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HIV postexposure prophylaxis knowledge among healthcare workers in a Colombian hospital

Sir,

Healthcare workers (HCWs) are at risk of contracting human immunodeficiency virus (HIV) as a result of occupational exposure while treating infected patients. It is estimated that 2.5% of HIV infections in HCWs are attributable to occupational sharps exposures, and 90% of these occur in low-income countries and are preventable [1]. HIV postexposure prophylaxis (PEP) is an effective antiretroviral treatment course used to reduce the risk of HIV acquisition following accidental occupational exposure to HIV.

Adequate knowledge and practices on PEP for HIV among HCWs are fundamental for HIV prevention. Several studies have explored knowledge and practices on PEP for HIV among HCWs worldwide. However, there is little information on occupational exposure to HIV and use of PEP services in Latin America, while no studies on PEP in Colombia were found in the medical databases (Medline, Scopus, SCI, SciELO and LILACS). Thus, a cross-sectional study was conducted to assess knowledge of PEP for HIV among HCWs in one hospital in Colombia.

A cross-sectional survey using self-administered, structured questionnaires comprising 15 questions was conducted on 115 HCWs (including medical doctors, nurses and laboratory scientists) at the La Divina Misericordia Hospital in Magangué, Colombia; a secondary referral hospital with >300 beds. The questionnaire was adapted from published studies [2–4] and validated through consultation with epidemiology experts. The survey was distributed in paper and electronic form. All responses were anonymous. Results of knowledge on PEP were categorized as: good (10 or more correct answers), moderate (six to nine correct answers) or poor (five or fewer correct answers).

The 115 HCWs included in this study (60.8% female) were aged from 23 to 45 years, with a mean of 27.2 (standard deviation 2.4) years. Most participants (71.3%, $N = 82$) had heard of PEP for HIV, with the main source of information being ward rounds (88.7%, $N = 61$). The majority of HCWs had poor (61.7%, $N = 71$) or moderate (26.9%, $N = 31$) knowledge about PEP. The overall mean knowledge score was 4.2 ± 2.8 points. Only nine participants (7.8%) reported having received training on PEP for HIV, and the overall knowledge score increased with previous training on PEP ($P < 0.05$). No significant difference was observed in the three groups.

Our study revealed that the majority of HCWs had poor-to-moderate knowledge about PEP, and these results were consistent with previous studies in low-and-middle-income countries [4,5]. Of particular concern, only approximately 71% of participants had heard of PEP for HIV; this is a much lower proportion than reported among HCWs in some African countries [2,4]. Although this study may not reflect the full snapshot of PEP knowledge in Colombia (given the small convenience sample and the inclusion of a single medical institution), it does suggest that more education and wider dissemination of HIV PEP guidelines among HCWs in Colombia is required urgently to ensure prompt access to PEP services.

Conflict of interest statement
None declared.

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Instrument cleanliness and protein misfolding disorders

Sir,

The article 'Instrument cleanliness and protein misfolding disorders', referring to the earlier article by Smith *et al.*, poses questions regarding two statements [1]:

1. 'The 5 μg or less per instrument side represents a more exacting standard than the 6.4 μg/cm^2 currently being proposed by the International Organization for Standardization (ISO)' [2].

How can the limit of '5 μg or less per instrument side' be described as 'more exacting' than the limit of 6.4 μg/cm^2, given that the area variable in the first is undefined?

Figure 1 (from Simmons [3]) illustrates why 5 μg per side is inadequate. A side of this 'instrument' measures 5 cm × 1 cm. If contaminated at 5 μg per side, it would have a total on four sides of 20 μg. If solid, then there could be 1 μg on each end, i.e. 22 μg. Alternatively, if hollow, the total load would be 40 μg of protein.

The smaller the instrument, the bigger the risk associated with an undifferentiated standard. If, instead of our initial instrument, we now consider one as a solid or hollow cube with sides of 1 cm × 1 cm but still contaminated with 5 μg per side, then the total load for a solid instrument would be 30 μg and 40 μg if hollow or 5 μg/cm^2. This is only marginally better than the 6.4 μg/cm^2 proposed by ISO DIS15883:5 [4].

It is the amount of prion that is in contact with normal tissue that seems to matter.

Kirby *et al.* suggested that not only is the level of contamination important but also contact time [5]. They placed contaminated dental files in the gingival margin of mice for 5 min. The contamination was with ~20 μg/cm^2 of abnormal prion-infected brain homogenate, well in excess of ISO DIS 15883:5 (<6.4 μg/cm^2 of protein) [4]. Would 5 μg total load for 5 min produce the same effect as 2.5 μg for 10 min? As the development of a beta-pleated sheet is based on templating, a single abnormally folded prion protein adhered to an instrument may initiate a cascade.

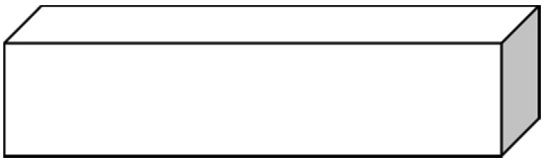

Figure 1. To illustrate a three-dimensional 'instrument' with four sides, each 5 cm × 1 cm.

2. 'in-situ measurement techniques are the safest option for instruments to be used on tissues at high risk of transmitting disease'.

As the currently available in-situ measurement technique does not give an accurate determination of protein left on the entire instrument surface, how can this be described as 'the safest option?'

There is no reference to support this opinion and we have been a part of the ongoing debate among services of the practicalities and issues this poses to service delivery.

Using in-situ methods for protein detection, departments have fine-tuned their cleaning processes. They have been able to take an instrument with, say, 15 μg of protein detected, re-wash, and see the level reduce to, say, 2 μg. However, if prion protein is firmly bound to the metal and cannot be removed, then what has been removed was not prion protein. A reduction from 15 μg to 2 μg offers clear evidence of cleaning efficacy, but this same improvement can be demonstrated by measuring protein in the effluent, i.e. through swabbing methods [6].

The current in-situ method only detects protein on one side of an instrument, which fails to address total load detection. The complexities of instrument design mean there are areas (box joints, lumens) where a shining light will fail to reveal protein, as discussed by Holmes *et al.*, and cannot be regarded as the safest method. A mixed economy of detection methods has value in demonstrating increased cleanliness [6].

The other issue not considered with the different shapes of instruments is that they do not make for a readily validated process.

The Welsh Health Technical Memorandum (HTM) includes advice around the use of challenge test soil devices, allowing cycle-to-cycle validation of the cleaning process [7].

The Scottish Health Technical Memorandum 01-01 focuses on improving the process both in theatres (e.g. keeping moist) and central decontamination units (e.g. validation and loading of washer-disinfectors) [8].

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