

Audit of a New Electronic Prescribing Insulin Pathway and its Effects on Prescribing Errors in Insulin Prescriptions

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Introduction

Insulin has been classified as one of the five high risk medicines used in hospital ¹. Incorrect prescribing and administration of insulins can compromise patient care and safety. It can lead to poor glycaemic control and in a number of cases has even resulted in fatalities. The challenges with insulin prescribing revolve around the large number of insulins with differing duration of actions, confusing array of devices and wide dose ranges.

Previous attempts to improve the electronic insulin prescribing processes at this University Teaching Hospital led to the development of a pathway that was found to be non-intuitive by prescribers. Additional to this the drug catalogue was not updated promptly when new insulins were introduced. A previous local audit confirmed that prescription errors with insulin were high with problems ranging from the insulin not being prescribed at all on the electronic system to either an incorrect or no device being prescribed.²

With this evidence and the perception among clinical staff that the electronic insulin prescribing pathway was inadequate, it was decided to revisit this area to see if it could be improved. The overall aim of the project was to reduce the number of errors associated with insulin by the introduction of a new electronic prescribing pathway.

Objective(s)

- 1) Determine the incidence and type of prescribing errors associated with the original electronic insulin pathway.
- 2) Design and build a new insulin pathway
- 3) Determine the incidence and type of prescribing errors associated with the revised electronic insulin pathway.
- 4) Analyse results and determine areas for further work

Method

Audit of original insulin prescribing pathway.

Data collection took place over a three week period. Patients prescribed insulin were identified via a daily report generated from the trust's electronic data repository. The prescriptions were checked to ensure the correct insulin was prescribed and then assessed for compliance with the trust standard for insulin prescribing namely that they should include the insulin name, device, route, reference to "see paper chart for dose" and frequency. Those prescriptions that did not meet all the criteria were deemed as incorrect and the error type was recorded for each one. It was also noted if the prescription had been generated from the drug catalogue or whether it was free-typed into the electronic prescribing system.

Design and build of revised electronic insulin prescribing pathway.

The results of the initial audit were analysed and screens for the new insulin pathway were designed in conjunction with the diabetes team and the lead diabetes and information technology (IT) pharmacists. The pathway was built and checked by the IT pharmacy team. It was then put into the electronic prescribing system replacing the old pathways.

Audit of revised insulin prescribing pathway.

After a settling in period of one month, data collection was undertaken in the same way as the initial audit over a three week period, allowing for comparative analysis.

Results

Original pathway: 96 patients generated 128 prescriptions of which 107(84%) were incorrect.
Revised pathway: 120 patients generated 179 prescriptions of which 8 (4%) were incorrect.

Figures 1 and 2 show the breakdown of the types of errors made in the original and revised pathways respectively.

Figure 1: Types of prescribing errors with the original pathway

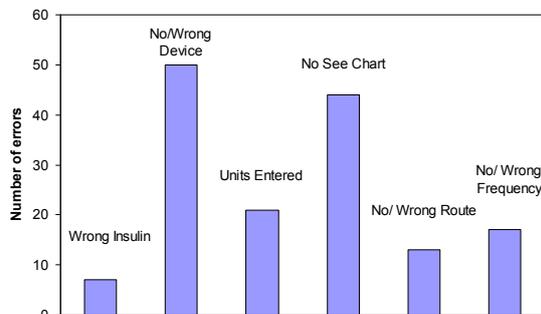
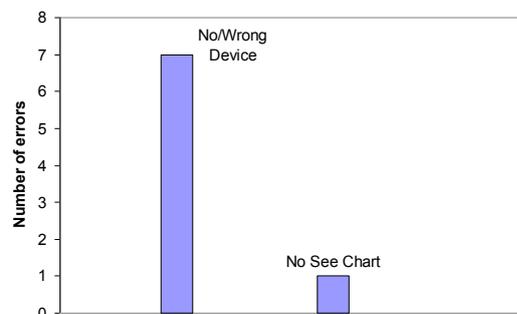


Figure 2: Types of prescribing errors with the revised pathway



Free-typed prescriptions accounted for 107 orders in the initial audit. These were incorrect in 97 instances. With the revised pathway 6 prescriptions were free-typed with 5 of these being incorrect.

Discussion

The results showed a significant improvement in insulin prescribing through the modification of the electronic prescribing pathways. The initial audit proved that the old pathway was inadequate and led to a high rate of prescribing errors. This was due to the pathway not being intuitive to use and not keeping up to date with the ever growing range of insulins and devices.

Working with the diabetes team ensured that the revised pathway better reflected the way clinical staff approached insulin prescribing. This was shown in the reduced number of prescribing errors. There continues to be problems in ensuring the selection of the correct insulin device as this was the commonest error seen with the prescribing pathway.

The project highlights the need to work closely with clinical staff in order to optimise the design of electronic prescribing pathways. It also highlights the need to continually quantify and analyse prescribing errors and to evaluate any significant changes to ensure that they have the desired effect.

Challenges for the future include trying to promote correct insulin product selection first time through prescriber education as well as trying to ensure the system is kept updated. In addition we should try to incorporate the lessons learnt from this project into the design of the new electronic prescribing systems being implemented in the NHS.

References

1. Bergin C. Insulin prescribing: compliance with standards. *Clinical Pharmacy Europe* Spring 2007; 32-34.
2. Lunt A. Insulin Prescribing and Administration Timing. Is there a need for a better system? Diploma Project, 2002.