

3 **The wicked problem of patient misidentification: how could the technological revolution**
4 **help address patient safety?**
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7 **Editorial**
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30 **Keywords;** patient identification; patient misidentification; patient safety; clinical error;
31 medication error; technology; innovation; critical incidents; error.
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35 **Introduction**

36 As nurses, we are at the frontline of health care delivery in all settings; this means we will
37 most likely witness or be involved in clinical practice error due to misidentification at some
38 stage over our careers (Hwang & Park 2017). It's quite possible that during our nursing career
39 we will administer the wrong medication to the wrong patient. It may be likely that a patient
40 misidentification error has occurred in our workplace today. As much as we recognise the
41 critical importance and safety mechanism of asking the patient their name, their date of birth
42 and checking their identification band, whilst maintaining the six rights of medication
43 administration, identification mistakes still happen for a multitude of complex and
44 multifactorial reasons. These may include the chaotic, time-pressured nature of a busy
45 healthcare environment; a patient's functional ability and capacity; the accuracy and clarity
46 of information presented on ID bands along with the ease of access to their physical location
47 on patients (commonly secured on a patient's wrist or ankle).
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52 All healthcare systems are required to have robust and correct identification and procedure
53 matching for accreditation (Australian Commission on Safety and Quality in Health Care
54 2017). Whilst regular ID band auditing has become commonplace across hospital facilities as
55 a reportable quality performance indicator, there is little evidence that regular auditing
56 reduces potentially catastrophic patient identification errors. Further, average reported
57 compliance for patient ID audits reports normally achieve >90%. Adverse events and errors
58 due to misidentification can have extreme consequences with outcomes ranging from near
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miss to catastrophic events. Patient misidentification can result in patients having the incorrect diagnosis, being incorrectly treated (including surgical procedures on incorrect patients), receiving the wrong drug and mislabelling of pathology collections.

Why is patient identification still an issue?

Patient identification is a wicked healthcare problem. Wicked problems are considered complex and without a clear solution (Hutchinson *et al.* 2015). Wicked problems are difficult to solve – they resist conventional solutions; are considered intractable or novel, occur within volatile dynamic environments and attempts to address these problems often leads to the development of new problems (Hutchinson *et al.* 2015). Complex, dynamic, busy and under-resourced health systems are a fertile ground for wicked problems and the problem of patient misidentification is one such problem.

When are patients at greatest risk?

There are many critical points during a patient’s care trajectory where patient identification is necessary and can be jeopardised. These include patient movement, transfer and handover, diagnosis, medication management (including prescription, medication preparation and administration), infusion and transfusion management (including venepuncture), and when in receipt of medical treatment including surgical procedures, devices and implantation. Take the transfusion process as an example of a high-risk activity. Critical points where accurate patient identification is vital include at least eight key points - sample taking, sample receipt, testing, blood component selection, labelling and collection, prescription and administration. At each of these key points, there is potential for patient misidentification and ensuing error with potentially serious sequelae (Serious Hazards of Transfusion, 2017 SHOT Annual Report, 2018).

Patient-level factors

There are a number of patient-level factors that may increase the risk of patient misidentification. These include those in a critical condition or with severe illness where coma or anaesthesia is experienced, delirium or dementia; communication impairment such as aphasia or lack of a common language; patients receiving cancer treatment, patients with multiple complex comorbidities and frequent health service utilisation. These (and other) factors can create often challenging clinical scenarios, including situations where patients may have reduced capacity to advocate for themselves, express or verbally identify themselves.

How common is patient misidentification and what are the consequences?

A recent survey of 772 registered nurses revealed that nurses regarded patient misidentification as a very rare and unlikely event (Bartlova *et al.* 2015). However, numerous patient safety reports demonstrate otherwise, suggesting the need for education and innovative technological approaches to improve patient safety through enhanced strategies for correct patient identification. Patient identification errors are a major contributor to ‘never events’ in our hospitals. Between Nov 2003- July 2005 the UK National Patient Safety Agency received 236 reports of patient safety incidents and near misses related to missing ID bands or ID bands with incorrect information (National Patient Safety Agency 2005). Further a recent SHOT Annual Report (2017) describes 115 episodes of error involving incorrect patient identification (Serious Hazards of Transfusion (SHOT) Steering Group 2018). Critically,

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3 75% (n=86 episodes) of these errors occurred in the clinical areas, as opposed to the
4 laboratory. Clinical patient ID errors include incorrect ID (unique identifier or addressograph
5 label), no identification band present, or bedside check not performed.
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8 The term "never event" was coined in the early 2000's to describe errors that should never
9 occur in health care. However, uses of the term has extended to include serious, preventable
10 and clearly identifiable adverse events. The early never event list now includes 29 "serious
11 reportable events" that are grouped into 7 categories: surgical or procedural events; product
12 or device events; patient protection events; care management events; environmental events;
13 radiologic events and criminal events (PSNet Patient Safety Network 2019). Never events may
14 include surgery conducted on the wrong patient, medication or procedural errors. A few
15 international examples include a patient's wrong eye removed, the wrong patient being given
16 a new hip replacement, and amputation of the wrong limb. However, patient
17 misidentification is also a never-event, as it is a failure of patient protection that can lead to
18 catastrophic outcomes.
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22 The reality is that patients can die because they were wrongly identified. "*What is your full*
23 *name and date of birth?*" is a simple question, and it is one that saves lives. It is a critical safety
24 check that is drilled into nurses from day one of nurse education, so how do patient
25 identification errors continue to occur? There are a number of contributing causal factors
26 including increased patient acuity; workload; nurse fatigue; lack of knowledge; poor ward
27 practices and culture of patient safety; lack of implementation of patient identification policy
28 (Thomas & Evans 2004).
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33 **What strategies can be employed to minimise misidentification?**

34 There are a number of strategies that can be employed to assist in the minimisation of patient
35 identification error. Strategies include; 1) every patient being uniquely identified in an
36 unambiguous manner; 2) identification being consistently maintained through the period of
37 care; 3) every procedure, treatment or medication being uniquely identified in an
38 unambiguous manner; 4) patient identification being explicitly tied to all requests,
39 medications, procedures, devices that are applied (Australian Commission on Safety and
40 Quality in Health Care 2008). Over 12 years ago it was recommended that health care settings
41 consider feasible implementation of technological systems to decrease identification errors,
42 yet this is still an area in need of investment (World Health Organisation 2007).
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46 **Wristbands have been around for a long time but are not the panacea.**

47 Over the years not changed much has changed in the requirements of design or the level of
48 details that included. Wearing plastic hospital identification wristbands is widely accepted
49 standard practice for patient identification. Minimal data include patients' full name, date of
50 birth, and hospital number. Yet, patient identification wrist bands remain to be problematic,
51 with a recent 2006 study revealing more than 1 in 10 cases of patients being mismatched to
52 their care were directly related to wristbands. Similarities in standard identifiers (medical
53 record numbers) are an issue for nurses caring for the very young in the NICU, who are at high
54 risk of misidentification errors (Gray *et al.* 2006). Whilst wristbands are a critical tool, they
55 remain unreliable as a safeguard against misidentification.
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Human factors

Patient identification wristbands are a structural concern in healthcare. There are many critical points in the identification process where failure can occur. Failure can occur when the plan is adequate, but the associated actions do not play out as intended. Reason (1995) defines these failures as failures of execution, whereby slips relate to observable action and are linked with attentional failures (*such as the nurse was busy and did not check the ID band before giving the medication*). Further, failure can also occur when the actions go entirely as planned, (*nurse check ID band before giving medication*), but the plan was inadequate (*the patient may have been provided with the incorrect ID bands*) to achieve its intended outcome (*safe administration of medication to patient*) (Reason 1995).

What can you currently do to prevent patient misidentification?

1. Correctly verify patient identification against a patient's identification band
2. Ask the patient to state their full name and confirm this matches the order
3. Teach patients to show their identification wristbands to healthcare providers at critical vulnerable care points
4. Be vigilant in the checking of documented identification details against those of the patient at every step of care
5. Conduct bedside checking of patient identification, particularly at pathology collection, administration of drugs or before treatments (surgical intervention, infusions, and medical treatments)
6. Facilitate clinical and administrative staff adherence to patient identification policies, procedure and protocols.
7. Adhere to all checking procedures for positive patient identification
8. Engage patients and informal caregivers/ family as adjuncts to identifying patients (Tobiano *et al.* 2015)
9. Educate patients and their family members and informal caregivers about the risks of patient misidentification.
10. Empower and engage family members or proxies to be active partners in care in identification and to create a healthcare culture where relatives or caregivers can fearlessly express concerns about patient safety and potential misidentification errors (World Health Organisation 2007).

A call to action for solution to fix the patient ID problem

Improving healthcare culture to greater recognise the importance of patient safety, is paramount. Technology may contribute to reducing misidentification errors and improving patient safety. Automated systems such as barcode technology, radiofrequency ID (RFID tags), biometric technologies (such as iris scanning or finger printing), and the adoption of smartphone facial recognition technology are all possible solutions that could be implemented, where feasible. There remains significant scope to improve the overall design of patient ID bands to mitigate human factors. Although technology cannot succeed without strong patient safety initiatives such as partnership and engagement of patients, informal caregivers, relatives and family in education on patient safety needs to be developed and fostered. Nurses need to be skilled and confident in communicating with patients and their families about the need for good patient identification processes and the risk of misidentification.

Conclusion

There is a large delay between the technological revolution, and keeping the most vulnerable members of our communities' safe in healthcare settings. Nurses now respond to a larger number of patients who present to healthcare settings without an advocate. The most commonplace method of patient identification remains a plastic band with an addressograph with perhaps a barcode on a patient's arm, with nurses verbally confirming patient details. Surely, in 2019, there is a safer way to safeguard patients from the harm of misidentification. Let's revolutionise patient identification. If facial recognition allows us to unlock our smartphones, surely it is time such technology is applied to healthcare, where patients are at their most vulnerable and at risk of potentially catastrophic adverse events.

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