

Bulletin de veille n° 73

1^{er} juillet 2025 – 30 août 2025

Surveillance biologique de l'exposition professionnelle aux médicaments cytotoxiques. Etude de terrain.

Objectif : *Disposer d'une connaissance actualisée du sujet en accompagnement des demandes d'assistance qui découlent de la valorisation de l'étude sur la surveillance biologique de l'exposition aux médicaments cytotoxiques en milieu hospitalier.*

La validation des informations fournies (exactitude, fiabilité, pertinence par rapport aux principes de prévention, etc.) est du ressort des auteurs des articles signalés dans la veille. Les informations ne sont pas le reflet de la position de l'INRS. Les éléments issus de cette veille sont fournis sans garantie d'exhaustivité.

Les liens mentionnés dans le bulletin donnent accès aux documents sous réserve d'un abonnement à la ressource.

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- **Articles de périodique (PREPRINT)**

Burke E., Harkins P., Fenn S., Khan F., McCormack O., Mulsow J. and Shields C.

Pressurised intraperitoneal aerosolised chemotherapy (PIPAC) for peritoneal malignancy, a systematic review of its occupational safety.

European Journal of Surgical Oncology, 5 juillet 2025, article 110312

Résumé: Pressurised intraperitoneal aerosolised chemotherapy (PIPAC) is an emerging technique for treating peritoneal malignancies, in which chemotherapeutic agents are delivered as an aerosol during laparoscopy. This method may provide more uniform distribution and deeper tissue penetration compared to hyperthermic intraperitoneal chemotherapy (HIPEC). However, the aerosolization of cytotoxic agents raises potential occupational health concerns for surgical and perioperative staff. This systematic review aimed to evaluate the occupational safety of the PIPAC procedure. A comprehensive search of PubMed, EMBASE, and Web of Science identified 854 studies, of which 9 met the inclusion criteria. These prospective studies, conducted across European centres between 2013 and 2021, collectively assessed 24 PIPAC procedures. Exposure was evaluated through environmental air sampling, surface wipe analysis, and biological monitoring (urine or plasma samples). Across the included studies, air contamination was consistently undetectable or below established safety thresholds. Biological monitoring also revealed no measurable systemic exposure in healthcare workers. While some surface contamination was identified, primarily on gloves and equipment, detected levels were below those commonly reported in HIPEC procedures. These findings suggest that, when appropriate safety measures are in place, PIPAC poses minimal occupational risk to healthcare staff.

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Janani Buddhika R.B., Pathirana D., Chathumali V.G.I. and Wickramasinghe N.D.D.

Knowledge, attitudes, and practices among oncology pharmacists on cytotoxic drug reconstitution in Sri Lanka: A cross-sectional study.

Journal of Oncology Pharmacy Practice, 28 juillet 2025, article 10781552251361801

Résumé: Introduction Cancer is a significant global health challenge, often managed through cytotoxic drugs (CDs). CDs are inherently hazardous and can disrupt both cancerous and healthy cells. Cytotoxic reconstitution requires specialized training to ensure both the quality of the medication and the safety of the healthcare professionals who handle CDs. Methods A descriptive cross-sectional survey was conducted among 50 oncology pharmacists working across 22 government hospitals in Sri Lanka, using a self-administered questionnaire to assess the knowledge, attitudes, and practices on CDs reconstitution. Results Most participants were male (98.00%). More than 74.00% of the pharmacists identified the facilities that should be available within the cytotoxic reconstitution unit (CRU). A majority of participants had strong concerns over the potential risks of CDs; carcinogenicity (86.00%), teratogenicity (92.00%), reproductive toxicity (78.00%), and mutagenicity (68.00%). All the participants had positive attitudes towards using personal protective equipment, cytotoxic isolators, and regular cleaning. The majority (91.84%) of the participants had concerns that exposure to chemotherapy is a serious workplace issue. Formal training on CDs handling was received by 86.00% of the pharmacists. More than 85.00% of the participants in this study reported using water and chemical-proof aprons, safety goggles, half-face double-way respiratory cartridges, and powder-free surgical gloves. Over 85% of participants adhered to proper cytotoxic waste disposal protocols. Conclusion Participants demonstrated good attitudes toward minimizing occupational

exposure to the CDs and were proactive in updating their knowledge via training programmes. This study recommends the enforcement of standard guidelines for handling CDs, periodical training, and educational programmes for oncology pharmacists.

<https://doi.org/10.1177/10781552251361801>

- **Articles de périodique**

Leeman M., Wetterling M., Kåredal M., Hedmer M. (Préprint dans Bulletin n° 67)

Development and validation of a quantitative wipe sampling method to determine platinum contamination from antineoplastic drugs on surfaces in workplaces at Swedish hospitals.

Journal of Oncology Pharmacy Practice, Volume 31, Numéro 5, juillet 2025, page 744-753

Résumé : **INTRODUCTION:** Antineoplastic drugs (ADs) are frequently used pharmaceuticals in the healthcare, and healthcare workers can be occupationally exposed to ADs. Monitoring of surface contamination is a common way to assess occupational exposure to ADs. The objective was to develop and validate a sensitive and quantitative monitoring method to determine surface contaminations of Pt as a marker for Pt-containing ADs. The surface contaminations of Pt-containing ADs were monitored at four Swedish hospital workplaces. **METHODS:** An analytical method was developed based on inductively coupled plasma mass spectrometry. The wipe sampling procedure was validated regarding different surface materials. The stability of collected wipe samples was investigated. Workplace surfaces were monitored by wipe sampling to determine contaminations of Pt-containing ADs. **RESULTS:** A wipe sampling and analytical method with a limit of detection of 0.1 pg Pt/cm(2) was developed. Pt was detected in 67% of the wipe samples collected from four workplaces, and the concentrations ranged from <0.10 to 21100 pg/cm(2). In 4% of samples, the detected surface contaminations of Pt in three hospital wards were above proposed hygienic guidance value (HGV) of Pt. In the hospital pharmacy, 9% of the detected surface contaminations of Pt were above lowest proposed HGV. **CONCLUSIONS:** A user-friendly, specific, and sensitive method for determination of surface contaminations of Pt from ADs in work environments was developed and validated. A large variation of contaminations was observed between detected surface contaminations of Pt in samples collected in wards, and it likely reflects differences in amounts handled and work practices between the wards.

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Elsherbiny H., El-Helaly M., El-Bestar S., Khashaba E., El-Dahtory F., Elkhodary T. and Wahba H.

Assessment of Genotoxicity Using Chromosomal Aberrations Analysis Among Healthcare Workers Exposed to Chemotherapeutic Drugs in Mansoura University Hospitals, Egypt.

Workplace Health & Safety, 5 juillet 2025

Résumé: **Background:** The frequency of chromosomal aberrations (CAs) in peripheral blood lymphocytes has been shown not only to be a useful biomarker of chemotherapeutic drugs (CDs) exposure-associated genetic damage but also to be predictive of increased future cancer risk and mortality. Therefore, this study aimed to assess CAs and their possible associated factors among healthcare workers (HCWs) occupationally exposed to CDs in Mansoura University Hospitals (MUHs). **Methods:** A cross-sectional study using a convenience sample of 100 HCWs who were directly involved in handling CDs while working in chemotherapy units at MUHs. They were subjected to an interview-based, semi structured questionnaire including enquiries on sociodemographic, occupational

characteristics, self-reported medical history, and CAs analysis. Findings: This study revealed that the majority of HCWs exposed to CDs in MUHs (83%) had CAs, predominantly chromosomal breaks (75%). The frequency of CAs was statistically significantly higher among nurses compared to pharmacists. Nurses working in the clinical oncology and nuclear medicine department, those with longer working durations (>5 years), nurses who were responsible for the preparation and administration of CDs, and non-use of biological safety cabinets had statistically significantly higher frequencies of CAs. Using the linear regression model, the job title was the only significant predictor of the variation of the square root of CAs. Conclusions and Application to Practice: This study indicates that HCWs, particularly nurses, who handle CDs without appropriate safety measures are at increased risk of genotoxicity. These findings address the need for regular biomonitoring for the occupational risks among HCWs handling these drugs.

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