

Double-checking vs credentialed-single checking for high-risk medication administration in a closed loop medication management system

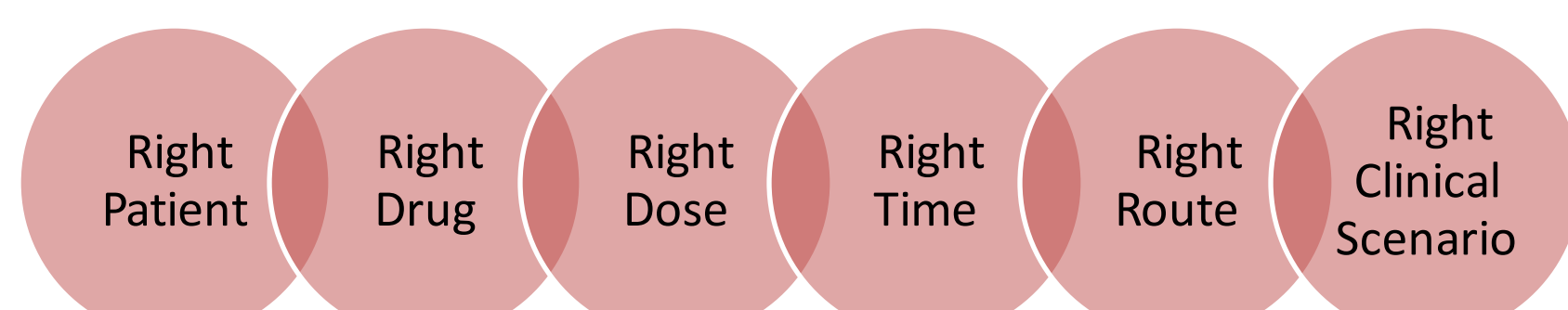
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Background

Medication checking processes are fundamental components of safe nursing practice. The 'six rights' of medication administration are the foundations for checking procedures. [1]

The 'six rights' of medication administration:



In a closed loop medication management system, positive patient identification (PPID) 'Right Patient' and positive medication identification (PMID) 'Right Medication' are supported by barcode assisted technology.

Most oral medications are administered independently by a registered nurse, however, high-risk medications, including injectables and Schedule 8 medications, require a double-check.

At Alfred Health registered nurses may undergo credentialing to Single-Check Administration of high-risk Medicines ("SCAM").

There are no published data on near-miss medication errors comparing SCAM and double-checked medications in the setting of an electronic medical record (EMR) with 'closed-loop' medication management.

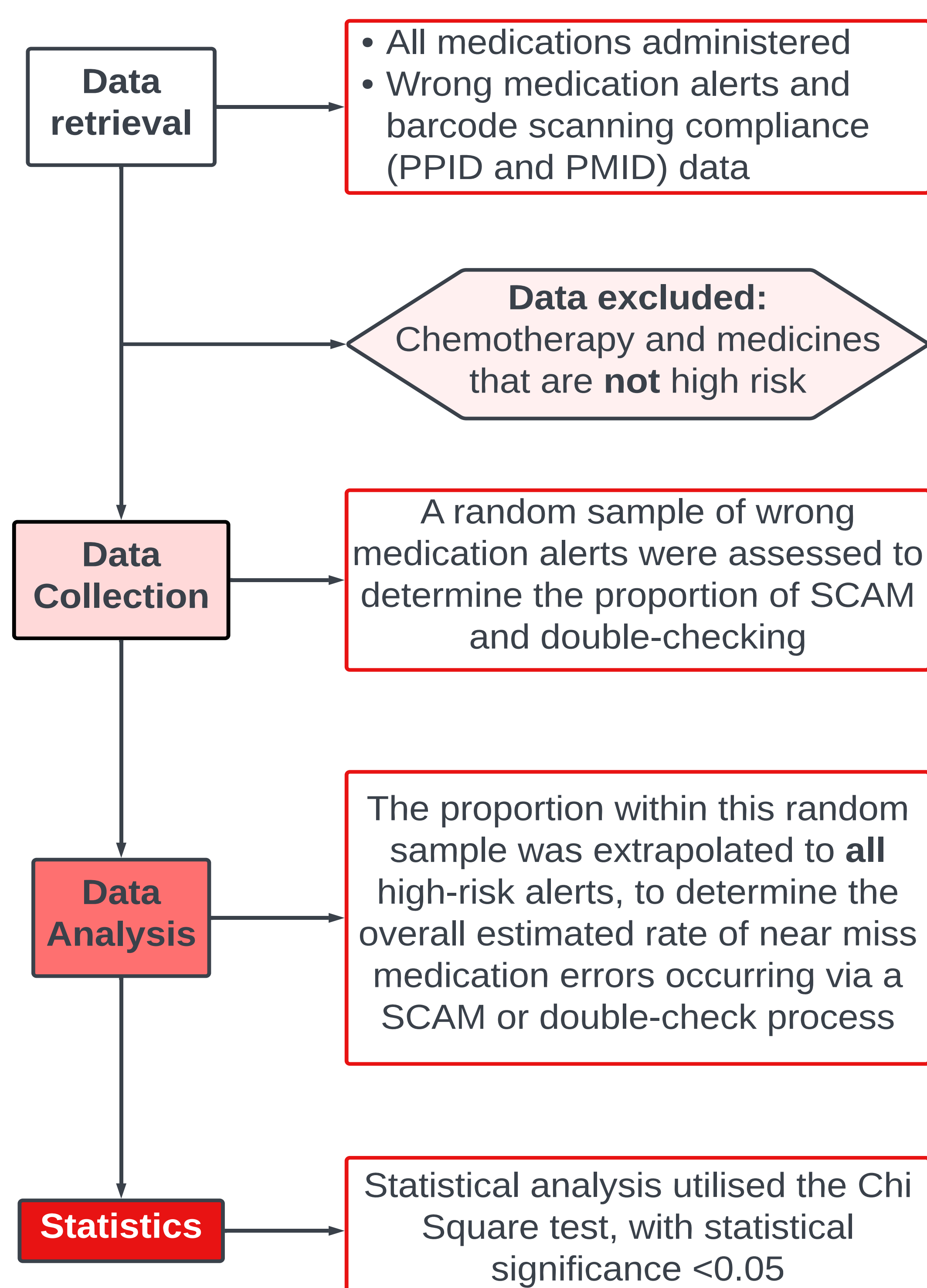
Aim

To compare the proportion of near-miss medication errors associated with SCAM and double-checked medication administration, by evaluating the frequencies of error alerts generated by EMR.

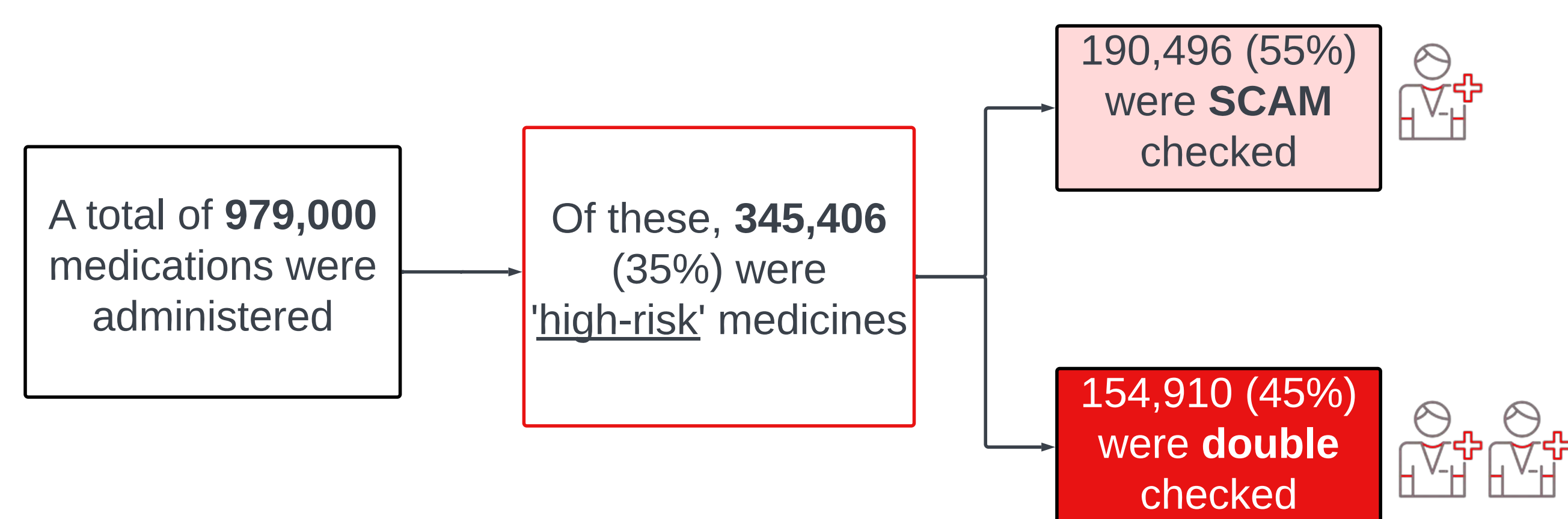
Methods

Study Design: This was a retrospective study of high-risk medication administration records, extracted from Cerner® EMR, Aug-Oct 2021. Rates of barcode scanning for PPID and PMID; and medication scanning error alerts were reviewed for SCAM and double-checking.

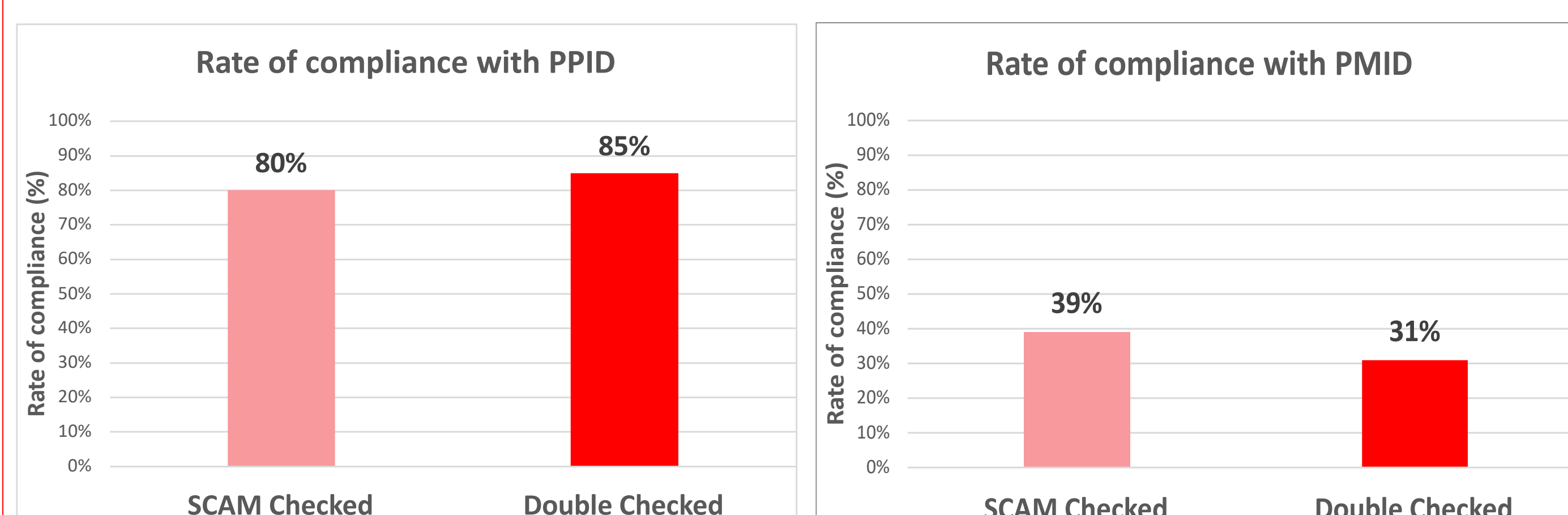
High Risk medications: Injectables, Schedule 8 and 11 medicines and PINCH drugs (excluding chemotherapy)



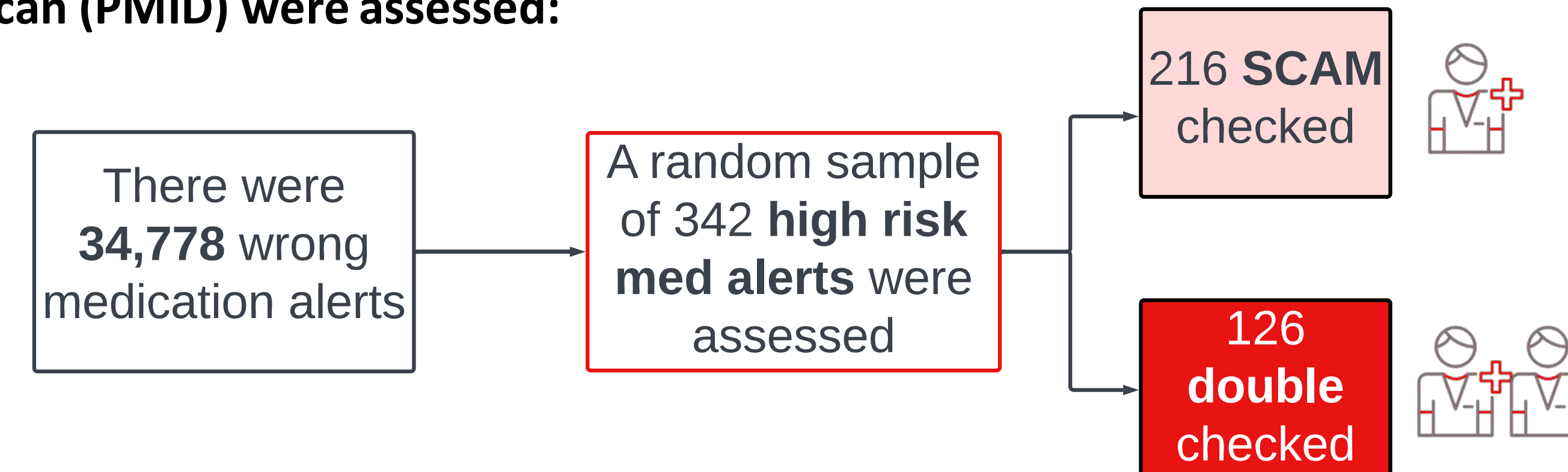
Results



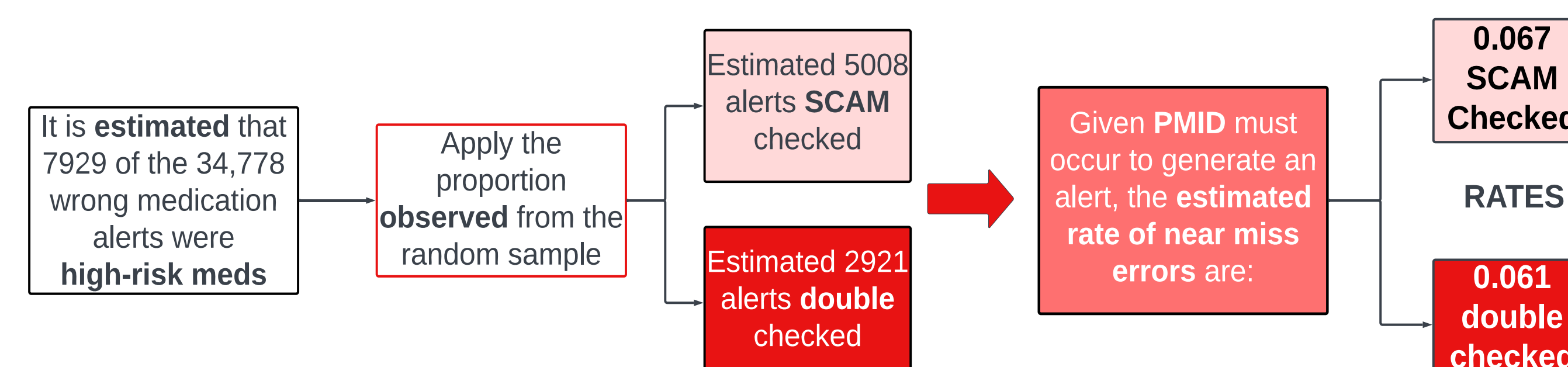
Compliance with patient wristband scanning (PPID) and medication barcode scanning (PMID):



A random sample of wrong medication alerts generated following a barcode scan (PMID) were assessed:



Given an alert can only be generated following a barcode scan, rates of PMID were utilised to estimate overall near miss error alert rates:



Discussion

Single-checking by credentialed nurses is an embedded practice in this organisation. EMR data within a digital closed loop system provides the opportunity to compare SCAM with double-checking practices for administration of high-risk medications.

It is estimated that scanning prevented a medication error in 6 out of every 100 high risk medications administered. Measures to improve PMID compliance for high-risk medicines are required given the potential for serious adverse outcomes if given in error. [2] Importantly, many high-risk medications are difficult to scan due to the absence of a scannable barcode (ie. Schedule 8/11 medicines stored in the safe without a box).

Conclusion

Barcode scanning has the potential to reduce patient harm by providing an opportunity to intervene on near miss medication errors. [1] SCAM is a potential safe alternative to double-checking however, further confirmation of the safety of SCAM is required.

References

1. Ramasamy S, et al. *Australian Commission Safety Quality Health Care* 2013;3:1-4.
2. Van Der Veen W, et al. *J Am Med Inform Assoc* 2018;25:385-92.