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# Cancer Treatment and Safety: Occupational Exposure-Risks and Remedies

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## Occupational exposure: Risks and remedies

### Control of risk

The use of occupational exposure monitoring for cytotoxic drugs has never been widely accepted in the UK, because of concerns about the reliability, cost and prognostic significance of the tests. These concerns were supported by a definitive review which concluded that exposure monitoring could not be recommended and suggested that it was prudent to assume an association between exposure to cytotoxics and adverse health effects and to enforce a more universal code of conduct in safe handling practice.<sup>10</sup> The UK approach has largely followed this advice, with an emphasis on validation of containment systems, training and education, competency assessment, personal protective clothing and approved procedures.

A potential weakness in the strategy was exposed by the absence of current guidelines specific to pharmacy practice. In the absence of audit standards it was not possible to measure compliance with good practice, to benchmark practice between centres or to identify examples of excellence and innovation. These difficulties have now been addressed through the marc Programme (see below) and through the efforts of national (BOPA) and international (ISOPP) special interest groups.

### The marc programme

The management and awareness of the risks of cytotoxics (marc) programme is a joint initiative between practitioners and the pharmaceutical industry. The marc panel comprises pharmacists, pharmacy technicians, oncologists, oncology nurses, industrial representatives and a member of the Health and Safety Executive. All panelists have experience and expertise with cytotoxic chemotherapy, and additional, specialist members are co-opted for certain topics (e.g. paediatrics). The panel is completely independent but

the entire marc programme is generously sponsored by Faulding Pharmaceuticals plc.

The two main elements of the programme are the marc guidelines and the marc audit. The guidelines were developed from a template of Royal College of Nursing guidelines on the administration of cytotoxic chemotherapy<sup>11</sup> and a systematic literature review, with evidence weighted according to Cochrane-type criteria. These were reviewed by the panel and distilled down into user-friendly guidelines. Where no evidence exists to support a guideline, 'best common practice' and/or panel opinion have been adopted. The marc guidelines cover all aspects of pharmacy cytotoxic services, handling in the clinical setting, transport, maintenance and training. Guidelines on home chemotherapy and paediatrics are in preparation.

The marc audit is based on a published document<sup>12</sup> and audits compliance against the guidelines and other accepted standards. Each audit point is 'scored' on a simple numerical basis, which enables compliance to be bench-marked between centres.

With the help of the sponsors, the marc panel has been able to present the marc programme in an electronic format. The guidelines are an internet on-line service ([www.marcguidelines.com](http://www.marcguidelines.com)) which, in addition to the guidelines, provides a forum for discussion and dissemination of 'hot topics'. The audit is CD-rom based in a format which enables user-specific audits to be conducted. Audit data can be uploaded to a central data-base which provides anonymised feedback to contributors in a simple graphical format. This enables bench-marking between different departments in the same hospital, between different hospitals and provides valuable information on national trends.

The marc programme has become extremely popular with healthcare professionals who were also quick to realize that in addition to promoting safe practice, it is also a valuable educational tool.

### Outside the box

More research is needed to determine the effectiveness of existing control measures (containment systems, education and training, novel reconstitution devices, protective clothing). Perhaps it is time to think 'outside the box'. Instead of either positive or negative pressure isolators and their inherent compromises, why not consider isolators with zero pressure to the outside environment? Why not explore the boundaries of dose-banding where doses are approximated (within + 5% of prescribed dose) and are met with a limited range of industry-prepared pre-filled syringes?

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