ACADEMY OF MEDICAL ROYAL COLLEGES

Royal College of Nursing

Standards for the design of hospital in-patient prescription charts

A report prepared for Sir Bruce Keogh, NHS Medical Director, from the Academy of Medical Royal Colleges in collaboration with the Royal Pharmaceutical Society and Royal College of Nursing

Terms of reference

The Academy of Medical Royal Colleges was asked by Sir Bruce Keogh, the NHS Medical Director, to work closely with the Royal Pharmaceutical Society and the Royal College of Nursing to develop standards for the design of in-patient prescription charts, using expert opinion and evidence where available.

Background

Over the last few years there has been an increasing awareness of the potential practical and safety advantages of a UK wide hospital in-patient prescription chart. The evidence base to support the patient safety advantages of standardised prescription charts is limited but exists[1]. Several years ago the British Pharmacological Society (the specialty society for physicians working in the specialty of Clinical Pharmacology and Therapeutics) advocated a move towards a national prescription chart[2]. A number of Medical Royal Colleges, the Royal Pharmaceutical Society and Royal College of Nursing have all supported this.

Standardised training on the use of such a chart could then be given to students of healthcare professions who will prescribe, prepare or administer the medicines documented on it. Examples of initiatives that might provide such training include *Prescribe,* an online training scheme for medical students[3], and Prescribing Simulator, a simulated prescribing environment being developed by eLearning for Healthcare for graduates[4]. These initiatives have grown out of the emerging consensus concerning the need to identify and implement better standards of prescribing[5,6].

The GMC sponsored EQUIP study investigating the cause of prescribing errors amongst hospital doctors found more could have been done during undergraduate education to prepare newly graduating doctors for prescribing activity[7]. The study did not investigate the effect of a standardised prescription chart although it did advocate the standardisation of prescription charts. The movement of doctors between hospitals is now substantial and hospital based non medical prescribers, too, are beginning to move around the country. This makes the case ever more strongly for moving from independently developed prescription charts to greater commonality. References to further reading on these and related topics have been provided in Appendix 2.

The NHS in Wales (advised by the All Wales Medicines Strategy Group) introduced a single chart in Wales which has now been in use for six years (Appendix 3, item 9). It has been modified in an iterative fashion in response to feedback from users and safety alerts. What

makes this chart different to others is the fact that it demonstrates the feasibility of obtaining consensus across a much wider variety of users than have other charts. To help Trusts in any redesign they may wish to undertake in the light of the standards we are recommending, we have included example charts from across the United Kingdom (Appendix 3). These do not necessarily meet every standard, indeed many do not, but provide a range of ways of addressing specific design features.

An important development in hospital in-patient prescribing is the introduction of electronic prescribing. At present very few hospitals have a fully implemented system although more are in the process of implementation. The vast majority, however, are using paper prescription charts throughout the hospital. The standards we have identified are equally applicable to paper and electronic charts although a number of standards would be automatically embedded in any electronic chart eg prescriber's identity, patient's identity, date of admission, legibility etc. In addition, the completion of mandatory fields such as drug allergy/sensitivity data can be much better managed.

This report addresses the standards that should be met by an optimal prescription chart and makes recommendations on further training of prescribers and others who will use the chart.

Approach

The Group approached the task of defining the standards guiding the design of a prescription chart with the view that they would be used by hospitals to benchmark local charts. These standards, however, would be equally useful to inform the development of a national chart.

There will inevitably be a balance between size and complexity such that some recommendations were felt to be appropriately left to local decision making. Similarly, the balance between inclusivity versus use of supplementary charts will also be subjective. Thus, for example, we felt the advantages of inclusion of oxygen prescriptions on the main chart outweighed the disadvantages of not doing so. In contrast, the information and chart complexity required for warfarin or other anticoagulants resulted in our advice to record these details on a separate chart as is widely practiced at present. We were also conscious of the fact that we were not defining standards purely for acute general hospitals. Specialist hospitals such as those managing patients undergoing chemotherapy, rehabilitation hospitals, mental health hospitals, children's hospitals should be able to have the flexibility to implement design features relevant to their needs at the expense of features not relevant to their patient group. At the same time the safety of these patient groups in acute general hospitals needs to be assured.

The methodology employed involved several components:

a) We obtained and reviewed hospital prescription charts from a variety of sources including single hospital, multi-site Trusts, multi-Trust collaborations as well as the All Wales chart. This provided direct observation of design features often not appreciated from PDF versions or black and white photocopies. This was particularly useful to appreciate variations in colour, boldness of typeface and variation in page size within a chart.
b) A Pubmed literature search for evidence to support both the use of standardised charts and specific standards or features of in-patient prescription charts.
c) Using networks and contacts, members of the Group undertook discussion, both formal and informal, with colleagues from a wide range of disciplines both within their local workplace as well as within the organisation, grouping or geographical area they were representing.

Standards for hospital in-patient prescription chart design

1. There should be sufficient space for:

    a. the patient's full name, address, date of birth and hospital/health record number on the front page together with the ward and consultant's name, either written directly or by affixing an addressograph label. It is recognised that recording NHS number on the prescription chart is likely to become more important in the future but this is a matter for local policy at present.

    b. the patient's name and health record number should be visible on each subsequent page of the chart to reduce the risk of prescribing and administration error.

    c. recording the date of admission of the patient to hospital on the front page.

    d. where relevant, the recording of hospital site.

2. There should be:
    a. a box for drug allergies and sensitivities [a single box using both descriptors] in a prominent place on the front page, preferably in a different eye-catching colour and with sufficient space to describe any previous reaction(s).

    b. space to document a finding of no known allergies/sensitivities

    c. a clear, bold statement that allergies/sensitivities recording must be documented before prescription/administration except in exceptional circumstances.

    d. space for the name and designation of the person recording the drug allergy/sensitivity history.

3. There should be a box of sufficient size to allow the recording of dose units written in full eg micrograms, units etc for each item.

4. There should be a box for additional information for each item eg duration, review date, special use, monitoring requirements.

5. There should be boxes to add details of the patient's age, height, weight (with date of measurement) and body surface area. The mandatory completion of these boxes will be a matter for local policy.

6. There should be space for the inclusion of a statement that venous thromboembolism risk assessment has been undertaken.

7. It is a matter for local policy to consider:

    a. creating space for the recording of pregnancy in view of the implications for prescribing.

    b. creating space for the recording of drugs given under patient group directions.

    c. creating space for the recording of prescribers' professional registration number

d. the potential number of days over which a prescription can run with a recommendation of a minimum of 14 days.

8. There should be boxes to indicate which, if any, supplementary charts (eg anticoagulant, insulin, patient-controlled analgesia/epidural syringe driver etc.) are being used concomitantly. The inclusion of oxygen on the main chart is highly desirable.

9. There should be a box to document whether there are multiple medication charts, and if so which one this is of the total eg 1 of 2. The design should allow a clear update in the number of charts in use such that 1 of 1 becomes 1 of 2 eg by printed numbers before and after the word "of." Multiple charts should be kept together.

10. There should be space to allow details of medicines management procedures (eg whether admission medicines reconciled and if so by whom and when).

11. A numeric code should be shown for the reasons for non administration of medicines, which should be used by those responsible for administering those medicines. Those individuals should also be able to record the action taken (if any) following the non administration of the prescribed item.

12. Double checking is required in some situations eg intravenous medicines, controlled drugs and complex calculations. The chart should reflect this requirement.

13. Each prescription should be written clearly and legibly and the record should be indelible.

14. There should be a dedicated space for once-only medication eg loading doses. In this space, the medicine (approved name) date, dose, route, time to be given, prescriber's signature and contact details, date and time actually given and the initials of the person administering and checking the once only medication.

15. There should be a dedicated space for regular medicines. In this space, the medicine (approved name), dose, date, route, frequency, indication, prescriber's signature and contact details should be recorded together with the initials of the person administering. Dose changes should not be permitted, any changes should require a re-write of the prescribed item. The design must allow recording of the month and year at least once in addition to the date of the month and time of day for each item.

16. There should be a dedicated space for as required medicines. In this space, the medicine (approved name), dose, date prescribed, route, date and time given and the initials of who administered, prescriber's signature and contact details. There should also be space to record the indication and maximum dose that can be administered in 24 hours. This should recognise that the maximum dose might vary depending on the route of administration.

17. With every item (14,15 and 16 above), there should be space for a pharmacist check box where the pharmacist's signature indicates that the prescription has been screened for accuracy and appropriateness and the date on which this was done.

18. With every item (14,15 and 16 above), there should be space for a "supply" box to record details of dispensing (according to local policy).

19. There should be a dedicated space for intravenous and subcutaneous infusions including blood and blood products, with space to record the type, strength and

volume of the infusion fluid, the date and start time, the medicine added (approved name), its dose and the intended infusion rate or duration. There should be boxes alongside to record the prescriber's signature and contact details, the date, time started and stopped, the volume given, who it was given by (initials) and checked by (initials). Each section should allow for up to three administrations against one prescription for continuous infusions. There should be a box for the prescriber to initial to indicate that a continuous infusion is required. Batch numbers of IV infusion drugs should be recordable. Bolus injections should be prescribed in the once only section (13 above).

20. The quality of the paper used for the chart should be sufficiently good to prevent tearing/ damage during normal use.

21. Any colours chosen should take into account common forms of colour blindness.

Other recommendations

1. A standardised training package should be available to train prescribers and others in the appropriate use of any prescription chart they are required to use. This should include general training in problem avoidance eg being alert to the dangers of inadvertent use of two active prescription charts. We have included examples of such training packages in Appendix 4.

2. Training in prescribing should be available to new prescribers to ensure their prescribing skills are at the level required. Examples of such options have been given[3,4].

3. The introduction of a revised prescription chart should always be followed by a pilot phase involving all potential users to confirm the chart is fit for purpose.

Membership of Group
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Appendices

1. References

1. Coombes ID, Stowasser DA, Reid C, Mitchell CA. Impact of a standard medication chart on prescribing errors: a before and after audit. Qual Saf Health Care (2009) 18: 478-485.
2. Aronson JK. A prescription for better prescribing. Br J Clin Pharmacol 2006; 61: 487–491.
3. Prescribe: eLearning in Clinical Pharmacology and Prescribing. Available at www.prescribe.ac.uk
4. Prescribing Simulator. Available at www.e-lfh.org.uk
5. Medical Schools Council. Outcomes of the Medical Schools Council Safe Prescribing Working Group. Available at www.medschools.ac.uk
6. General Medical Council. Tomorrow's Doctors: Outcomes and standards for undergraduate medical education. London, September 2009.
7. The EQUIP Study available at **http://www.gmc-uk.org/FINAL_Report_prevalence_and_causes_of_prescribing_errors.pdf_28935150.pdf**

2. Additional reading

1. Nursing & Midwifery Council (2008). The code: Standards of conduct, performance and ethics for nurses and midwives. London. NMC.
2. Nursing & Midwifery Council (2010). Standards for medicines management. London. NMC.
3. Nursing & Midwifery Council (2006). Standards of proficiency for nurse and midwife prescribers. London. NMC.
4. Good practice in prescribing medicines - guidance for doctors. General Medical Council available at http://www.gmc-uk.org/static/documents/content/Good_Practice_ in_Prescribing_Medicines_0911.pdf
5. Non medical prescribing. A quick Guide for Commissioners available at http://www.npc.co.uk/prescribers/resources/NMP_QuickGuide.pdf
6. British National Formulary No 61.
7. British National Formulary for Children 2010-2011.
8. British Pharmacological Society. Ten Principles of Good Prescribing available at **http://main.bps.ac.uk/SpringboardWebApp/userfiles/bps/file/Guidelines/BPSPrescribingPrinciples.pdf**

3. Example charts (PDF or Word files are appended to the electronic document).

1. Belfast Health and Social Care Trust
2. Central Manchester University NHS Foundation Trust
3. Great Ormond Street Hospital for Children NHS Trust
4. Greater Glasgow & Clyde Health Board
5. Guy's and St Thomas' NHS Foundation Trust
6. Imperial College Healthcare NHS Trust
7. King's College Hospital NHS Foundation Trust
8. Leeds Teaching Hospitals NHS Trust
9. NHS Wales GIG Cymru
10. Pennine Acute Hospitals NHS Trust
11. University Hospitals of Leicester NHS Trust
12. West London Mental Health Trust

4. Example prescribing standards/prescription chart training documents/packages (PDF or Word files are appended to the electronic document).

1. Leeds Teaching Hospitals Prescriber Guidance
2. N.E.W. Yorkshire Prescribing Standards. This document provides general advice on prescribing and the appropriate use of the prescription chart.
3. All Wales Prescription Writing Standards. This document describes the appropriate use of the prescription chart.
4. NHS Wales Prescribing and Administration elearning available at http://www.learningindustries.com/elearning/ This site contains a prescribing and medicine administration elearning course made up of a number of modules and was designed to support the use of the NHS Wales chart. A username and password must be applied for.