Open Book
Learning from close calls and adverse events

Under the radar: Interventions or procedures performed outside operating theatre settings – wrong procedure/wrong site/wrong person

This report alerts providers to key findings and actions following review of preventable events relating to interventional procedures. The aim is to learn from the events to prevent future similar events.

This report is relevant to:

- all staff involved in interventions or procedures occurring outside of operating theatres, including but not limited to:
  - radiology (interventional and procedural)
  - delivery suite
  - interventional cardiology
  - rooms-based procedures in hospitals and primary care
- quality improvement, clinical risk and patient safety managers.

To what extent are these types of events happening in your organisation?

The National Institute for Health and Care Excellence (NICE) defines an interventional procedure as a procedure used for diagnosis or for treatment that involves:

- making a cut or hole to gain access to the inside of a patient's body, for example, when carrying out an operation or inserting a tube into a blood vessel
- gaining access to a body cavity (such as the digestive system, lungs, womb or bladder) without cutting into the body, for example, examining or carrying out treatment on the inside of the stomach or using an instrument inserted via the mouth
- using electromagnetic radiation (which includes x-rays, lasers, gamma rays and ultraviolet light), for example, use of a laser to treat eye problems.[1]

Over the past two years, adverse events have been reported involving procedures that meet the definition above, and two further cases involving a wrong person receiving an MRI. It is highly likely that additional near-miss cases and incidents considered of 'low consequence' have been not been reported.

[1] www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-interventional-procedures-guidance

Cases	Commonly reported contributing factors
Wrong patient: Anaesthetic performed on wrong patient for cardiac electrophysiology procedure	• Changes in list order • Equipment problems • Time pressures • Distractions/interruptions • Inadequate skill mix • Inadequate supervision of junior staff • Essential team members absent • No pre-procedure time out check • Site not marked • Documentation errors in the medical record or operating list • Pre-positioning patient incorrectly • Confirmation bias where people see or hear what they expect, leading to wrong site events
Wrong leg: Angiogram performed on wrong leg	
Wrong patient: Radiological tests performed on wrong paediatric outpatient	
Wrong patient: Wrong patient received CT head	
Wrong patient: CT ordered and undertaken on another patient with similar name	
Wrong procedure: CT head undertaken on patient requiring abdominal CT scan	
Wrong patient: Wrong patient received colonoscopy	

The above events are preventable with strong clinical leadership and organisational systems. The fact that such events continue to occur is indicative of system deficiencies, including a lack of non-technical skills and safety systems essential for the reliable delivery of safe care.

Surgical safety checklists, first launched by the World Health Organization in 2008, have been effective in surgical settings at reducing major complications and the 30-day mortality rate.[2] [3] The success of checklists suggests the principles may prove effective in other settings, however, the concept has 'faltered in moving beyond the operating room'.[4]

> Patients undergoing non-surgical procedures 'are deserving of the same safety considerations that are being afforded to those undergoing an operation.' *NEJM* letter[5]

[2] Haynes AB, Weisner TG, Berry WR, et al. 2009. A surgical safety checklist to reduce morbidity and mortality in a global population. *NEJM* 360: 491–9.
[3] de Vries EN, Prins HA, Crolla R, et al. 2010. Effect of a comprehensive surgical safety system on patient outcomes. *NEJM* 363:1928–37.
[4] Marjot T, Maruthappu M, Shalboub J. 2013. Checklist for invasive procedures. *NEJM* 368: 293–4.
[5] *Ibid.*

Why use checklists for interventional procedures?

- Interventional procedures require complex interactions between clinicians, teams, booking clerks and operators.
- The multidisciplinary team may never have met the patient or each other, or worked together before.
- Increasing numbers of 'interventional procedures' in higher-risk categories are being performed outside the theatre environment without a comprehensive safety framework in place that has been specifically designed for the non-surgical setting.

Checklists are a final common pathway to allow the multidisciplinary team to prepare adequately for the procedure, identify patient-related risk factors and verify the key details of the procedure. Checklists help to identify potential risks and errors before they result in harm to a patient. With good design and training, checklists promote a collective awareness within the team about potential safety issues and improve teamwork and communication.

Checklists are not tick-box exercises. The use of checklists alone, without a team approach and an embedded safety culture, can introduce new hazards. Poor compliance, inconsistent administration and lack of staff engagement renders checklists ineffective.

Optimising the use of checklists: Research at Auckland District Health Board (DHB) found that a **visible wall-mounted checklist** and **allocating leadership** of each checklist domain to the three theatre specialties central to the process (anaesthesia, surgery and nursing) improved compliance and engagement.[6]

Examples of checklists

The National Health Service in England has developed National Safety Standards for Invasive Procedures (or NatSSIPs).[7] The document endorses the use of locally developed checklists (LocSSIPs) that 'harmonise' with the NatSSIPs. The NatSSIPs recognise the need for standardising processes that underpin patient safety, while recognising the importance of local input to adapt checklists so they are credible and meet local conditions.

Some checklist examples can be downloaded from: www.ficm.ac.uk/safety-and-clinical-quality/safety-checklists-invasive-procedures.

Specialty and procedure-specific checklists have also been developed and introduced, for example cardiac catheterisation,[8] interventional radiology[9] and endoscopy.[10]

[6] Ong AP, Devcich D, Hannam J, et al. 2016. A paperless wall mounted surgical safety checklist with migrated leadership can improve compliance and team engagement. *BMJ Qual Saf* 25: 971–6.
[7] NHS England. 2015. *National Safety Standards for Invasive Procedures (NatSSIPs).* URL: https://improvement.nhs.uk/uploads/documents/natssips-safety-standards.pdf (accessed 7 June 2017).
[8] Braham DL, Richardson AL, Malik IS. 2014. Application of the WHO surgical safety checklist outside the operating theatre: medicine can learn from surgery. Clinical Medicine 14: 468–74.
[9] Koester ICJ, de Vries EN, van Delden OM, et al. 2013. A checklist to improve patient safety in interventional radiology. *Cardiovasc Intervent Radiol* 36: 312–19.
[10] Matharoo M, Thomas-Gibson S, Haycock A, et al. 2014. Implementation of an endoscopy safety checklist. *Frontline Gastroenterology* 5: 260–5.

Developing and implementing checklists for interventional procedures in New Zealand

A number of DHBs use the paperless surgical safety checklist in both theatre and non-theatre settings. This has worked best when teamwork and communication skills training has been delivered alongside the new approach. The modified surgical safety checklists are developed in consultation with the non-theatre teams so they are fit for purpose. Sign in and time out might be combined, however all safety checks are still included and considered.

Health Quality & Safety Commission comment

- Your organisation needs to have a deep understanding, at all levels, that wrong site, wrong person procedural errors are preventable and unacceptable.
- Organisations must have in place, and have confidence in, reliable systems for reporting, tracking and reviewing these events, including near misses.
- In the updated National Adverse Events Reporting Policy[11] there is an 'Always Report and Review' list.[12] It requires all procedures/interventions performed at the wrong site, on the wrong patient or resulting in retained foreign object to be reported, irrespective of perceived level of harm to the patient.
- For invasive procedures undertaken in your organisation, consider developing and introducing a checklist to improve safety in all settings, not just operating theatres.
- Teamwork and communication training will support engagement with the checklist process.
- When introducing a new invasive procedure, proactively design and include safety systems such as checklist development and training.

[11] www.hqsc.govt.nz/our-programmes/adverse-events/publications-and-resources/publication/2933/
[12] www.hqsc.govt.nz/our-programmes/adverse-events/publications-and-resources/publication/2936/