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The MARC Programme: Safe Handling of cytotoxic drugs

Sewell, GJ

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The marc programme: safe handling of cytotoxics

The management and awareness of the risks of cytotoxics programme (marc) provides guidance on safe handling issues and other cytotoxic-related areas to healthcare professionals. The marc guidelines and audit are discussed below

Healthcare professionals including pharmacists and technicians in many European countries are becoming increasingly concerned about the potential health risks of occupational exposure to cytotoxic drugs.¹ The management and awareness of the risks of cytotoxics programme (marc) is mainly concerned with safe handling issues in the preparation, transport, storage and administration of cytotoxic drugs and in minimising the risk of occupational exposure for healthcare staff. However, marc also provides guidance on other cytotoxic-related issues such as the management of extravasation.

The aim of marc is to provide expert and evidence-based guidance, which can be accessed via the internet and constantly updated as new information becomes available. Work on marc began in the late 1990s under the direction of the marc Panel, which is chaired by the author. Panel membership includes all key stakeholders in cytotoxic handling, and although the composition changes according to need, typical Panel membership would include: specialist oncology pharmacists, hospital pharmacy technicians, a clinical or medical oncologist, specialist oncology nurses (hospital and community based), a hospital health and safety advisor and an engineer experienced in containment systems. Officers of the UK Health and Safety Executive have also made a valuable contribution to the development of the marc programme. The programme and the website are generously sponsored through an educational grant from Mayne Pharma.

The principal components of the marc programme are the guidelines and the audit.

marc guidelines

The marc guidelines are intended to provide practical information for those involved in all aspects of cytotoxic drug handling and administration in both hospital and community settings. The guidelines were developed from a systematic review of the literature, which was appraised and graded according to the strength of the evidence provided. In the absence of good published evidence, guidelines were based on

Table 1. Areas covered by MARC guidelines

- Reporting of incidents involving cytotoxics
- Cytotoxic drug preparation: facilities and safe practice
- Cleaning of facilities and equipment
- Education and staff training
- Monitoring of staff and environment for cytotoxic contamination
- Administration of cytotoxic preparations
- Handling and disposal of cytotoxic waste
- Selection and use of personal protective equipment for cytotoxic handling
- Management of cytotoxic spillage
- Storage and transportation of cytotoxics
- Cytotoxic chemotherapy in the community and home settings
- Pregnancy in staff working with cytotoxics
- Oral cytotoxics for paediatric use
- Maintenance and engineering work on contaminated equipment
- Management of extravasation in chemotherapy

Note: Some of the above guidelines are not posted on the temporary website

expert opinion and/or "accepted custom and practice". The status of each guideline (evidence-based or expert opinion) is clearly indicated.

All guidelines are presented in a common format comprising: title, aims, background, marc recommendations, literature references, status (with respect to evidence base), version of guideline, date of preparation and review date (normally every two years unless new and relevant information becomes available). In some cases, additional sections may be included. Examples include links to useful forms or documents, areas identified for further research and invitations to users to submit examples of their own protocols or to comment on new guidelines. The areas covered by UK guidelines currently posted on the marc website are presented in Table 1.

In addition to the UK guidelines, marc Panels in Belgium and Luxemburg have been involved in the preparation of guidelines with specific relevance to the needs of their countries. A limited number of the Belgian guidelines can be accessed from the marc website by clicking on the Belgian flag. The inclusion



Graham Sewell

PhD BPharm MRPharmS

Professor of Clinical Pharmacy
Department of Pharmacy and Pharmacology
University of Bath

Pharmacy Consultant
Plymouth Hospitals
NHS Trust
UK

Professor Sewell is
Chair of the marc
Panel

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of international guidelines will inform the development of local and national guidelines, and should assist in the dissemination of different approaches to safe handling.

The revision of existing guidelines and the development of new ones is an ongoing process, and in some cases new guidelines will be presented to site users as consultation documents before formal adoption. The revision process also ensures marc is responsive to new therapies and technologies; for example, the resurgence of interest in handling oral cytotoxic agents with the recent introduction of orally-acting fluoropyrimidines.

marc audit

The marc audit was designed to test compliance with the guidelines and also to serve as an educational tool. The audit was based on an audit tool previously published by the author,² which assigns a numerical value to "correct" or "acceptable" responses to audit questions and provides a quantitative output to the audit. This can then be used to compare audit scores between different areas of the same department, or to compare scores with other hospitals. The latter is particularly useful for inclusion in business plans for upgrading facilities.

To date, the audit has been presented as a CD-ROM to avoid extensive log-on times to the marc website while the audit is conducted. The audit data are then uploaded to a data processing site where audit scores are presented as simple bar charts for comparative purposes. Each participating centre is assigned an audit number so that their own score can be readily identified while other participating centres remain anonymous. An example of a simple bar chart output for the audit is presented in Figure 1, where the overall score of an individual hospital (blue bar), is compared with the mean, maximum and minimum scores obtained for a pool of 12 hospitals in an audit pilot study.

Although the marc audit was extensively piloted, the panel recognised that further developments were needed to make the audit process more "user-friendly" and more widely applicable. Developments currently in the pipeline include the provision of a "short-audit", which should take less than 10 minutes to complete, and modification of the full audit tool to become more task-based rather than focused on individual staff grades or job titles. The audit will also relate more closely to the marc guidelines. It is planned to provide an online format, and possibly a CD-ROM format, for the audit in future.

The ability of the audit to collate quantitative outputs on a national basis is important to monitor progress in safe handling, including the effectiveness

of new guidelines and education/training programmes. It is envisaged that reports in a graphical form will be fed back to participating centres on a regular basis.

At the time of writing, the marc website is under reconstruction and a temporary site will be in place until autumn 2003 when two marc websites will be available:

www.marcguidelines.com will include the UK and Belgian marc guidelines, together with other sections which will enable users to direct questions to the marc Panel, contribute to discussions on "hot" topics, access tips and messages, and utilise a number of key resources including literature abstracts, lecture presentations, and useful links to other sites, including that of the marc sponsor. Later, an education and training section will be added to provide training and evaluation packages for different groups of healthcare professionals. Healthcare professionals will need to complete a simple registration procedure to gain access to this site.

www.marcaudit.com will include both short- and full-audit tools and access to anonymous summaries of audit data uploaded by other centres. This site will not be active until late 2003.

The future

marc is already widely used by pharmacists, pharmacy technicians, nurses and clinicians worldwide, and the launch of the new websites will further increase the popularity of the programme. Over the coming years, the marc Panel will include guidelines relating to new therapeutic interventions such as gene therapy and targeted cytotoxic prodrugs. Additional guidelines concerned with patient safety (as opposed to staff safety) may also be added. The addition of guidelines and input from colleagues overseas will add a further dimension to marc. ■

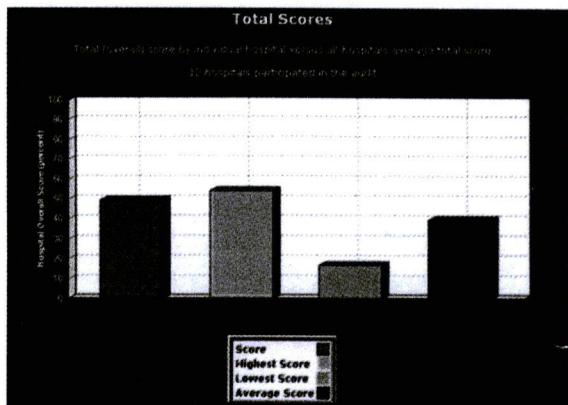


Figure 1. Example of feedback from marc audit, showing overall score for hospital under audit (blue), against minimum, maximum and mean scores for the 12 participating centres

References

1. Clark C. Occupational exposure to cytotoxic drugs. *Pharm J* 1999;263:65-7.
2. Sizer S, Sewell GJ. Development of an audit for cytotoxic drug handling in pharmacy, clinical and domiciliary areas. *Pharmacy in Practice* 1996;6(5): 153-6.