events submitted by 181 healthcare organizations. ECRI Institute PSO conducted a key word search of its event report database to find events involving patient identification occurring over the 32-month period from January 2013 through August 2015. The term “event” includes near-miss events (events that are detected before reaching the patient) as well as events that reach the patient, some of which cause harm. We also asked member organizations and partner PSOs to submit at least 10 events related to patient identification during a six-week call to action (June 18 to July 31, 2015). We collected 10,915 events from these initiatives.

ECRI Institute PSO analysts individually classified each of the events using a unique taxonomy developed by the PSO for analyzing patient identification events. Of the 10,915 events, the analysts eliminated 3,302 reports that were not wrong-patient events and classified the remaining 7,613 events using the patient identification event taxonomy.

## Sample Wrong-Patient Events from ECRI Institute PSO’s Database

- ▷ **Medical-surgical unit:** A patient in cardiac arrest was mistakenly not resuscitated because the care team pulled up the wrong patient’s record and adhered to a do-not-resuscitate order.
- ▷ **Surgery:** A cardiac clearance meant for a different patient was given to a patient who previously had an abnormal electrocardiogram. The patient underwent surgery and was found unresponsive in his hospital room the next day.
- ▷ **Dietary:** The wrong meal tray was given to a patient with a nasogastric tube who was not to receive any food or fluids orally. The patient attempted to eat the food and choked.
- ▷ **Diagnostic imaging:** The wrong patient was taken to the radiology department for a magnetic resonance imaging exam with general anesthesia. The patient was intubated and sedated before the error was caught.
- ▷ **Pharmacy:** A patient received a different patient’s hypertensive medication, at 10 times the intended dose. The patient was admitted to intensive care for hypotension.
- ▷ **Maternity ward:** An infant received another infant’s breastmilk. The mother who produced the breastmilk was infected with the hepatitis B virus, so the infant had to be treated with hepatitis B immune globulin.
- ▷ **Doctor’s office:** The wrong patient was marked as deceased in the doctor’s office’s electronic health record. All her outstanding appointments were automatically canceled. When the patient arrived for a previously scheduled appointment, she was not happy that all her appointments had been canceled.
- ▷ **Eye clinic:** Two patients with the same first name were scheduled for cataract surgery. The wrong patient was brought into the operating room and received the lens implant intended for the other patient.
- ▷ **Nursing home:** A patient from a nursing home was scheduled for a computed tomography scan at an affiliated hospital. The wrong patient (who had a similar name) was picked up from the nursing home, taken to the hospital, and underwent the exam.

The taxonomy assigns a failure mode associated with each event. Some of the events had more than one failure mode, resulting in 7,740 failures identified from the 7,613 events.

Examples of wrong-patient events submitted to ECRI Institute PSO by healthcare organizations are listed in “Sample Wrong-Patient Events.” The events occurred in a wide range of settings.

The events describe an array of factors that can contribute to wrong-patient errors, such as the following:

- ▶ 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 a patient to confirm his or her name (“Are you Mr. X?”) instead of asking the patient to state his or her name (“Tell me your name.”)
- ▶ Pulling the medical record of a patient with a name similar to that of the intended patient
- ▶ Entering orders in the wrong patient’s chart
- ▶ Asking about the patient’s identity without using two acceptable identifiers or checking the patient’s identification band
- ▶ Administering a patient’s medications before confirming the patient’s identity with bar-code scanning
- ▶ Retaining previously recorded patient demographic data when a new patient is connected to physiologic monitoring equipment, or matching portable telemetry equipment with the wrong patient
- ▶ Relying on patients with impaired ability to confirm their identifying information

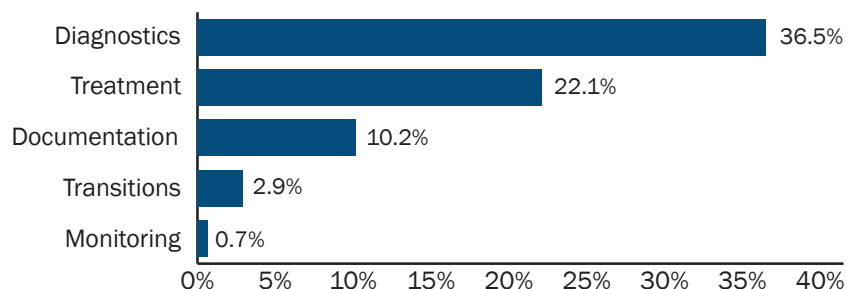
## Analysis

Among the results from the analysis, ECRI Institute PSO found the following:

- ▶ The majority of the failures (72.3%) occurred during patient encounters; another 12.6% occurred during the intake process. Very few failures were identified during the post-encounter phase.
- ▶ More than half of the failures involved either diagnostic procedures (2,824 or 36.5%) or treatment (1,710 or 22.1%). Diagnostic procedures cover laboratory medicine, pathology, and diagnostic imaging. Treatment covers medications, procedures, and transfusions. (See [Figure 2](#).)
- ▶ The majority of the events for which a harm score was provided were caught before they caused any harm (1,601 of 1,752 events, or 91.4%). (See [Figure 3](#).)
- ▶ The two wrong-patient events associated with patient deaths involved documentation failures; in one event, the wrong patient record was accessed, and in the other event, the wrong patient’s documentation was used to give another patient clearance for surgery.



**Figure 2. Patient Identification Failures: Encounter Phase**



**Note:** N = 7,740 (some of the 7,613 events had more than one failure). Percentages do not add up to 100 because the percentages of failures from the intake and post-encounter phases are not shown.

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- ▶ Wrong-patient events involving physical identification of patients constituted about 15% of all the failures identified; most of these events fell into three categories: wristband missing, patient identity not verified, or wristband identifiers incorrect.
- ▶ Almost 15% of events (1,148) were associated with technology contributing to patient identification errors.

## Key Recommendations\*

### Leadership

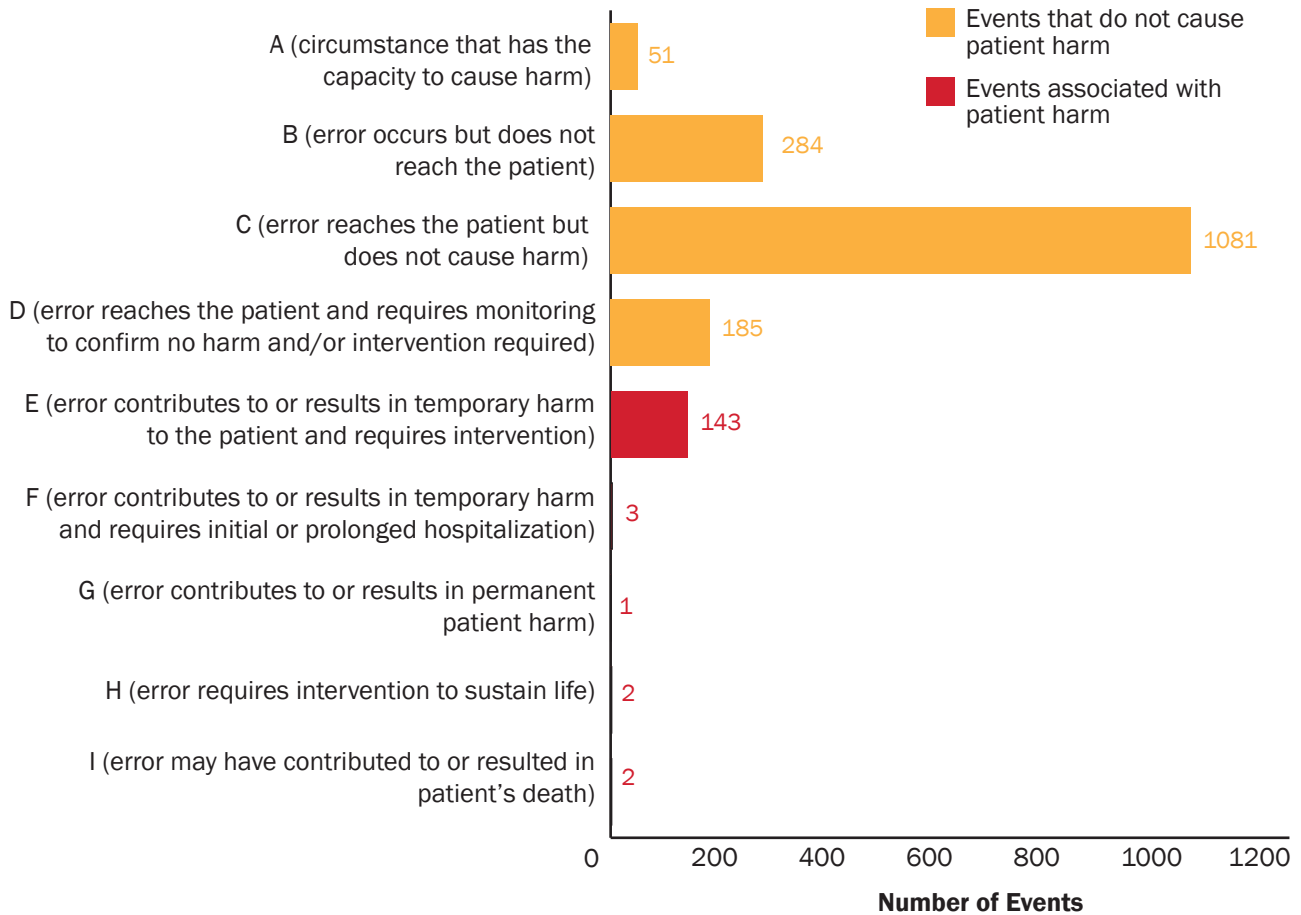
- ▶ Communicate to staff the expectation that patient identification is essential for safe care and is an organizational priority.
- ▶ Ask questions about the organization’s patient identification practices and experiences (e.g., what adverse events and claims activity at the organization are related to patient identification processes?) to identify strengths and opportunities for improvement.
- ▶ Provide support for the organization’s patient identification improvement initiatives to mobilize the many stakeholders who contribute to the efforts and to provide the necessary resources and staff to support the initiatives.

### Policies and Procedures

- ▶ Examine the organization’s work processes—for example, conduct a failure mode and effects analysis—to uncover any latent system-wide problems with patient identification; the Deep Dive analysis found that lapses in adhering to an organization’s patient identification policy were a contributing factor for events that led to patient harm.
- ▶ Adopt a standardized protocol to verify a patient’s identity; ensure that the policy and procedures spell out the details for patient identification (e.g., which identifiers to use and when).

\* An accompanying handout for your staff is provided in “What Can You Do to Ensure the Right Patient Every Time” on page 15.

**Figure 3. Patient Identification Events by Harm Score (N = 1,752)**



**Note:** Harm scores of A through I are based on the National Coordinating Council for Medication Error Reporting and Prevention's harm level classification for medication errors.

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- ▶ Ensure that all staff who have duties relating to patient identification receive training about the policy and the importance of adhering to the procedures for patient identification.
- ▶ Share with staff wrong-patient events that have occurred at the facility to drive home the message that patient identification errors can happen and may have serious consequences.

### Patient and Family Engagement

- ▶ Engage patients and their family members in patient identification by explaining the purpose of the organization's approach to patient identification and emphasizing patients' and family members' roles in ensuring correct identification.

- ▶ Encourage patients to speak up if staff do not ask for patient identifiers or if they are approached for unexpected tests or treatments.
- ▶ Enable patients to view and access information about their hospital admission and physician visits from a secure patient portal. Ask patients to speak up if information is missing or incorrect; errors may be the result of a patient mix-up.

### Patient Registration

- ▶ Support registration staff with clearly defined policies and procedures for the registration process; otherwise, incorrect patient information introduced at registration can compromise quality of care throughout the patient's course of treatment if the mistakes are not identified and corrected.
- ▶ Consider supplementing the registration process with biometric methods to improve patient identification.
- ▶ Foster a work environment that supports registration staff and values their contribution to patient safety through accurate patient identification.
- ▶ Implement a quality assurance plan using metrics such as duplicate record and record overlay rates to monitor the patient registration process, and share the results with registration staff.
- ▶ Monitor various public and private initiatives to improve patient record matching and to promote information exchange between organizations.

### Standardize and Simplify

- ▶ Adopt standard features for patient identification bands (e.g., information display, location of patient name) to improve usability and readability.
- ▶ Ensure that the Joint Commission Universal Protocol to prevent wrong-person procedures, including the time-out protocol, is uniformly applied and consistently used by all providers.
- ▶ Provide a list of invasive procedures performed outside of the operating room (e.g., biopsy, injections into a joint space or body cavity, insertion of central vascular access device) that require application of the Universal Protocol to prevent wrong-patient errors.

### Technology

- ▶ Ensure the safe use of patient care technology to prevent wrong-patient mistakes; adopt measures to prevent patient mismatches that occur when patient information is incorrectly recorded in bedside equipment, such as point-of-care tests and physiologic monitors.
- ▶ Consider technology, such as bar coding or radio-frequency identification, to support patient identification, while addressing its limitations. For a glimpse of how new technologies to improve patient identification might be used in a fully equipped hospital of the future, refer to [Figure 4](#).

*(continued on page 14)*

**Figure 4. Technology Improves Patient Identification in Tomorrow's Hospital**

# 1. PATIENT REGISTRATION

- ▶ Patient arrives at the hospital for a heart bypass procedure. Registration staff see a list of multiple patients with the same last name. The patient has a vein scan on file. A biometrics scan of the patient's palm at registration links the patient's unique vein pattern to the patient's medical record.



# 2. OPERATING ROOM

- ▶ The anesthesiologist uses a bar-code scanner to scan the patient's identification wristband; the scan triggers the anesthesia information management system to create a perioperative record for the patient. The record automatically populates with the patient identifiers contained in the wristband, including a patient photograph.
- ▶ The surgeon also uses a bar-code scan of the patient's wristband to electronically access the patient's imaging studies. The color photograph of the patient embedded in the digital image corresponds to the photograph of the patient in the perioperative record.

# 3. RECOVERY ROOM

- ▶ The recovery room nurse arrives at the patient's bedside to check the patient's vital signs and other physiologic data collected from the monitoring equipment. The recovery room is wired with a radio-frequency identification (RFID) tracking system. As the nurse walks into the room, the RFID tag on her badge triggers the electronic health record to open the patient's medical record. The system matches the nurse's RFID tag with the patient's record. The physiologic data automatically transfer to the patient's record once the file is open.





4.

**PATIENT ROOM**

▶ The patient’s physician orders medication for the patient in the order-entry system. As the physician enters the order, the system flashes an alert that the medication is contraindicated for pediatric patients. The physician looks at the screen and realizes that the wrong patient name is on the order. She corrects the patient name and orders the medication. The system asks her to reenter the initials of the patient’s name. The system confirms that the order is for the right patient and the order is sent to the pharmacy information system.



5.

**DISCHARGE**

▶ The discharge nurse selects the patient’s last name from a drop-down list in the electronic record to open the patient’s medical record. The photo that displays on the screen is of a woman; her patient is male. The nurse realizes the wrong patient record was accessed and goes back to the drop-down list to select the patient’s name. The record opens and displays a photo that matches the patient in front of her. The nurse begins to prepare the patient’s discharge summary.



6.

**OUTPATIENT REHABILITATION**

▶ Two weeks after discharge, the patient begins outpatient physical therapy at a nearby rehabilitation hospital. The patient’s discharge summary was sent electronically to the rehabilitation hospital. The physical therapist uses the number for the patient’s unique identifier to access the patient’s discharge summary and create a new record to document the patient’s therapy.



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*(continued from page 11)*

- ▶ Adopt a well-defined approach to evaluate and implement safety-enhancing technologies and to monitor their use after implementation to achieve their full benefit; otherwise, technology can contribute to errors if it is poorly designed, staff do not know how to use it correctly or optimally, or staff perceive it as interfering with their workload.
- ▶ Incorporate strategies to improve the usability of health IT systems and to minimize the risk of human error; incomplete approaches to the planning, implementation, and ongoing use of health IT can lead to unintended consequences such as mistakes in managing patient records and data.
- ▶ Clearly display attributes used in patient identification (e.g., last name, first name, date of birth, calculated age, gender, medical record number) across all health IT applications, and include a banner or header with at least two patient identifiers in every display, view, or screen in the electronic health record.
- ▶ Display patient names on adjacent lines of a computer screen in a visually distinct manner to reduce the likelihood of selecting the wrong patient name.
- ▶ Harness the functions of health IT to support patient verification processes (e.g., use patient verification decision support; embed patient photographs in records).

### Event Reporting and Response

- ▶ Foster a culture in which staff recognize the importance of reporting events and near misses involving identification errors as part of the organization's overall commitment to safety.
- ▶ Analyze events identified by incident reporting in a structured, step-by-step investigation to identify the process breakdowns that cause people to make errors.
- ▶ Use the information learned from event reports to improve patient identification and provide feedback to staff on improvements that are made as a result of their event reporting.
- ▶ Conduct proactive risk assessments to uncover latent system-wide problems contributing to wrong-patient errors, as well as problems that are specific to particular departments or settings, such as nurseries, emergency departments, or behavioral healthcare settings.
- ▶ Conduct periodic audits of patient identification processes (including electronic processes) to monitor and detect trends in compliance.
- ▶ Provide reports to senior leaders and board members on the effectiveness of patient identification initiatives to sustain the organization's commitment in this area.

## What Can You Do to Ensure the Right Patient Every Time?

Healthcare staff are a patient’s first line of defense in preventing patient identification errors. You can ensure care is delivered to the right patient every time by asking the patient to provide the two patient identifiers used by your organization every time that care, treatment, or services are given. Even if you think you know your patient, use the two patient identifiers. Patient safety is your priority.



Table. Dos and Don'ts of Safe Patient Identification Practices

| DO  | DON'T  |
|---|--|
| <ul style="list-style-type: none"> <li>▶ Confirm two patient identifiers, approved by the organization, at the beginning of each patient encounter.</li> <li>▶ Apply patient identification techniques consistently, following organization policy.</li> <li>▶ Adopt measures to avoid mix-ups when patients on the same unit have similar names.</li> <li>▶ Ask the patient to state his or her name and other identifiers by asking, “What is your name? What is your date of birth?”</li> <li>▶ Clearly display the patient’s name and other identifiers on wristbands, forms, computer displays, etc.</li> <li>▶ Confirm a patient’s identity before affixing a label to a specimen container.</li> <li>▶ Label specimen containers with two patient identifiers in the presence of the patient.</li> <li>▶ Exchange patient-specific identifiers during patient handoffs.</li> <li>▶ Minimize interruptions and distractions during patient identification.</li> <li>▶ Speak up if you observe deviations from the patient identification policy.</li> <li>▶ Provide accommodations for patients with language and hearing differences so they are equally able to participate in patient identification procedures.</li> <li>▶ Educate patients about the importance of patient identification with every intervention.</li> <li>▶ Actively engage patients in patient identification processes.</li> </ul> | <ul style="list-style-type: none"> <li>▶ Use a room number, bed location, or diagnosis to identify a patient.</li> <li>▶ Ask the patient to confirm his or her name by asking, “Is your name ABC?”</li> <li>▶ Assume every patient will correct you when you use the wrong patient name; the patient may be confused or scared or didn’t hear your mistake.</li> <li>▶ Place patients with similar names in the same room.</li> <li>▶ Carry multiple preprinted specimen labels for different patients.</li> <li>▶ Label a specimen container before a sample is obtained or after batches of specimens are obtained from different patients.</li> <li>▶ Assume that another caregiver involved in a patient’s care has already positively identified a patient.</li> <li>▶ Permit deviation from the organization’s patient identification policies.</li> </ul> |

# Conclusion

ECRI Institute PSO's Deep Dive analysis of wrong-patient events shows that the risk of errors is ever-present for the multitude of patient encounters occurring daily in health-care settings.

These events occur during multiple procedures and processes and can involve nearly anyone on the patient's healthcare team. As a result, no single strategy can prevent these events; instead, organizations must adopt a multipronged approach to prevent wrong-patient mistakes.

The report discusses patient identification strategies involving policies and procedures, registration, standardization, technology, patient and family engagement, and event reporting and response. Crucial to the success of these strategies is the role of senior leadership in supporting initiatives to improve patient identification and to ban what one researcher calls a "culture of low expectations." Patient identification must occur with every encounter and procedure. Staff cannot become lax and adopt unsafe habits by skipping patient identification. The leadership team must clearly communicate to staff that following patient identification practices is a top priority.

Several ECRI Institute PSO members and collaborating organizations shared their stories for this report about wrong-patient events and the steps they took to improve patient identification. Their experience makes clear that wrong-patient errors can be prevented, starting with an organizational commitment to improve. ECRI Institute PSO encourages all healthcare organizations to consider the recommendations of this report\* in order to deliver safe, high-quality patient care.

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\*For more information about ECRI Institute PSO's Deep Dive reports, contact ECRI Institute PSO at [pso@ecri.org](mailto:pso@ecri.org). The reports are also available for sale from ECRI Institute's online store at <https://eshop.ecri.org>.



# ECRI Institute

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