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EXTERNAL CONTAMINATION OF CHEMOTHERAPY VIALS

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Background: Recent studies have demonstrated workplace areas of most pharmacies and clinics are contaminated with chemotherapy drugs during their preparation and administration. Additionally, workers who handle these drugs often excrete them in their urine, indicating systemic exposure. External contamination of drug vials may be one source of contamination to which workers are exposed.

Methods: Cyclophosphamide and ifosfamide vials were wiped two times with filter papers saturated with solvent. The combined filters were extracted using solvent and sonification and analyzed using LC/MS-MS.

Results: Several lots and dates of sampling were analyzed for cyclophosphamide (one manufacturer) and ifosfamide (two manufacturers). Forty-eight (100%) of the cyclophosphamide vials and 25 of 36 (70%) of the ifosfamide vials demonstrated contamination. The values for the cyclophosphamide vials ranged from 88 - 69,800 ng/vial (median value of 1468 ng/vial). The values for ifosfamide for one manufacturer ranged from 1478 - 1750 ng/vial and for the other from the limit of detection to 13.4 ng/vial.

Conclusions: These results, along with published reports, indicate that drug vials may have some level of contamination on their external surfaces, sometimes well into the μg range. This contamination could be an additional source of environmental contamination that leads to worker exposure to chemotherapy drugs. The study is being supplemented with additional data as new processes are being introduced in the manufacturing of cyclophosphamide.

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