

Guest editorial: Needlestick injuries (NSIs): an ongoing problem

The advent of HIV/AIDS almost 25 years ago brought with it a recognition of the risk to healthcare workers of needlestick injuries (NSIs). Those risks have now been quantified and vary from one in 250-300 for HIV, one in 10-33 for Hepatitis C, and one in 6-30 for Hepatitis B. In an individual situation, the potential for transmission varies with the serostatus of the source, size and type of sharp involved, and the potential for environmental degradation of the virus.

The prevalence of NSIs in Australia is not known. However, recent publications would suggest that NSIs in Australian hospitals occur at a significant rate^{1,2}, which is probably not different to that of 15 years ago^{3,4}. Transmission of Hepatitis C, and not HIV, poses the greatest risk.

Overseas data paint a similar picture. In the US, 300,000-800,000⁵, and in the UK, 100,000⁶ NSIs are estimated to occur each year. The precision of such estimates remains affected by the under-reporting of NSIs even today^{7,8}. Translated to a practical denominator, it has been suggested that the NSI rate/10,000 healthcare workers per annum ranges between 113 (1.0%) and 623 (6.2%), with a mean of 405 (4%)⁹.

Adjusted for numbers, medical and nursing staff appear to be of relatively equal risk and it is to these groups that preventative strategies need to be directed. Transmission risk is greatest with hollow-bore needles. However, about one-third of NSIs are reported to occur in the operating theatre environment where solid needles and other sharp devices cause the majority of NSIs.

Educational programmes detailing the likelihood, risks and causes of NSIs are an important component in prevention. Such programmes have had an effect on NSIs due to recapping¹⁰. They may, as demonstrated in this edition's article by Hunt and Murphy¹¹, be more effective in the operating theatre environment where an organisational culture of adherence to protocol, so well demonstrated with handwashing, exists in all hospitals.

However, the majority of NSIs are true accidents. In general wards and also in operating theatres, reduction of NSIs will

depend on an engineering solution. Large numbers of safety devices, often at a premium price, are now available. Many reduce only low risk NSIs, while some, as demonstrated by Smollen¹² in this edition in relation to butterfly needles, can show practical benefit.

The reduction of NSIs in Australian hospitals is likely to be promoted by a number of factors. The development of a safety culture with overt support by senior management and with frequent safety related training has been demonstrated to influence compliance with standard precautions and the risk of percutaneous NSIs¹³. Evidence is mounting that such a climate is equally important in the prevention of NSIs by the provision of protective devices. Effectiveness of such equipment is markedly influenced by easy accessibility and convenience of use, practicality at the work face, and the belief of the healthcare worker that such devices are truly effective in the protection that they offer.

The Federal Government has recently directed attention to, and provided monetary support for, the introduction of safety syringes in needle exchange programmes to protect the community against NSIs from discarded syringes. Evidence is overwhelming that such community NSIs are both infrequent and of little risk of transmission of disease when compared to those occurring every day in Australian hospitals¹⁴. The focus of all jurisdictions needs to be directed to where the risk is occurring – in many Australian hospitals, healthcare workers are still no more protected against NSIs than they were more than a decade ago.

References

1. Whitby M & McLaws M-L. Hollow-bore needlestick injuries in a tertiary teaching hospital: epidemiology, education and engineering. *Med J Aust* 2002; 177:418-422.
2. Charles PGP, Angus PW, Sasadeusz JJ & Grayson ML. Management of healthcare workers after occupational exposure to Hepatitis C virus. *Med J Aust* 2003; 179:153-157.
3. Mallon DFJ, Shearwood DW, Mallal SA, French MA & Dawkins RL. Exposure to blood borne infections in healthcare workers. *Med J Aust* 1992; 157:592-595.
4. Bowden FJ, Pollett B, Birrell F & Dax EM. Occupational exposure to the human immunodeficiency virus and other blood borne

- pathogens: a six year prospective study. *Med J Aust* 1993; 158:810-812.
5. Henry K & Campbell S. Needlestick/sharps injuries and HIV exposures among healthcare workers: national estimates based on a survey of US hospitals. *Minn Med* 1995; 78:1765-1768.
 6. Godfrey K. Sharp practice. *Nursing Times* 2001; 92:22-24.
 7. Hamory BH. Under-reporting of needlestick injuries in a university hospital. *Am J Infect Cont* 1983; 11:174-177.
 8. Haiduven DJ, Simpkins SM, Phillips ES & Stevens DA. A survey of percutaneous/mucocutaneous injury reporting in a public teaching hospital. *J Hosp Infect* 1999; 41:151-154.
 9. Trim JC & Elliott TSJ. A review of sharps injuries and preventative strategies. *J Hosp Infect* 2003; 53:237-242.
 10. Doebbeling BN, Vaughn TE, McCoy KD, Beekmann SE, Woolson RF, Ferguson KJ & Torner JC. Percutaneous injury, blood exposure, and adherence to standard precautions: are hospital-based healthcare providers still at risk? *Clin Infect Dis* 2003; 37:1006-1013.
 11. Hunt J & Murphy C. Measurement of nursing staff occupational exposures in the operating suite following introduction of a prevention programme. *Aust Infect Cont* 2004; 9(2): 57-63.
 12. Smollen P. Evaluation of a programme designed to reduce occupational exposures from steel-winged butterfly needles in the clinical setting. *Aust Infect Cont* 2004; 9(2): 47-55.
 13. Gershon RR, Karkashian CD, Grosch JW, Murphy LR, Escamilla-Cejudo A, Flanagan PA, Bernacki E, Kasting C & Martin L. Hospital safety climate and its relationship with safe work practices and workplace exposure incidents. *Am J Infect Cont* 2000; 28:211-221.
 14. Thompson SC, Boughton CR & Dore GJ. Blood borne viruses and their survival in the environment: is public concern about community needlestick exposures justified? *Aust NZ Journ Pub Health* 2003; 27:602-607.

Michael Whitby

*Centre for Healthcare Related Infection Surveillance
and Prevention, Brisbane*

ACUVANCE
I.V. SAFETY CATHETER

Now you see it...

Pre-insertion magnified

Now you don't...

Post-insertion magnified

medex

DEVICE TECHNOLOGIES

1800 804 006
...more than you think