



Investigating Medication Prescribing Accuracy for Critical error Types

The development of an electronic data capture tool for high-risk prescribing errors

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Background

- Information on medication prescribing errors is vital to help inform change and improve the quality of care we provide to our patients.
- Screening of all prescription orders of hospitalised patients is a common approach to detect and quantify prescribing errors in practice.
- Although this method can help inform a healthcare setting on the general rate of error, it has many disadvantages, including variability in recording and subjectivity in scoring seriousness.
- A single error rate in a healthcare setting is therefore difficult to determine, making it challenging to recommend strategies for quality improvement.

Prescribing indicators

- Prescribing indicators provide a valid method to measure an area of prescribing, but traditionally have mainly been used as cost comparators to provide financial information for efficiency savings ^[1].
- To our knowledge a set of validated indicators, specifically directed at safety aspects of prescribing, were not available for hospital use.
- In 2012, we carried out a two-stage eDelphi with 20 expert pharmacists, clinical pharmacologists and physicians in England.
- We identified 80 high- and extreme-risk prescribing indicators that are relevant to the hospital setting ^[2]. The indicators:
 - are likely to occur in the general hospital setting and/or have a high risk of harm should the error occur
 - have the potential to be prevented by alerts and warnings in clinical decision support software
- To enable the 80 indicators to be identified and captured in a standardised way, we have created the **iMPACT tool**.

The iMPACT tool

- iMPACT investigates medication prescribing accuracy for critical error types.
- It is a standalone Windows based data capture tool (Figure 1).
- It presents the user with a series of questions to capture details about a patient's
 - medication-related information (e.g. allergy status, weight);
 - accuracy of prescription documentation (Figure 1)
 - specific drugs prescribed (Figure 2).
- The tool:
 - collects standardised data
 - is designed to be used during the pharmacist's normal prescription chart review duties
 - reduces subjectivity when errors are reviewed for seriousness
 - is easy to use and mobile
 - captures information on 'patient harm' if the medication prescribing error reached the patient (Figure 3)

Its format and content is defined in an XML file, and it is highly configurable with different questions revealed according to previous answers given.

Figure 1: iMPACT data capture tool: demographics
This captures information about the prescribing process (i.e. paper-based or electronic) and prescription documentation

Figure 2: iMPACT data capture tool: prescribing indicators
Drugs and drug classes are categorised according to the British National Formulary chapters, and colour-coded for ease of use

Figure 3: iMPACT data capture tool: capturing data
Clicking on a drug or drug class reveals a series of questions about the prescription and/or the patient's medical and drug history (e.g. concomitant drug treatments)

Facilitating data capture

- The use of information icons and a help function assist the researcher to apply a consistent approach during data collection therefore iMPACT is not dependent on the same researcher to carry out the audit.

Information governance

- Information governance was a priority throughout the development of iMPACT, thus we only capture the necessary information required to determine whether an indicator is positive.
- The patient information collected only consists of:
 - patient initials
 - patients age
 - date of admission
- The data captured by iMPACT is held locally in an SQL server database and is encrypted before secure data transfer for collation and analysis.
- The patient initials are deleted before transfer so the information is not patient identifiable.

Message for others

- We have developed an easy to use computerised data collection tool that can allow the automated collection of prescribing error data in a hospital setting.
- The iMPACT tool captures standardised and validated error types allowing comparative studies to be carried out between sites and facilitate research into the impact of electronic prescribing and clinical decision support.
- The principal benefits of such a tool are (1) high validity to the prescribing errors included, (2) a shareable tool that can be applied in any adult inpatient setting, and (3) the ability to document how quality and safety initiatives may improve patient safety over time.

References

- The Information Centre (Healthcare). The Prescribing Toolkit. Available at <http://www.ic.nhs.uk/prescribing/measures>
- Thomas SK, McDowell SE, Hodson J, Nwulu U, Howard RL, Avery AJ, et al. Developing consensus on hospital prescribing indicators of potential harms amenable to decision support. British Journal of Clinical Pharmacology. 2013 Jan 31. doi: 10.1111/bcp.12087