

Performance of multiple trigger tools in identifying medication-related hospital readmissions

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Background

- Identification of medication-related (re)admissions is time consuming and difficult.
- Many trigger tools exist for this purpose.
- Effectiveness of these trigger tools remains uncertain.

Aim

Primary aim:

- To evaluate **the performances of trigger tools** in identifying medication-related readmissions (MRRs) compared to clinical adjudication.

Secondary aim:

- To assess **the performances of trigger tools** in identifying MRRs based on **recognition of readmissions as medication-related** by attending physician (≤ 24 hours of readmission), the **potential preventability** of the MRR and **age** of patients (as many trigger tools are developed for older patients).

Methods

Retrospective study: Dutch teaching hospital (OLVG)

- Data from prior study assessing 1120 readmissions with 181 MRRs¹
- Panel of physicians and pharmacist: clinically adjudicated readmissions as medication-related including preventability
- A validation was performed of all MRRs by a senior physician and pharmacist

Selection of trigger tools:

- Literature search: tools for identifying medication-related (re)admissions
- Four trigger tools were included:
 - **OPERAM:** Optimizing Therapy to Prevent Avoidable Hospital Admissions in Multimorbid Older Adults²
 - **START-STOPP:** Screening Tool to Alert doctors to Right Treatment – Screening Tool of Older Person' Prescriptions criteria³
 - **ADR Tool:** Adverse Drug Reaction Trigger Tool⁴
 - **QUADRAT:** Quick Assessment of Drug-Related Admissions over Time⁵

Definition explicit trigger: Specified medication + associated symptom

Definition implicit trigger: General trigger requiring clinical knowledge (e.g. avoid duplicate medication)

Primary outcome: The proportion of clinically adjudicated MRRs identified by each trigger tool

Secondary outcomes: Stratification to the recognition of a readmission as medication-related by attending physician ≤ 24 hours, potential preventability of the MRR and age (above and below 70 years of age)

References

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Results

Primary aim:

The study comprised 181 MRRs of which 72 were potentially preventable and 29 were not recognized as medication-related by the attending physician at the time of readmission.

OPERAM outperformed the other tools by identifying 166 (91.7%) of MRRs through both explicit (62.4%) and implicit (29.3%) triggers.

Table 1. Identification of MRRs by each trigger tool (n = 181 MRRs)

Trigger Tools*	Overall identification of MRRs, n (%)	Explicit trigger, n (%)	Implicit trigger, n (%)
OPERAM Original	166 (91.7)	113 (62.4)	53 (29.3)
START-STOPP version 3	23 (12.7)	13 (7.2)	10 (5.5)
ADR Tool	51 (28.2)	51 (28.2)	N/A
QUADRAT	76 (42.0)	76 (42.0)	N/A

*OPERAM revised version and START-STOPP version 1 and 2: data are not shown as these performed less well.

Secondary aim

- OPERAM original version was best in identifying unrecognized MRRs.
- Trigger tools were generally more effective in identifying non-preventable MRRs (exception START-STOPP criteria).
- Tools were equally effective in patients above and below 70 years.

Table 2. Identification of MRRs by each trigger tool, shown as n (%)

Trigger Tools	Recognition as medication-related by physician		Potential preventability of MRRs	
	Recognized (n=152)	Unrecognized (n=29)	Preventable (n=72)	Non-preventable (n=109)
OPERAM	152 (100.0)	14 (48.3)	59 (81.9)	107 (98.2)
START-STOPP	18 (11.8)	5 (17.2)	18 (25.0)	5 (4.6)
ADR tool	42 (27.6)	9 (31.0)	20 (27.8)	31 (28.4)
QUADRAT	67 (44.1)	9 (31.0)	21 (29.2)	55 (50.5)

Conclusion

- **OPERAM tool performed best in identifying MRRs, but 29% of MRRs were identified with implicit triggers requiring clinical knowledge.**
- **START-STOPP, ADR and QUADRAT tools were unsuccessful.**
- **It is crucial to investigate the practical implementation of a trigger tool in routine clinical practice.**

In collaboration with:

