

## Primarily JHI regarding safe injection practices

1. Passive **safety devices** are more effective at reducing **needlestick** injuries  
Healthcare workers (HCWs) who use or who are exposed to needles are at risk of receiving **needlestick** injuries. Such injuries can lead to serious infections with blood-borne pathogens such as human immunodeficiency virus, hepatitis B virus or hepatitis C virus. To reduce **needlestick** injuries, hospitals should replace their needles with needle-free **safety** technology (primary **prevention**). Where needles cannot be replaced, a **safety** engineered needle that covers the sharp after use should be used (secondary **prevention**). There are two categories of **safety** engineered **devices**: user-activated **safety devices** and passive **safety devices**. A user-activated device requires HCWs to activate a **safety** mechanism and cover the sharp themselves, and a passive **safety** device features a design that automatically covers the sharp during use.  
Y. Iinuma, J. Igawa, M. Takeshita, Y. Hashimoto, N. Fujihara, T. Saito, S. Takakura, S. Ichiyama  
Journal of Hospital Infection  
December 2005 (Vol. 61, Issue 4, Pages 360-361)  
[Full Text](#) | [Full-Text PDF \(113 KB\)](#)
2. Impact of **safety** needle **devices** on occupationally acquired **needlestick** injuries: a four-year prospective study  
Summary: A four-year prospective study was undertaken at the University Hospital Birmingham National Health Service Foundation Trust to evaluate the effect of the introduction of a range of **safety** hypodermic needle **devices** on the number of reported **needlestick** injuries (NSIs). Data on the number of reported NSIs for four clinical areas began in 2001. Following an enhanced **sharps** awareness strategy in 2002, the number of NSIs reduced from 16.9/100 000 **devices** used in 2001 to 13.9/100 000 **devices** (P=0.813). In 2003, when only standard training was provided, the number of NSIs increased to 20/100 000 **devices**. However, the subsequent introduction of three **safety** needle **devices** with concomitant training resulted in a significant reduction in the number of reported NSIs to 6/100 000 **devices** in 2004 (P=0.045). User satisfaction and acceptance of the **safety** needles was also very favourable. These results suggest that when **safety** needle **devices** are introduced into the clinical setting and appropriate training is given, a significant reduction in the number of occupationally acquired NSIs may ensue.  
D. Adams, T.S.J. Elliott  
Journal of Hospital Infection  
September 2006 (Vol. 64, Issue 1, Pages 50-55)  
[Abstract](#) | [Full Text](#) | [Full-Text PDF \(317 KB\)](#)
3. Potential for reported **needlestick** injury **prevention** among healthcare workers through **safety** device usage and improvement of guideline adherence: expert panel assessment  
Summary: A prospective survey was conducted over six months in order to estimate the proportion of reported occupational **needlestick** injuries sustained by National Health Service (NHS) Scotland staff that could have been prevented through either **safety** device introduction, improved guideline adherence, guideline revision or a combination of these. This survey involved the administration of a standard proforma to healthcare workers followed by an expert panel assessment. All acute and primary care NHS Scotland trusts, the Scottish Ambulance Service and the Scottish National Blood Transfusion Service were included. Proforma and expert panel assessment data were available for 64% of injuries (952/1497) reported by healthcare staff. These injuries were all percutaneous. The expert panel concluded that: 56% of all injuries and 80% of venepuncture/injection administration injuries would probably/definitely have been prevented through **safety** device usage, 52% of all injuries and 56% of venepuncture/injection administration injuries would probably/definitely have been prevented through guideline adherence and 72% of all injuries and 88% of venepuncture/injection administration injuries would probably/definitely have been prevented through either intervention. Multi-factorial analysis indicated that injuries sustained through venepuncture/injection administration were significantly

more likely to be prevented through **safety** device usage [adjusted odds ratio (OR) 5.09, 95% confidence intervals (CI) 3.11–8.31 and adjusted OR 2.70, 95% CI 1.64–4.45, respectively], and significantly less likely to be prevented through guideline adherence (adjusted OR 0.26, 95% CI 0.11–0.60 and adjusted OR 0.31, 95% CI 0.12–0.78, respectively). Injuries sustained after completing procedures were significantly more likely to be prevented through **safety** device usage and guideline adherence. The study's findings support the need for improvements to staff's adherence to **needlestick** injury guidelines and appropriate implementation of **safety devices** for venepuncture and injection administration.

B.L. Cullen, F. Genasi, I. Symington, J. Bagg, M. McCreddie, A. Taylor, M. Henry, S.J. Hutchinson, D.J. Goldberg

Journal of Hospital Infection

August 2006 (Vol. 63, Issue 4, Pages 445-451)

[Abstract](#) | [Full Text](#) | [Full-Text PDF \(151 KB\)](#)

4. Occupational transmission of bloodborne diseases to healthcare workers in developing countries: meeting the challenges

Summary: Healthcare workers have increased chance of acquiring bloodborne pathogens through occupational exposure in developing countries due to a combination of increased risk and fewer **safety** precautions. As loss of workers can seriously undermine developing health systems, it is important that risks are minimised. A literature search was conducted to investigate the risks of transmission of three pathogens: human immunodeficiency virus, hepatitis B and hepatitis C viruses; and to identify factors that influenced the risk with reference to developing countries. There are many difficulties faced by developing countries in minimising the risk of occupational exposure. Efforts have been made to address the problems both on international and national levels. It is imperative that all healthcare workers are protected in order to prevent the loss of such a crucial component of developing healthcare systems.

R. Lee

Journal of Hospital Infection

August 2009 (Vol. 72, Issue 4, Pages 285-291)

[Abstract](#) | [Full Text](#) | [Full-Text PDF \(134 KB\)](#)

5. **Needlestick-prevention devices**: we should already be there

In response to the comments of Adams and Elliott, several European countries either have adopted or are planning to adopt prescriptive legislation on **needlestick-prevention devices** (NPDs), including Austria, Germany, Spain, France, and Italy. Despite the non-binding nature of some of these rules, the adoption of NPDs in Europe is increasing. We would like to point out, however, that these are operative regulations that further specify what is already stated in the framework directive 89/391/EEC. This directive, which aims to improve the protection of workers from accidents at work and from occupational diseases by providing preventive measures, information, consultation, balanced participation and training of workers and their representatives, and the 'daughter directive' 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work, state that: 'Employers must keep abreast of new developments in technology with a view to improving the protection of workers' health and **safety**', and in Article 6 on the Reduction of risks '... the risk of exposure must be reduced to as low a level as necessary in order to protect adequately the health and **safety** of the workers. In particular the following measures are to be applied: ... (b) design of work processes and engineering control measures so as to avoid or minimise the release of biological agents into the place of work.' Therefore, European legislation already requires new technologies to be introduced to enhance workers' **safety**, and in the healthcare setting, NPDs represent an engineering control measure whose clinical efficacy has been widely demonstrated.

G. De Carli, V. Puro, J. Jagger, on behalf of the Studio Italiano Rischio Occupazionale da HIV

(SIROH) Group  
Journal of Hospital Infection  
February 2009 (Vol. 71, Issue 2, Pages 183-184)  
[Full Text](#) | [Full-Text PDF \(109 KB\)](#)

6. **Needlestick** injuries in a tertiary care centre in Mumbai, India  
Summary: Accidental exposure from blood/body fluid of patients is a risk to healthcare workers (HCWs). Percutaneous injury is the most common method of exposure to blood-borne pathogens. A policy was formulated at our institute, a tertiary care centre in central Mumbai, and we report a six-year (1998–2003) ongoing surveillance of **needlestick** injuries. Of the 380 HCWs who reported **needlestick** injuries, 45% were nurses, 33% were attendants, 11% were doctors and 11% were technicians. On source analysis, 23, 15 and 12 were positive for Hepatitis B surface antigen (HBsAg), human immunodeficiency virus (HIV) and hepatitis C virus (HCV), respectively. Immediate action following potential exposure included washing the wound with soap and water, encouraging bleeding and reporting the incident to the emergency room. Analysis of the source of injuries revealed that known sources accounted for 254 injuries, and unknown sources from garbage bags and Operating Theatre instruments accounted for 126 injuries. Most **needlestick** injuries occurred during intravenous line insertion (N=112), followed by blood collection (N=69), surgical blade injury (N=36) and recapping needles (N=36). Immediate postexposure prophylaxis (PEP) for HCWs who sustained injuries with hepatitis-B-virus-positive patients included booster hepatitis B immunization for those positive for antiHBs. A full course of immunization with hepatitis B immunoglobulin was given to those who were antiHBs negative. All staff who sustained injury with HIV were given immediate antiretroviral therapy (AZT 600mg/day) for six weeks. Subsequent six-month follow-up showed zero seroconversion.

A. Mehta, C. Rodrigues, S. Ghag, P. Bavi, S. Shenai, F. Dastur  
Journal of Hospital Infection  
August 2005 (Vol. 60, Issue 4, Pages 368-373)  
[Abstract](#) | [Full Text](#) | [Full-Text PDF \(163 KB\)](#)

7. A descriptive, retrospective study of 567 accidental blood exposures in healthcare workers in three West African countries  
Summary: We conducted a multi-centre study in West African hospital wards to document accidental blood exposure (ABE) risks in these settings, and assessed the incidence of ABE in participating healthcare workers (HCWs) retrospectively. In total, 1241 HCWs participated in the survey from 43 hospital wards. Among them, 567 (45.7%) had sustained at least one ABE with an estimated incidence of 0.33 percutaneous injuries (PCIs) and 0.04 mucocutaneous contacts (MCCs)/HCW/year in medical or intensive care personnel and 1.8 PCIs/HCW/year in surgeons. The ABE was a **needlestick** in 454 (80.1%) of 567 cases, a cut in 19 cases (3.4%), a splash or contact with non-intact skin in 87 cases (15.3%), and was undocumented in seven cases (1.2%). The source patient's human immunodeficiency virus (HIV) serostatus was positive in 74 cases (13.1%), negative in 65 cases (11.5%), and unknown in 416 cases (73.4%). The ABE was not notified in the ward in 392 cases (69.1%). Healthcare structures can improve HCWs' **safety** and reduce the stigma against HIV-infected patients by improving access to training, information, primary **prevention** (ABE **prevention** equipment) and secondary **prevention** (postexposure prophylaxis) of occupational infection risks.

A. Tarantola, A. Koumaré, A. Rachline, P.S. Sow, M.B. Diallo, S. Doumbia, C. Aka, E. Ehui, G. Brücker, E. Bouvet, the Groupe d'Etude des Risques d'Exposition des Soignants aux agents infectieux (GERES)  
Journal of Hospital Infection  
July 2005 (Vol. 60, Issue 3, Pages 276-282)  
[Abstract](#) | [Full Text](#) | [Full-Text PDF \(132 KB\)](#)

8. Needle protective **devices**; where are we now?  
It is now seven years since the USA signed into law the Needle Stick **Safety** and **Prevention** Act which requires all healthcare facilities to purchase and provide needle protective **devices** (NPDs) in order to reduce the risk of **needlestick** injury (NSI). By comparison, both the UK and the rest of Europe have yet to adopt prescriptive legislation on NPDs. Although the UK's Health Act requires

that there must be the provision of medical **devices** that incorporate **sharps** protection, there is no associated guidance and therefore the Act is open to wide interpretation. Similarly the overall European perspective shows scant advance in securing a requirement for the introduction of NPDs. During 2006, a revision of the European Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work was requested. However, the Commission has yet to amend this and it is now not expected until mid-2009.

D. Adams, T.S.J. Elliott

Journal of Hospital Infection

October 2008 (Vol. 70, Issue 2, Pages 197-198)

[Full Text](#) | [Full-Text PDF \(63 KB\)](#)

9. Occupational exposures to bloodborne pathogens among healthcare workers in Rio de Janeiro, Brazil

Summary: Healthcare workers (HCWs) frequently face the risk of occupational infection from bloodborne pathogens following exposure to blood and body fluids. This study describes the results of a surveillance system of occupational exposure to bloodborne pathogens among HCWs in Rio de Janeiro, Brazil, during an eight-year period. A total of 15 035 exposures reported from 537 health units were reviewed. Six circumstances comprised nearly 70% of the reported exposures: recapping needles (14%), performing surgical procedures or handling surgical equipment (14%), handling trash (13%), during disposal into **sharps** containers (13%), performing percutaneous venepuncture (10%) and during blood drawing (5%). Easily preventable exposures, such as incidents related to recapping needles, handling trash, and **sharps** left in an inappropriate place, represented 30% of the exposures reported. Post-exposure prophylaxis (PEP) for human immunodeficiency virus (HIV) was initiated for 46% of exposed HCWs. Although Brazilian guidelines indicate that PEP is usually not recommended for exposures with insignificant or very low risk of HIV infection, PEP was prescribed to a large proportion of exposed HCWs under these circumstances. The **prevention** of occupational exposure to bloodborne pathogens among HCWs and their **safety** must be considered as a public health issue. Although infection-preventative measures such as antiretroviral drugs and rapid tests are available, this study shows that there are still a high number of easily preventable exposures. The implementation of more effective **prevention** strategies is urgently required in this country.

C. Rapparini, V. Saraceni, L.M. Lauria, P.F. Barroso, V. Vellozo, M. Cruz, S. Aquino, B. Durovni

Journal of Hospital Infection

February 2007 (Vol. 65, Issue 2, Pages 131-137)

[Abstract](#) | [Full Text](#) | [Full-Text PDF \(128 KB\)](#)