

# **Identifying potential gaps in antineoplastic drugs controls to decrease dermal exposures among health care workers**

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## Background:

Healthcare workers (HCWs) are routinely exposed to antineoplastic drugs (ADs) that are carcinogenic, teratogenic and mutagenic while caring for cancer and immune diseases' patients. Despite control guidelines that include protocols for double glove use recent papers describe continued exposures among HCWs, mostly pharmacists and nurses, the predominant route of exposure being dermal. The current study focused on literature review and on-site observations to identify gaps in the control measures that allow these exposures to persist.

## Methods:

We conducted a review of the literature for evidence of exposures to ADs among HCWs through monitoring urine samples – a biomarker of exposure; dermal contamination through dermal, surface wipes and glove sampling; and evidence for genotoxicity - a biomarker of effect.

Observations in hospitals' oncology units as well as interviews of hospital stakeholders were administered to investigate the current control procedures and policies regarding the handling of ADs.

## Results:

Our review supports a correlation between surface contamination of the workplace and biologic evidence of AD exposure among HCWs.

Observations and interviews of stakeholders confirmed the existence of gaps in current control measures that enable surface contamination with ADs and increase the potential for dermal exposure of additional health care occupations to what previously assumed. The results also suggest that despite precautionary actions, exposures cannot be controlled without considering the entire hospital AD delivery system. Furthermore, the current hospital cleaning guidelines serve mainly as infection control guidelines, which are not appropriate for removing ADs surface contaminations.

## Conclusions:

Our literature review supports the use of surface wipes as a reliable marker for biological exposure.

Our observations and interviews show that the entire health care facility should be investigated to address the gaps in the control of ADs exposures through analysis of a wider range of hospital occupations at risk and their AD related tasks; changes in policies are required to address the entire AD system, from 'cradle to grave'. Recommendations for control measures should also include improved cleaning procedures by exceeding and modifying the current infection control prevention cleaning procedures.