A flow chart to reduce insulin repeat prescription errors

Shelpa Parmar and Val Brown

Introduction

DSNs working within their teams have observed that repeat insulin prescriptions issued both in hospital and in the community are often inadvertently inaccurate, and may result in the wrong type of insulin being dispensed. This article describes the development of a flow chart designed to assist staff who prepare prescriptions in reducing such errors. The flow chart is reproduced here as a pull-out centre-page section.

There are now available numerous insulins, insulin mixtures, insulin pens with cartridges of different sizes, and disposable pens made by different manufacturers — all of which may lead to confusion when repeat prescriptions for insulin are issued. Common difficulties in prescribing include errors regarding the numerous insulin mixtures, incorrect source of insulin (animal or human), and incorrect cartridge size or type appropriate for the pen.

To address this problem, the diabetes specialist nurse (DSN) at Community Health South London NHS Trust collaborated with the community trust pharmacist to prepare a flow chart that illustrates the full range of available insulins, together with the format in which they are dispensed. The aim of the chart is to improve the accuracy of repeat prescribing for insulin.

How the work was initiated

Optimum Health Services NHS Trust (now part of Community Health South London NHS Trust) have contracted with Lambeth, Southwark and Lewisham Health Authority (LSL) to provide a package of support to a GP practice serving a population of 5000 patients. This is part of the Government-led personal medical services (PMS) pilots, which aim to offer:

- A more flexible environment for the recruitment and retention of staff working in general practice
- To explore different organisational arrangements for the delivery of high quality primary care services.

The PMS pilots allow the health authority to contract with community trusts, GP practices, other trusts and other organisations, which then become accountable for the delivery of the contract. Under these arrangements, PMS pilots are able to test the effectiveness of different organisational models in managing general practice.

The community trust model includes salaried GPs, nursing staff, administrative personnel and a pharmacist. The presence of a pharmacist in the GP practice has facilitated liaison with the local DSN to resolve the problem of repeat prescribing for insulin.

Identifying the problem

Normally clerical and nursing staff in a GP surgery prepare repeat prescriptions on the computer system for the medical staff to sign. Insulin manufacturers may have little contact with the members of the general practice team involved with the repeat prescribing process. These staff may rarely have the opportunity to familiarise themselves with the appearance of the different insulin presentations and pack sizes available.

The current pharmaceutical literature emphasises stock ordering requirements including wholesaler order numbers (Pharmaceutical Interface Product (PIP) codes) but these may not assist general practice staff. A comprehensive and easily understood guide to all insulin products is not currently available. A flow chart was therefore constructed in response to this deficiency to meet GP practice needs.

ARTICLE POINTS

1 Inadvertent errors of insulin prescribing are common.

2 A community trust pharmacist and DSN have collaborated to improve insulin prescribing.

3 Together they have designed a flow chart that provides guidelines for repeat prescription of insulin.

4 The flow chart clarifies the repeat prescription procedure and prevents wastage of resources.

5 The flow chart is reproduced here as a centre-page pull-out section.

KEY WORDS

- **Insulin**
- **Prescribing**
- **Guidelines**

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Insulin Guidelines For Repeat Prescriptions

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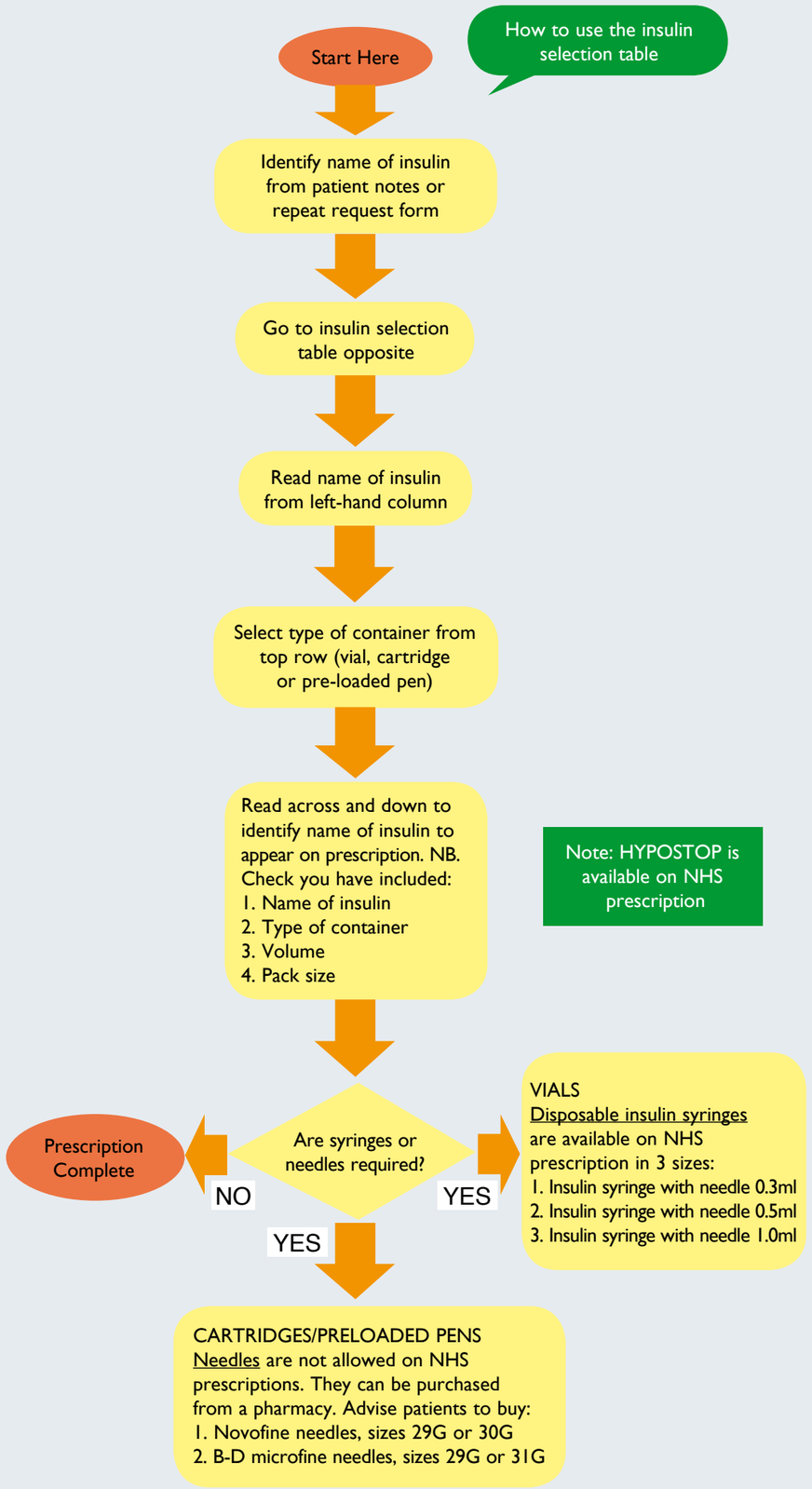
- Follow this guide if a patient requests a repeat prescription for insulin which has been prescribed by the doctor or hospital.
- Each insulin regimen is tailored to an individual's needs. Follow the flow chart to avoid any unintentional changes.



	Type of container (Volume) x pack size			
Name of Insulin	Vial (10ml) x 1 	Cartridge (1.5ml) x 5	Cartridge (3ml) x 5	Preloaded pen (3ml) x 5
Actrapid	Human Actrapid 10ml Pork Actrapid 10ml	Human Actrapid Penfill 1.5ml	Actrapid Penfill 3ml	Actrapid Pen 3ml
Insulatard	Human Insulatard ge 10ml Pork Insulatard 10ml	Human Insulatard Penfill 1.5ml	Insulatard Penfill 3ml	Human Insulatard Pen 3ml
Mixtard	Human Mixtard 30 ge 10ml Human Mixtard 50 10ml Pork Mixtard 30 10ml	Human Mixtard 10 Penfill 1.5ml Human Mixtard 20 Penfill 1.5ml Human Mixtard 30 Penfill 1.5ml Human Mixtard 40 Penfill 1.5ml Human Mixtard 50 Penfill 1.5ml	Human Mixtard 10 Penfill 3ml Human Mixtard 20 Penfill 3ml Human Mixtard 30 Penfill 3ml Human Mixtard 40 Penfill 3ml Human Mixtard 50 Penfill 3ml	Human Mixtard 10 Pen 3ml Human Mixtard 20 Pen 3ml Human Mixtard 30 Pen 3ml Human Mixtard 40 Pen 3ml Human Mixtard 50 Pen 3ml
Velosulin	Human Velosulin 10ml			
Monotard	Human Monotard 10ml			
Ultratard	Human Ultratard 10ml			
Lentard	Lentard MC 10ml			
Humalog	Humalog insulin lispro 10ml	Humalog insulin lispro 1.5ml	Humalog Mix 25 3ml	Humalog Mix 25 Pen 3ml
Humulin	Humulin S 10ml Humulin I 10ml Humulin M1 10ml Humulin M2 10ml Humulin M3 10ml Humulin M4 10ml Humulin M5 10ml Humulin Lente 10ml Humulin Zn 10ml	Humulin S 1.5ml Humulin I 1.5ml Humulin M1 1.5ml Humulin M2 1.5ml Humulin M3 1.5ml Humulin M4 1.5ml Humulin M5 1.5ml	Humulin S 3ml Humulin I 3ml Humulin M1 3ml Humulin M2 3ml Humulin M3 3ml Humulin M4 3ml	Humaject S 3ml Humaject I 3ml Humaject M1 3ml Humaject M2 3ml Humaject M3 3ml Humaject M4 3ml
Hypurin	Hypurin Bovine Neutral 10ml Hypurin Bovine Isophane 10ml Hypurin Lente 10ml Hypurin PZI 10ml Hypurin Porcine Neutral 10ml Hypurin Porcine Isophane 10ml Hypurin 30/70 Mix 10ml	Hypurin Bovine Neutral 1.5ml Hypurin Bovine Isophane 1.5ml Hypurin Porcine Neutral 1.5ml Hypurin Porcine Isophane 1.5ml Hypurin 30/70 Mix 1.5ml		

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The aims of the chart were:

- To provide a list of all available insulins
- To provide a list of all available insulin presentations, i.e. vials, cartridges and disposable pens
- To identify different cartridge sizes
- To identify items not available on prescription.

The chart was presented as an A3 poster (see pull-out centre page section).

Prescription examples

Figure 1 shows a hand-written prescription for Human Actrapid and Human Insulatard to illustrate the confusion that can occur as the result of the different presentations of pens, cartridges, quantity and pack size.

The cost of the prescription as written is:

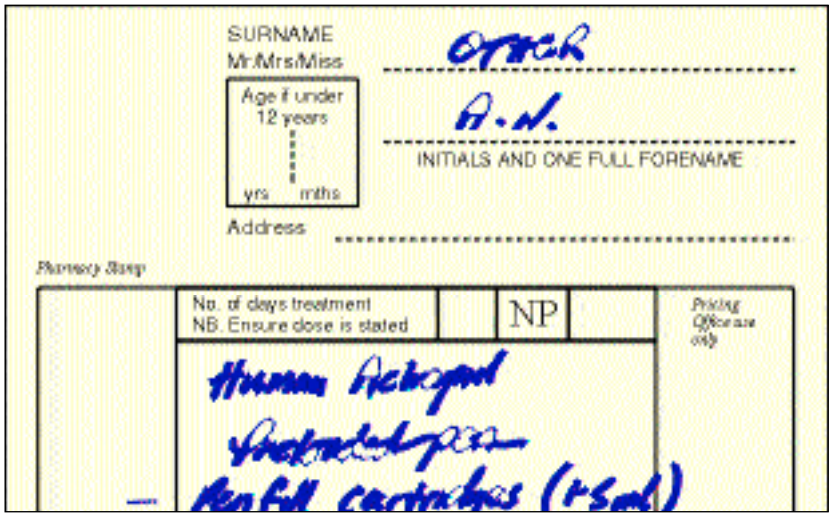

Figure 1. Extract from a hand-written prescription for insulin, illustrating the confusion that may arise from the different presentations, pens, cartridges, quantities and pack sizes available.

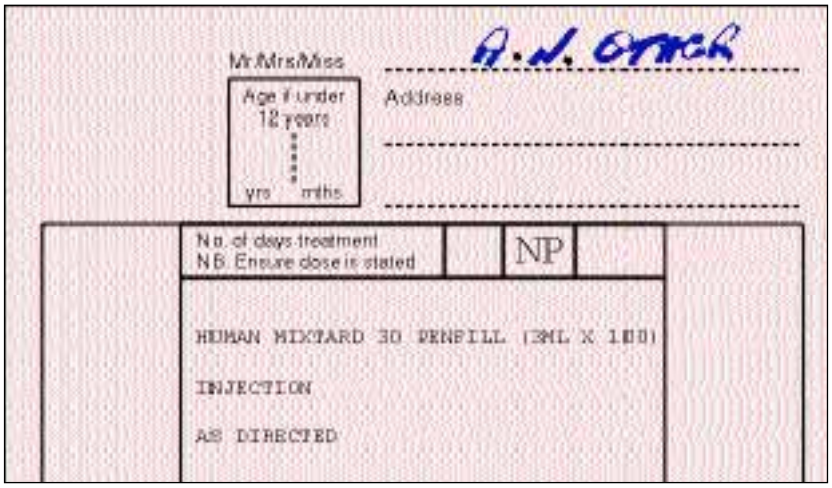

Figure 2. Extract from a computer-generated prescription showing a typical error involving quantities if insulin.

- 15 packs Actrapid penfill cartridges (1.5ml) = £148.05 (total 75 cartridges)
- 15 packs Insulatard penfill cartridges (1.5ml) = £148.05 (total 75 cartridges)
- Total cost of 150 cartridges = £296.10.

This prescription is actually intended to provide 15 cartridges of each insulin type (30 cartridges) at a total cost of £59.22.

Figure 2 shows a computerised prescription, illustrating a typical error; the cost of this prescription would have been:

- 100 x 3ml Human Mixtard 30 pens = £526.60.

It is more usual to give 2–4 packs. Once the insulin has been dispensed at the pharmacy and taken home it cannot be returned to the pharmacist for re-use.

Conclusion

This chart was designed jointly by a DSN and a pharmacist and was piloted within a GP practice participating in a PMS pilot. It has been widely welcomed both by the staff in this setting and by a wider audience. It appears to have met a long-awaited need. This initiative illustrates one of the benefits of having a GP practice-based pharmacist to help contain some of the costs of repeat prescribing in primary care (Wells, 1998).

The insulin flow chart needs to be kept up to date and requires ongoing funding. Ways of keeping this chart funded are currently under discussion.

Use of the flow chart clarifies the repeat prescription procedure for insulin and prevents wastage of resources. Its production demonstrates the effectiveness of collaboration between health professionals within the PMS model to improve patient care. ■

Wells WDE (1998) Having a practice pharmacist can reduce prescribing costs. *British Medical Journal* **317**: 473

See page 84 for advice to DSNs on the supply and administration of diabetes-related medications and how to develop group protocols in accordance with the Crown 2(i) Report.