

NUDGES, CHECKLISTS, AND TEMPLATES IN THE EMR

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Please find following a summary of a literature search and relevant results. All articles can be provided in full - email library@monashhealth.org for a list of the articles you require.

QUESTION

Among clinicians in the Emergency Department, does the use of a nudge, template or checklist for Clinical Impressions and Management Plans in electronic clinical records, compared to standard practice of using unstructured free-text notes, improve patient health outcomes by improving diagnostic accuracy, promoting rational ordering of investigations and consumer understanding of the clinical impression?

RESULTS

PEER-REVIEWED LITERATURE – MOST RECENT FIRST

Articles are grouped by theme:

- Multi-intervention
- Templates
- Checklists
- Nudges

Each article summary contains excerpts from the abstract and an online link.

MULTI-INTERVENTION

Chary, A. N., et al. (2023). Leveraging the Electronic Health Record to Implement Emergency Department Delirium Screening. *Applied clinical informatics*, 14(3), 478–486. [Click for full-text.](#)

Participants described several HIT-based strategies including visual nudges, icons, hard stop alerts, order sets, and automated communications that facilitated implementation of delirium screening.

TEMPLATES

Evans, C. S., et al. (2024). Standardization of Emergency Department Clinical Note Templates: A Retrospective Analysis across an Integrated Health System. *Applied clinical informatics*, 15(2), 397–403. [Request full text.](#)

We observed a greater than twofold increase in the use of a standardized ED note template across a nine-hospital health system in anticipation of the new 2023 coding guidelines. The development and utilization of a standardized note template format relied heavily on multi-disciplinary stakeholder engagement to inform design that worked for varied documentation practices within the EHR. After the implementation of a standardized note template, we observed better-than-anticipated coding performance.

Lawrence, J. E., et al. (2019). **The use of an electronic health record system reduces errors in the National Hip Fracture Database.** *Age and ageing*, 48(2), 285–290. [Click for full-text.](#)

Errors in data submitted to the NHFD remain, particularly in cases where an NHFD-specific operation note template is not used.

Schwing, L., et al. (2019). **Trauma Team Activation: Accuracy of Triage When Minutes Count: A Synthesis of Literature and Performance Improvement Process.** *Journal of trauma*, 26(4), 208–214. [Click for full-text.](#)

Education included a decision tree for trauma activations and the development of templates for our electronic health record and prompts to improve accurate activations. After implementation of the aforementioned intervention, the Com. Center performance revealed reduction in incorrect activations from 27.3% to 10.7% from 2015 to 2016. Mean activation time in January 2015 was 48.5 min before the intervention and 4.71 min postintervention in December 2016; this is a staggering reduction in activation times of 90%!

Richardson, K. J., et al. (2016). **Evaluation of Nursing Documentation Completion of Stroke Patients in the Emergency Department: A Pre-Post Analysis Using Flowsheet Templates and Clinical Decision Support.** *Computers, informatics, nursing*, 34(2), 62–70. [Click for full-text.](#)

Customizing flowsheets to meet the needs of nursing workflow showed improvement in the completion of documentation. The effects of the decision support alerts on the completeness of nursing documentation were not statistically significant.

Perry, J. J., et al. (2014). **Assessment of the impact on time to complete medical record using an electronic medical record versus a paper record on emergency department patients: a study.** *Emergency medicine journal*, 31(12), 980–985. [Request full-text.](#)

A template-based electronic medical record was introduced. Electronic recording took longer than paper records. Physicians were not satisfied using this electronic record.

CHECKLISTS

Curtis, K., et al. (2021). **Does electronic medical record redesign increase screening of risk for pressure injury, falls and substance use in the Emergency Department? An implementation evaluation.** *Australasian emergency care*, 24(1), 20–27. [Click for full-text.](#)

The introduction of a consolidated electronic checklist for use by emergency nurses to complete fall, pressure injury and substance use screening resulted in an overall increase in risk screening. However screening rates remained poor

NUDGES

Richardson, S., et al. (2024). **Effect of a behavioral nudge on adoption of an electronic health record-agnostic pulmonary embolism risk prediction tool: a pilot cluster nonrandomized controlled trial.** *JAMIA open*, 7(3), ooae064. [Click for full-text.](#)

We demonstrated feasibility and preliminary efficacy of a PE risk prediction CDS tool developed using insights from behavioral science. The tool is well-positioned to be tested in a large randomized clinical trial.

Redinger, K., et al. (2022). **The Impact of Pop-Up Clinical Electronic Health Record Decision Tools on Ordering Pulmonary Embolism Studies in the Emergency Department.** *The Journal of emergency medicine*, 62(1), 103–108. [Click for full-text.](#)

This study aimed to determine whether the addition of a pop-up notification of the Modified Wells Criteria into the workflow would impact the number of total orders for computed tomography pulmonary angiography. These tools are effective quality improvement initiatives, and their use should be encouraged.

Montoy, J. C. C., et al. (2020). **Association of Default Electronic Medical Record Settings With Health Care Professional Patterns of Opioid Prescribing in Emergency Departments: A Randomized Quality Improvement Study.** *JAMA internal medicine*, 180(4), 487–493. [Click for full-text.](#)

Guidelines and physician education have had mixed success in curbing opioid prescriptions, highlighting the need for other tools that can change prescriber behavior, including nudges based in behavioral economics.

Hornig, S., et al. (2019). **Assessment of Unintentional Duplicate Orders by Emergency Department Clinicians Before and After Implementation of a Visual Aid in the Electronic Health Record Ordering System.** *JAMA network open*, 2(12), e1916499. [Click for full-text.](#)

In this interrupted time series cohort study, passive visual cues that provided just-in-time decision support were associated with reductions in unintentional duplicate orders for laboratory and radiology tests but not in unintentional duplicate medication orders.

APPENDIX

SEARCH METHODOLOGY

A systematic search was conducted for literature. The results were screened by librarians using [Covidence](#).

SEARCH LIMITS

- English-language
- Published within the last 10 years

DATABASES SEARCHED

- Medline – index of peer reviewed articles across health sciences and medicine.
- Embase – index of biomed and pharmacological peer reviewed journal articles.
- Emcare – index of nursing, allied health, critical-care medicine and more.
- Cochrane Library – collection of databases containing high-quality independent evidence.

SEARCH TERMS

Concept	MeSH headings	Keywords
Emergency Department	Emergency Service, Hospital; Trauma Centers; Emergency Medical Services; Emergency Medicine; Pediatric Emergency Medicine; Emergency Ward	Emergency or casualty [within 2 words of] medicine; medical; service(s); department(s); ward(s); unit(s); room(s); health service(s); healthcare; health care; personnel; nurs(e)(es)(ing); p(a)ediatric(s); center(s); centre(s); team(s)
Electronic Health Record	Electronic Health Records	Nudge(s); abbrev(iation)(iate)(iated); template(s); checklist(s) [within 3 words of] electronic medical record(s); electronic health record(s); EMR; HER; DHR; cerner; powerchart; firstnet

MEDLINE SEARCH STRATEGY

Ovid MEDLINE(R) ALL <1946 to August 23, 2024>

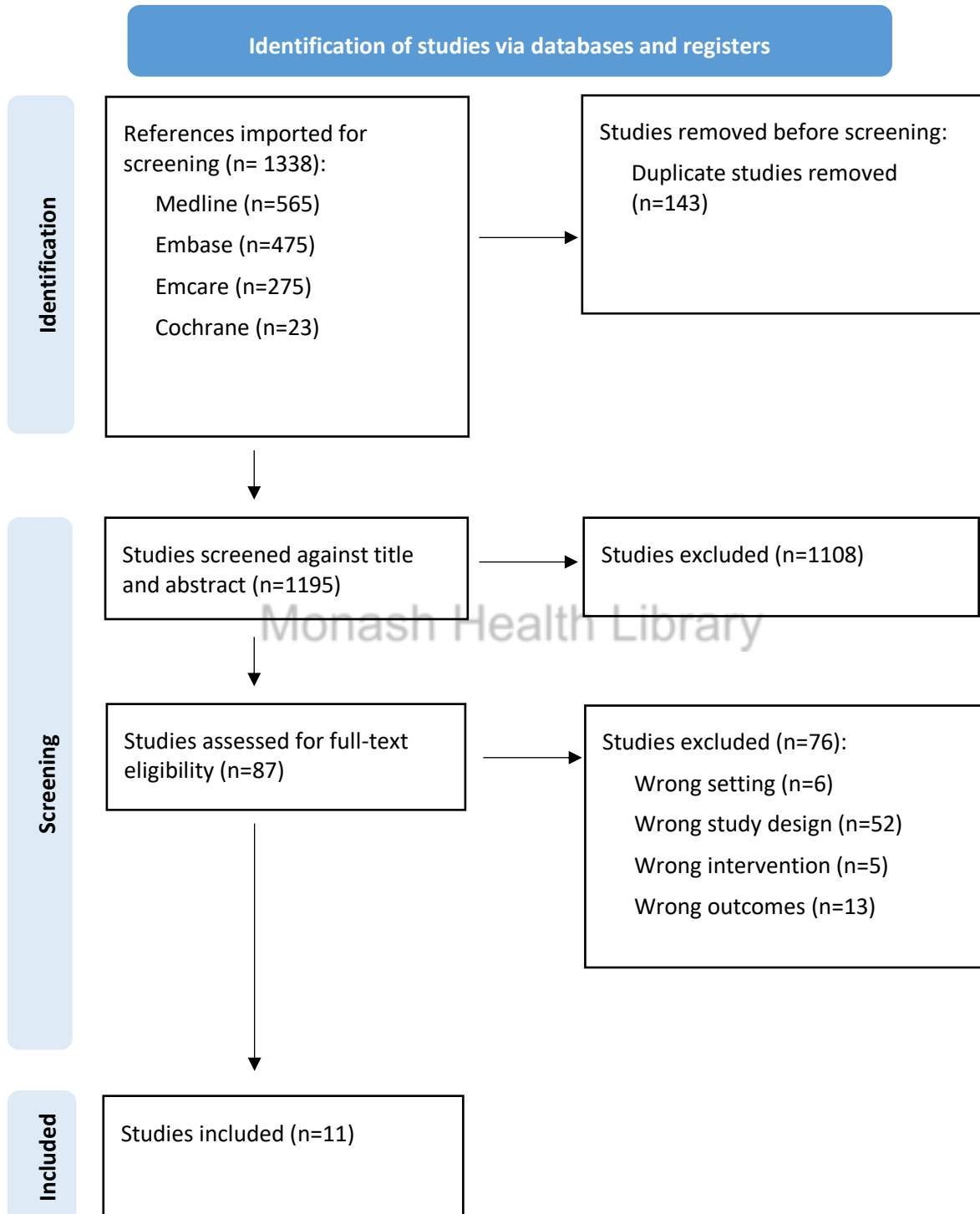
- 1 ((Emergency or casualty) adj2 (medicine or medical or service* or department* or ward* or unit* or room* or health service* or healthcare or health care or personnel or nurs* or p?ediatric* or center* or centre* or team*)).tw,kf. 217910
- 2 Emergency Service, Hospital/ or Trauma Centers/ or Emergency Medical Services/ or Emergency Medicine/ or Pediatric Emergency Medicine/ or Emergency Ward/ 160300
- 3 1 or 2 285431



4 ((nudge* or abbrev* or template* or checklist*) adj3 (electronic medical record* or
electronic health record* or EMR or EHR or DHR or cerner or powerchart or firstnet)).tw,kf. 305
5 *Electronic Health Records/ 17174
6 4 or 5 17405
7 3 and 6 705
8 limit 7 to (english language and last 10 years) 565

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