Assessment of the risk of injectable drug preparation errors observed in pharmacy aseptic units

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Introduction

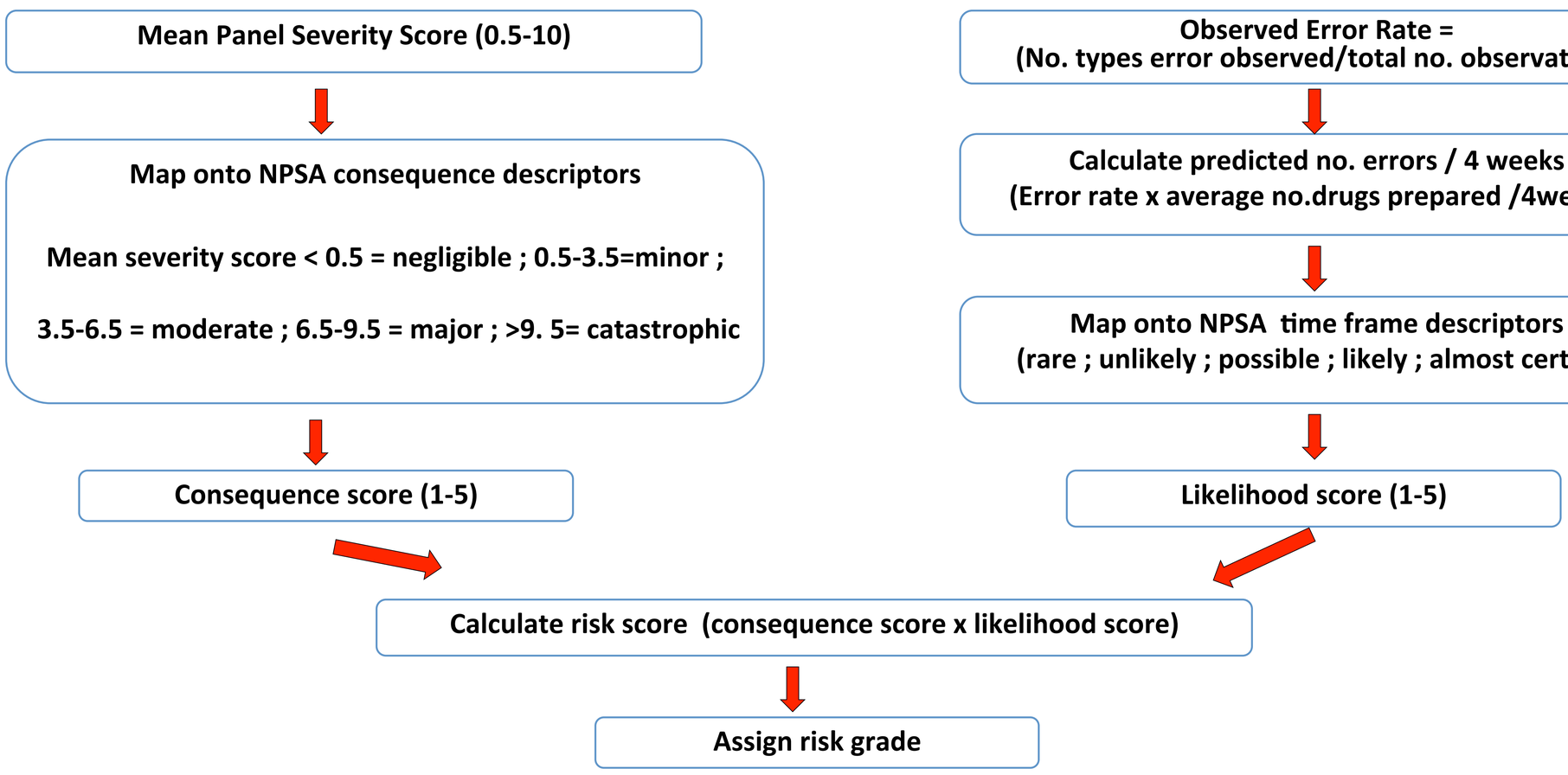
A previous observational study examined the frequency and causes of errors in three pharmacy aseptic units[1], but did not attempt to grade their potential severity or assess the risk of these errors occurring again.

Aims

To assess the severity of errors previously observed in three pharmacy aseptic units and calculate a risk score using consequence and likehood scores analogous to that used by the National Patient Safety Agency (NPSA). Errors with the highest risk scores will provide a focus for developing strategies to help prevent these types of mistakes from occurring again.

Method

- Errors previously observed were categorized into error type according to a framework provided by Crowley (2006)[2].
- A panel of two consultant physicians, two senior pharmacists and one senior nurse were provided with a description of each of the 46 errors previously observed[1]. They were asked to independently score the severity of each on a scale from 0 (no harm) to 10 (death) using a validated method [3].
- Mean severity scores and error frequency data for different error types were used to determine consequence and likelihood scores in order to assign an overall risk score



- Ethical approval for this research was obtained from the University of Bath's Research Ethics procedure.

Results: Risk score for injectable preparation errors previously observed.

Type of error (n=46)	NPSA consequence score	NPSA likelihood score	Risk score	Assigned risk grade
Wrong dose (n=6)	3	4	12	High risk
Wrong diluent (n=5)	3	3	9	High risk
Wrong expiry date (n=2)	3	3	9	High risk
Wrong batch number (n=7)	2	4	8	High risk
Worksheet error (n=17)	2	4	8	High risk
Assembly error (n=5)	2	3	6	Moderate risk
Wrong route of administration (n=1)	3	2	6	Moderate risk
Wrong preparation technique (n=1)	3	2	6	Moderate risk
Faulty labeling (n=1)	3	2	6	Moderate risk
Unprescribed drug (n=1)	2	2	4	Moderate risk

Key points

- **Most errors were categorized to deliver potential minor harm or moderate harm.**
- **Errors were assigned a grade of high or moderate risk.**
- **40% of errors could be expected to occur at least weekly.**

Conclusion

The majority of errors observed were rated as having a minor or moderate potential consequence, but after accounting for error frequency, five types of error were graded as high risk. Observational data is limited by the Hawthorne effect but high risk errors will be prioritised during the next phase of work, which aims analyse interview data from staff who made these errors and propose risk reduction strategies.

References

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3.Dean, B. & Barber, N. (1999). A validated, reliable method of scoring the severity of medication errors. *American Journal of Health-System Pharmacy, 56(1), p.57–62.*