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Patient Safety Tip of the Week

April 8, 2025

Wrong Knee Again!

Wrong site surgery continues despite all our efforts to prevent it. Joint Commission's Sentinel Event Data (TJC 2024) showed there were 112 sentinel events classified as wrong surgeries in 2023 - a 26% increase from 2022. Most wrong surgery sentinel events (62%) were surgeries or invasive procedures performed at the wrong site. Undoubtedly, there are likely many other cases not reported to the Joint Commission.

As with accidents in any industry, in most healthcare incidents with untoward outcomes there is typically a cascade of errors or missteps that contribute to wrong-site surgery. Our many columns on wrong site surgery (listed below) have discussed in detail the many factors that contribute to such incidents. A case from the California Department of Public Health (CDPH 2024) illustrates multiple factors involved in a case of wrong knee surgery.

A 73 y.o. man was scheduled for an arthroscopic meniscectomy on his right knee. Instead, the procedure was incorrectly performed on his left knee. The error was only detected when the patient was in the post-op recovery area.

The surgeon used a marking pen and marked the patient's right knee with his (the surgeon's) initials indicating the correct surgical site before the patient went into the Operating Room. The nurse assigned to this patient in the pre-operative and post-operative areas stated she verified the physician orders and reviewed the consent form for right knee arthroscopic procedure with the patient, who verbalized understanding of the planned procedure. The nurse further stated that the surgeon met with the patient prior to surgery and used a marking pen to mark his right knee with his (the surgeon's) initials. The nurse stated she gave a written report to the OR nurse and the patient was transported to the OR.

Another nurse transported the patient into the OR and OR staff prepped him for surgery. They applied a tourniquet to the left leg and drape to the patient's left knee. That nurse stated, "I don't remember seeing the [surgical] marking". Yet another nurse, who was

assisting the OR nurse with the application of the tourniquet stated she did not verify the surgical site marking when she assisted the OR nurse with the tourniquet.

A timeout was apparently done with the surgical team in the operative area immediately before surgery and the surgical procedure was reviewed. A nurse stated the surgical team confirmed the patient was scheduled for a right knee arthroplasty but failed to verify the correct site was marked and prepped. That nurse stated she did not see the surgical site marking on the right knee during the timeout procedure. She stated, "I don't know how the event happened; it was process fatigue." The "Intraoperative Record: signed by that nurse indicated, "... Preop [preoperative] diagnosis... Right Medial [middle] and Lateral [side] Meniscal Tears... Time- Out Type Procedure... Time Out 12/21/18... 9:03 a.m... All members of Surgical/ Procedure Team Verbally Confirm... Consent form is accurate... yes... Agreement on the procedure / side/ site... yes..."

A progress note signed by the Anesthesiologist said, "Patient scheduled for right knee arthroplasty. Consent signed. Right knee marked. Time-out performed in the usual manner for procedure to be done for right knee... Wrong site (left knee) realized by the recovery room nurse...".

The surgeon was interviewed. He stated he marked the patient’s right knee (correct site) in the pre-operative area. He stated the patient's left knee (wrong site) was prepped and draped for surgery before he entered the operating room. He stated he did not visualize the site marking during the timeout procedure but decided to proceed with the scheduled surgery. He stated it was common for the surgical site markings to erase when the patients' operative sites were disinfected with antiseptic prior to surgery. He stated he was not aware he performed surgery on the wrong site (left knee) until he was notified by the hospital's recovery room nurse. He stated he returned to the hospital and explained the mistake to the patient.

In sum, the surgeon, anesthesiologist, and multiple nurses failed to recognize the procedure was being performed on the wrong knee.

Obviously, multiple factors contributed. One nurse stated the OR was busy that day, and the surgical team appeared rushed. That the surgeon had to “return to the hospital” might indicate that he had left the hospital shortly after the procedure.

It was said that a timeout was performed in the OR and there was documentation of a timeout. Obviously, any such timeout was not performed correctly or was performed in a perfunctory fashion. There was no verification of the site marking by anyone in the OR. Even someone who might not usually look for the site marking (such as the anesthesiologist) should still be confirming concordance between the consent form and the side of the body being operated on.

There are several questions we’d be asking the hospital about its quality and patient safety program. Was this an isolated timeout failure, or have timeouts been routinely being performed in a perfunctory manner by this or other OR teams? Do all staff actually

review the consent forms, booking/scheduling information, and look for site markings? Was there any veracity to the surgeon's comment about it being common for the surgical site markings to erase when the patients' operative sites were disinfected with antiseptic prior to surgery? Note that, in the post-op recovery area when it was discovered the procedure was performed on the wrong knee, a nurse noted that the surgeon's initials were indeed visible on the right knee.

There were likely multiple assumptions. Several nurses who were "assisting" during the preparation of the surgical site in the OR likely assumed that the nurse directing that prep had the correct leg. Similarly, the surgeon likely assumed that the correct leg had been prepped.

The two most important interventions we use to prevent wrong site surgery – the timeout and the site marking and verification – were not performed correctly in this case. The surgical team did not follow hospital policy and procedure for the completion of a timeout. The Operating Room Director stated the normal process, after the patient enters the OR, was for the nurse to view the site marked for the surgical procedure before putting on the tourniquet and prepping and draping the surgical site for the procedure. He stated the expectation was for the person initiating the timeout to gather the attention of everyone in the OR room, read the signed consent, and everyone in the room to give verbal confirmation that the patient and the surgical site were correct.

Below is the Joint Commission's Universal Protocol wording on site marking:
At a minimum, mark the site when there is more than one possible location for the procedure and when performing the procedure in a different location could harm the patient.

- For spinal procedures: Mark the general spinal region on the skin. Special intraoperative imaging techniques may be used to locate and mark the exact vertebral level.
- Mark the site before the procedure is performed.
- If possible, involve the patient in the site marking process.
- The site is marked by a licensed independent practitioner who is ultimately accountable for the procedure and will be present when the procedure is performed.
- In limited circumstances, site marking may be delegated to some medical residents, physician assistants (P.A.), or advanced practice registered nurses (A.P.R.N.).
- Ultimately, the licensed independent practitioner is accountable for the procedure – even when delegating site marking.
- The mark is unambiguous and is used consistently throughout the organization.
- The mark is made at or near the procedure site.
- The mark is sufficiently permanent to be visible after skin preparation and draping.
- Adhesive markers are not the sole means of marking the site.

- For patients who refuse site marking or when it is technically or anatomically impossible or impractical to mark the site (see examples below): Use your organization's written, alternative process to ensure that the correct site is operated on. Examples of situations that involve alternative processes:
    -mucosal surfaces or perineum
    -minimal access procedures treating a lateralized internal organ, whether
    -percutaneous or through a natural orifice teeth
    -premature infants, for whom the mark may cause a permanent tattoo

The American Academy of Orthopaedic Surgeons introduced the "Sign Your Site" safety program in 1998 designed to reduce wrong site surgeries through improved site identification. Permanent ink should be used to mark the site(s) with the patient's assistance prior to surgery and confirmed by the surgical team during the 'Time-Out' immediately prior to starting the surgical procedure (AAOS 2015).

Perhaps the one good thing done in this case was that the surgeon immediately returned to hospital and explained the mistake to the patient. Our many columns on disclosure and apology are listed below.

Some of our prior columns related to wrong-site surgery:

September 23, 2008	"Checklists and Wrong Site Surgery"
June 5, 2007	"Patient Safety in Ambulatory Surgery"
July 2007	"Pennsylvania PSA: Preventing Wrong-Site Surgery"
March 11, 2008	"Lessons from Ophthalmology"
July 1, 2008	"WHO's New Surgical Safety Checklist"
January 20, 2009	"The WHO Surgical Safety Checklist Delivers the Outcomes"
September 14, 2010	"Wrong-Site Craniotomy: Lessons Learned"
November 25, 2008	"Wrong-Site Neurosurgery"
January 19, 2010	"Timeouts and Safe Surgery"
June 8, 2010	"Surgical Safety Checklist for Cataract Surgery"
December 6, 2010	"More Tips to Prevent Wrong-Site Surgery"
June 6, 2011	"Timeouts Outside the OR"
August 2011	"New Wrong-Site Surgery Resources"
December 2011	"Novel Technique to Prevent Wrong Level Spine Surgery"
October 30, 2012	"Surgical Scheduling Errors"
January 2013	"How Frequent are Surgical Never Events?"
January 1, 2013	"Don't Throw Away Those View Boxes Yet"
August 27, 2013	"Lessons on Wrong-Site Surgery"
September 10, 2013	"Informed Consent and Wrong-Site Surgery"
July 2014	"Wrong-Sided Thoracenteses"
March 15, 2016	"Dental Patient Safety"
May 17, 2016	"Patient Safety Issues in Cataract Surgery"
July 19, 2016	"Infants and Wrong Site Surgery"
September 13, 2016	"Vanderbilt's Electronic Procedural Timeout"
May 2017	"Another Success for the Safe Surgery Checklist"

May 2, 2017 "Anatomy of a Wrong Procedure"
June 2017 "Another Way to Verify Checklist Compliance"
March 26, 2019 "Patient Misidentification"
May 14, 2019 "Wrong-Site Surgery and Difficult-to-Mark Sites"
May 2020 "Poor Timeout Compliance: Ring a Bell?"
September 14, 2021 "Wrong Eye Injections"
October 5, 2021 "Wrong Side Again"
November 9, 2021 "Ensuring Safe Site Surgery"
February 15, 2022 "Wrong-Side Chest Tubes"
May 2022 "PPSA: Updated Wrong-Site Surgery Recommendations"
June 13, 2023 "Preventing Wrong-Site Surgery"
November 2023 "Importance of Timeouts Outside the OR"
January 30, 2024 "Is Your Surgical Safety Checklist Working?"
September 10, 2024 "Scheduling and Informed Consent Contribute to Wrong-Site Surgery"
November 26, 2024 "eConsent: Friend or Foe?"
December 17, 2024 "Can AI Prevent Ophthalmological Surgery Errors?"

Some of our prior columns on Disclosure & Apology:

July 24, 2007 "Serious Incident Response Checklist"
June 16, 2009 "Disclosing Errors That Affect Multiple Patients"
June 22, 2010 "Disclosure and Apology: How to Do It"
September 2010 "Followup to Our Disclosure and Apology Tip of the Week"
November 2010 "IHI: Respectful Management of Serious Clinical Adverse Events"
April 2012 "Error Disclosure by Surgeons"
June 2012 "Oregon Adverse Event Disclosure Guide"
December 17, 2013 "The Second Victim"
July 14, 2015 "NPSF's RCA2 Guidelines"
June 2016 "Disclosure and Apology: The CANDOR Toolkit"
August 9, 2016 "More on the Second Victim"
January 3, 2017 "What's Happening to "I'm Sorry"?"
October 2017 "More Support for Disclosure and Apology"
April 2018 "More Support for Communication and Resolution Programs"
August 13, 2019 "Betsy Lehman Center Report on Medical Error"
September 2019 "Leapfrog's Never Events Policy"
March 9, 2021 "Update: Disclosure and Apology: How to Do It"
November 2021 "When a Radiologist Recognizes He Committed an Error"
May 31, 2022 "NHS Serious Incident Response Framework"
July 11, 2023 "Error Disclosure in the Real World"

Other very valuable resources on disclosure and apology:

- IHI's "Respectful Management of Serious Clinical Adverse Events" (Conway 2010)

- The Canadian Disclosure Guidelines (Canadian Patient Safety Institute 2008)
- The Harvard Disclosure Guidelines (Massachusetts Coalition for the Prevention of Medical Errors 2006)
- The ACPE Toolkit (American College of Physician Executives)
- Oregon Patient Safety Commission Oregon Adverse Event Disclosure Guide.

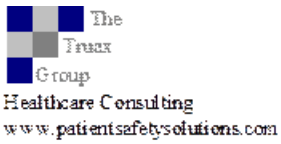
References:

The Joint Commission. Sentinel Event Data 2023 Annual Review. Published 2024 https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/sentinel-event/2024/2024_sentinel-event-_annual-review_published-2024.pdf

CDPH (California Department of Public Health). Complaint Intake Number: CA00617150 – Substantiated. Date Survey Completed 11/25/2024 https://www.cdph.ca.gov/Programs/CHCQ/LCP/CalHealthFind/Pages/STATE_PENALTY_2567.aspx?citation_number=040021149

The Joint Commission. Universal Protocol. https://www.jointcommission.org/-/media/tjc/documents/standards/universal-protocol/up_poster1pdf.pdf

American Academy of Orthopaedic Surgeons. Surgical Site and Procedure Confirmation. Adopted March 2015 https://www.aaos.org/globalassets/about/bylaws-library/information-statements/1043-surgical-site-and-procedure-confirmation.pdf



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