

## Surface contamination of chemotherapy preparation areas with antineoplastic agents in Australian hospital pharmacy departments

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### Aim

To determine the amount of surface contamination with antineoplastic drugs that exists in drug preparation areas in a sample of cancer treatment centres in Australia. All of these centres use a Cytotoxic Drug Safety Cabinet (CDSC).

### Methods

This is a multi-centre study involving 10 pharmacy departments in metropolitan Melbourne. Using cyclophosphamide as a surrogate marker for all hazardous drugs, surface wipe sampling was performed at all sites to detect measurable concentrations of this drug at specified locations.

The timing, location and sampling at each site were selected on the basis of previously published studies. The principal investigator collected all samples. Wipe samples were analysed by Exposure Control Ltd, The Netherlands.

### Results

Overall results show contamination on about 60% of surfaces tested. In seven pharmacies, more than 60% of surfaces were contaminated. Contamination was found on a range of surfaces including the CDSC, clean room, anteroom, and checking areas outside the clean rooms.

### Conclusion

Substantial levels of cytotoxic drug contamination in drug preparation areas that utilise a CDSC were detected on a variety of surfaces. Reliance on CDSC to provide total protection from exposure to hazardous drugs is insufficient. Measures to reduce cytotoxic drug contamination need to be reviewed and employed.

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## Error-prone abbreviations in prescribing—can e-learning help?

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### Aim

To evaluate whether information regarding the dangers associated with error-prone abbreviations (EPA), delivered in an 'e-learning' format, can change junior medical staff prescribing behaviour.

### Methods

A short e-learning module, based on the NSW TAG recommendations, was developed and promoted to junior medical staff. The effect of this package on the doctors' knowledge was evaluated via a pre and post-intervention 50-point quiz attached to the e-learning module. The effect on the prescribing behaviour of the junior medical staff was evaluated via a pre- and post-intervention audit of prescriptions for all acute care in-patients.

### Results

Nineteen medical staff completed the e-learning over 8 weeks, with a mean

completion time of 7 minutes. The quiz results improved from a mean score of  $32.7 \pm 3.1$  to  $36.5 \pm 2.9$  ( $p < 0.001$ ) after viewing the e-learning package.

The baseline audit of in-patient prescriptions found that 28.6% (1370/4796) of medication orders contained at least one EPA and 93.0% (277/298) of in-patients were exposed to at least one EPA. The audit performed after the e-learning package showed only a modest reduction to 26.3% (1198/4495,  $p = 0.042$  versus pre-intervention) of orders containing an EPA and 88.5% (246/278,  $p = 0.088$  versus pre-intervention) of patients exposed to an EPA.

### Conclusion

This audit demonstrated a concerning level of potential harm, with approximately 90% of patients exposed to an EPA. The package developed in this project did not produce a clinically significant change in

behaviour, possibly due to limitations such as poor uptake and rotation of junior medical staff.