Systematic review on positive patient identification and access to critical clinical patient information in hospital emergency situations: Protocol

Section 1: ADMINISTRATIVE INFORMATION

Title:

1a. Identification: Protocol for a systematic review on positive patient identification and access to critical clinical patient information in emergency situations

1b. Update: Not applicable - this is not an update of a previous review

Registration:

2. This protocol will be registered in PROSPERO (registration number pending)

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3b. Contributions:

TJU conceived the study. AB developed the protocol. AC will conduct the literature search and AC and LL will complete the data extraction. All authors will contribute to data analysis and manuscript preparation.

Amendments:

4. No amendments as this is the initial protocol. Any future amendments will be documented with date and rationale, and updated in PROSPERO.

Support: 5a. Sources: This review is funded by the National Institute for Health and Care Research for the NHS England patient safety initiative.

5b. Sponsor: Department of Health & Social Care (DHSC)

5c. Role of sponsor/funder: The sponsor provided financial support and general oversight but did not influence the scientific content of the protocol

Section 2: INTRODUCTION

Rationale:

6. Errors in patient identification have significant implications for patient care, safety, data sharing and interoperability. Patient misidentification is persistent and widespread across healthcare. Current identification methods like wristbands and NHS numbers are unreliable safeguards. Guidance on defining critical information needed in emergencies is currently lacking.

Objectives:

7. The objectives are to:

1. Quantify and qualify the risk of patient misidentification
2. Define what information should be considered critical during a clinical emergency in hospitals (e.g. critical care, intensive care setting)
3. Determine where and how critical information is best stored and displayed to optimise access during emergencies.

For the purposes of the review evidence will be considered relevant if (i) it examines or explores information use, access and retrieval during a clinical emergency (direct evidence), or (ii) the authors of a report make specific application of their findings to clinical emergencies (referred evidence).

Research questions:

What is the scale and the nature of risks from patient misidentification?

Epidemiological studies (Prevalence studies or Incidence studies) that measure new cases of misidentification over a specific time period; Systematic reviews and meta-analyses that provide overall estimates of misidentification rates and associated risks; Observational studies (namely cohort studies following patients over time, case-control studies comparing cases of misidentification with controls and cross-sectional studies providing a snapshot of misidentification at a specific point in time.

In addition, patient safety incident reports and analyses of patient safety incident databases for misidentification events; qualitative studies and case studies, together with mixed-methods studies that combine quantitative data on misidentification rates with qualitative insights into causes and consequences would prove useful. Economic analyses can be used to estimate the financial costs associated with patient misidentification. Less common will be experimental studies, such as randomised controlled trials testing different identification methods and technology assessments that evaluate various patient identification technologies

and their effectiveness in reducing misidentification. Finally, policy analyses, literature reviews and narrative reviews all have a place in addressing this question.

What information should be defined as critical during a time critical clinical emergency in hospitals?

Eligible studies will include: Clinical practice guidelines Systematic reviews and meta-analyses: Observational studies: Qualitative studies: Survey research: Delphi studies: Simulation studies: Root cause analyses: Health informatics research: Patient safety incident reports: Comparative effectiveness research: Human factors research: Clinical audits: Policy analyses: Case studies: Literature reviews: Mixed-methods studies: Experimental studies:

- **What contributes to variation in definition, provision of and access to critical clinical information (CCI) in hospitals?**

Eligible studies will include: Health services research: Implementation science studies: Qualitative studies: Mixed-methods studies: Survey research: Policy analyses: Systematic reviews and meta-analyses: Health informatics research: Organisational behaviour studies: Human factors research: Economic analyses: Case studies: Comparative effectiveness research: Quality improvement studies: Technology assessments: Root cause analyses: Delphi studies: Literature reviews: Time-series analyses: Cross-sectional studies:

- **Where might critical clinical information be found and what are the barriers to access in hospitals?**

Eligible studies will include: Health informatics studies: Workflow analyses: Observational studies: Shadowing studies following clinicians through their workday; Survey research; Qualitative studies: Mixed-methods studies: Usability studies; Human factors research: Patient safety incident reports: Systematic reviews and meta-analyses; Implementation science studies: Technology assessments: Comparative studies; Case studies: Simulation studies: Policy analyses; Economic analyses: Literature reviews: Organisational behaviour studies: Quality improvement studies:

- **Where should information be stored to optimise access during a time critical clinical emergency in hospitals?**

Eligible studies will include: Experimental studies; Human factors research; Usability studies; Time-motion studies; Simulation studies; Health informatics research; Workflow analyses; Qualitative studies; Mixed-methods studies; Syntheses of studies examining optimal information storage and access in emergencies; Comparative effectiveness research; Patient safety incident analyses; Implementation science studies; Economic analyses; Ergonomics research; Literature reviews; Delphi studies; Before-and-after studies; Case studies:

- **What barriers/facilitators exist to ensure critical information is accurate at the point of access in hospitals?**

Eligible studies will include: Qualitative studies; Survey research; Mixed-methods studies; Health informatics research; Implementation science studies; Human factors research; Systematic reviews and meta-analyses; Quality improvement studies; Patient safety incident analyses; Workflow analyses; Organisational behaviour studies; Technology assessments; Comparative studies; Economic analyses; Policy analyses; Case studies; Experimental studies; Literature reviews; Delphi studies; Usability studies; Before-and-after studies; Longitudinal studies:

Eligibility Criteria

Include	**Exclude**
Clinical Area	
Emergency situations within any clinical area in an acute care setting. The situation designates the emergency not the department. For inclusion "emergency situations where the positive or negative outcome of care is determined by the presence or absence of critical patient information"	Non-emergency situations (e.g. routine care) Emergency situations where the outcome is not determined by the presence or absence of critical patient information.
e.g. Surgical emergencies	Elective Surgery that proceeds as planned
e.g. Medication Errors associated with medicine dispensing and administration in an emergency	Routine prescribing errors
e.g. Blood Transfusion in an emergency	Routine blood transfusion
e.g. Inappropriate action as a result of inaccurate or missing diagnostic information (e.g. X-rays) maybe replace with specimen handling and diagnostic requests	Diagnostic errors in non-emergency situations.
Context	
High Income Countries	Low- and Middle Income Countries
Setting	
Acute Care only	Primary and Community Care
	Home Care
Time Period	
Formal bibliographic searches will cover 2015-2024. Studies before this will be identified and accessed through reference checking, citation searching of both reviews and included studies.	

Review context (PPI, Stakeholders and EDI)

Use PRO-EDI Table of Characteristics to identify any specific Equity, diversity and inclusion considerations for the review:

Age - Mandatory: To include both Children and Adults recognising that children may be accompanied by an adult. May be similarities to patients of limited capacity accompanied by a carer.

Sex - Mandatory: Both Sexes will be included

Gender - Mandatory: Issues to be included especially if response differs according to documentation of gender

Sexual identity - Depends on review: may be included in relation to privacy and relevance.

Race, ethnicity and ancestry - Mandatory: Misidentification may relate to shared names, confusion of names or alternative names. Communication with those with a first language other than English may be relevant.

Socio-economic status (SES) - Mandatory: to consider if lower SES patients are at higher risk of misidentification and if identification systems have any unintended biases based on SES.

Level of education - Depends on review: Education level or health literacy might affect a patient's ability to understand and participate in identification procedures.

Disability - Depends on review: Patients with physical or cognitive disabilities may face unique challenges with identification systems. While many disabilities may be managed within the community the focus of this review will be on acute settings. However, implications identified from acute settings that extend to primary and community settings will be highlighted in the final report.

Location (country/ countries of data collection and site coordination) - Mandatory: Focus on High-Income and Anglophone countries.

Other factors relevant to the review - Depends on review:

Additional factors include language barriers, literacy levels, mental health status, or presence of chronic conditions. The review will consider any other factors that might affect patient identification and safety in emergency situations.

Overall, the review will aim to ensure that recommendations for improved patient identification systems are inclusive, equitable, and effective across diverse patient populations.

Section 3: METHODS

Eligibility criteria:

8. Inclusion criteria:

Primary research studies and systematic reviews examining patient identification methods, risks of misidentification, or access to critical patient information in hospital settings. Studies must be in English, published from 2000 onwards. Exclusion criteria: Studies focusing solely on outpatient settings, studies not reporting original data.

Information sources:

9. We will search the following electronic databases: MEDLINE, EMBASE, CINAHL, Cochrane Library, and Web of Science. We will also search grey literature through OpenGrey and relevant organizational websites (e.g., WHO, Joint Commission). Reference lists of included studies will be hand-searched.

Search strategy:

10. The search strategy will include terms related to patient identification, misidentification, patient safety, and critical information access. A draft MEDLINE search is: ((patient* adj3 (identif* or misidentif* OR identity OR Medical Errors/) OR “critical clinical information”) OR ((SBAR OR “situation background assessment and recommendation”) OR “identification number*” OR barcode* OR wristband* or "hospital bracelet*") OR “Patient Identification Systems/”) AND (safety OR risk* OR error* OR Safety Management/ OR Risk Magement) AND (hospital* OR "acute care" OR emergency OR accident*)

Suggested search strategy as discussed with Information Specialist

1. Patient misidentification
2. patient* adj3 misidentif
3. (patient* adj3 (identif* OR tracking OR coding OR system OR clinical information OR critical clinical information OR barcode OR wristband OR identification number OR ‘’hospital bracelet’’ OR “Patient Identification Systems/”) ADJ3 (safety OR risk* OR error* OR mistake OR integrity OR Safety Management/ OR Risk Management)
4. Medical Errors/
5. Adverse event*
6. OR/1 to 5
7. (Patient OR child* OR neonat* OR p?ediat*)
8. “Inpatients/” OR Hospitals/”
9. Hospitali?ation
10. (hospital* OR inpatient* OR in-patient* OR ‘’ICU’’ OR ‘’ITU’’ OR ‘’NICU’’ OR ‘’neonatal intensive care’’ OR ‘’intensive care’’ OR "acute care" OR ‘’ ‘’intensive’’ OR ‘’emergency’’ OR accident*)
11. OR/7 to 10
12. 6 AND 11

Study records:

11a. Data management: We will use Rayyan software for study selection and data extraction.

11b. Selection process: Two reviewers will independently screen titles/abstracts and full texts. Disagreements will be resolved through discussion or by a third reviewer.

11c. Data collection process: Data will be extracted independently by two reviewers using a standardised, pilot-tested form. Given the rapid timescale of the project it will not be feasible to contact authors for missing data.

Data items:

12. We will extract: study characteristics (design, setting, country), patient characteristics, identification methods used, types and rates of misidentification errors, critical information elements, information storage and display methods, and outcomes related to patient safety.

Outcomes and prioritisation:

13. Primary outcomes:

- Scale and nature of risks from patient misidentification
- Definition of critical information required in emergencies
- Optimal storage and display of critical information
- Risk of bias in individual studies: 14. Risk of bias will be assessed using the Cochrane Risk of Bias tool for randomised trials, and the ROBINS-I tool for non-randomized studies. One reviewer will assess risk of bias and a second reviewer will verify all judgements.

Data synthesis:

15. Although meta-analyses have been conducted of very specific interventions e.g. wristbands the evidence base as illustrated above is very heterogeneous and includes both quantitative and qualitative studies as well as including observational and experimental, quality improvement studies and audits. It is likely we will provide a narrative synthesis.

15d. We will conduct subgroup analyses by hospital setting (e.g., emergency department vs. general wards) and patient population. Depending upon whether these are based on quantitative or qualitative studies these subgroup analyses will be either quantitative or qualitative (i.e. substantive differences between settings).

Provisional Timetable

Start Date: September 2, 2024 **Draft Report Due:** January 10, 2025

1. Planning and Protocol Development

- Define research question and objectives: Sept 2 - Sept 6, 2024
- Finalise protocol: Sept 9 - Sept 11, 2024

2. Literature Search

- Develop search strategy: Sept 11 - Sept 13, 2024
- Conduct comprehensive search: Sept 16 - Sept 27, 2024

3. Study Selection

- Screen titles and abstracts: Sept 30 - Oct 18, 2024
- Retrieve full texts: Oct 21 - Nov 8, 2024
- Apply inclusion/exclusion criteria: Nov 11 - Nov 22, 2024

4. Data Extraction

- Design data extraction form: Nov 11 - Nov 12, 2024
- Extract data from included studies: Nov 25 - Dec 13, 2024

5. Quality Assessment

- Assess risk of bias in included studies (if appropriate): Dec 16 - Dec 20, 2024

University Closure: December 23, 2024 - January 5, 2025

6. Data Synthesis and Analysis

- Synthesize findings: Dec 16 - Dec 20, 2024

7. Draft Report Writing

- Prepare draft report: Jan 6 - Jan 10, 2025

Delivery of Draft Report: Friday January 10, 2025

Meetings between NHS England and the SCHARR Review team will be arranged as required.

Appendix

Realistic examples of emergency situations in acute care where critical patient information can significantly impact the outcome:

1. Allergic reaction to medication: A patient arrives at the ER with anaphylaxis. Knowing their medication allergies is crucial for avoiding potentially fatal drug administration.
2. Undiagnosed bleeding disorder: A trauma patient needs emergency surgery, but information about their haemophilia could prevent excessive bleeding during the procedure.
3. Implanted medical device: A patient with an implanted defibrillator requires urgent MRI for stroke diagnosis. Knowledge of the device prevents potentially dangerous electromagnetic interference.
4. Recent anticoagulant use: A patient presents with a head injury. Information about recent anticoagulant medication use alerts doctors to increased risk of intracranial bleeding.
5. Undiagnosed pregnancy: A female patient requires emergency abdominal CT scan. Knowledge of pregnancy allows for appropriate protective measures or alternative imaging.
6. Rare metabolic disorder: A patient arrives unconscious with abnormal lab values. Information about their rare metabolic condition guides proper treatment and prevents misdiagnosis.
7. Organ transplant history: A patient needs emergency surgery. Knowledge of their transplant history and immunosuppression regimen impacts anaesthesia and infection control protocols.
8. Recent COVID-19 exposure: A patient requires urgent intubation. Information about recent COVID exposure ensures proper PPE use and isolation precautions.
9. Psychiatric medication history: A patient presents with altered mental status. Knowledge of their psychiatric medications helps differentiate between medication side effects and new neurological issues.
10. Advance directives: A critically ill patient loses consciousness. Having their advance directives on file ensures their end-of-life wishes are respected in time-sensitive situations.

In all these cases, quick access to accurate patient information can significantly improve the speed and appropriateness of care, potentially saving lives or preventing serious complications.