How safe are we handling cytotoxics in academic laboratories in the UK?

Cytotoxics between practice and research
Cytotoxics, mainly used in cancer treatment, are defined as agents that are toxic to living cells. Therefore, their handling needs to be carefully monitored in order to protect the user. The latter could be, the patient receiving it, the healthcare professional handling it, or the researcher experimenting on it in the laboratory. In contrast to hospital settings, where strict guidance has been established to safeguard the medical practitioners, there are no tailored guidance for university laboratories to protect the researchers.

A close up to safety practices in research laboratories
Despite the set guidance, there has been numerous reports documenting contamination with cytotoxics onto working surfaces and in medical staff of hospitals across the globe. No similar audits in research laboratories have been performed so far. Since there is no safe threshold of exposure to cytotoxics, we sought to assess the current practice of handling cytotoxics in university research laboratories. For that, we used an online survey directed to laboratory safety officers across the UK.

First audit ever of handling cytotoxics in research settings done in the United Kingdom
Survey results have shown a huge gap between recommended guidelines and practice, in addition to a huge variation in practice within the universities. Throughout the journey of the cytotoxic vials within university premises, researchers and staff are stumbling across various hazards. The staff at the reception and storage points is not always informed about the cytotoxic content and the special handling procedures, therefore increasing their risk of exposure. The use of special repositories for transportation of cytotoxics from storage to the laboratory was not mentioned as frequent practice. Some universities were found to be more stringent than others on restricting laboratory access to trained staff, and on laboratory etiquette such as the use of personal protective equipment (gowns, gloves, masks, etc.) to limit exposure. Moreover, in some cases, the absence of trained cleaners and dedicated utensils makes it easier to spread the contamination from these labs to other university premises. One of the major contamination risks lies in experimenting cytotoxics outside of the dedicated laboratories, whereby surfaces and machines are considered to be relatively “safe”. It is common to use research apparatus from general laboratories, yet there are no regulations to address how surfaces and machines will be cleaned afterwards, and how to alert researchers working on the same bench. And finally, the lack of periodic cytotoxic laboratory inspections plays a major role in controlling contamination.

A pause for thought
Isn’t it ironic that researchers working backstage to find new cures and improve treatment outcomes are at risk during their quest? There is an urge to reassess current practice guidelines to fit the needs of university laboratories, taking into account the full trajectory of the cytotoxics within

the university.

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