WHITEPAPER: Reducing the risk of needlestick injuries in the healthcare sector

Executive Summary

It has recently been reported that The NHS Litigation Authority, which is responsible for handling negligence claims made against NHS bodies, has set aside £26.1bn of its annual £113 billion budget to cover existing liabilities. That’s nearly a quarter of the NHS’s budget to compensate injured person(s) in the healthcare environment. Surprisingly, one of the most common risks to healthcare workers and their patients today is needle stick injury.

Each year there are over 100,000 reported needlestick injuries in UK NHS hospitals and possibly many more that aren’t captured in centralised data sources, such as in the Private Hospital sector. If we, as a country, are to deliver a ‘fit for purpose NHS’ this concerning high number of serious injuries needs to find a solution.

It is one of healthcare’s fundamental priorities to ensure its workers and its patient’s experience a clean and safe environment when either administrating or receiving treatment in their hospitals. This vital responsibility of the healthcare sector has been expressed in numerous NHS publications:

“NHS organisations take very seriously their responsibility to protect staff from harm and are determined to make sure that staff are properly protected.”- Dean Royles, chief executive of the NHS Employers organisation (2013)

“NHS patients should be treated in a safe environment and be protected from avoidable harm. Patients should be treated in clean surroundings, with a minimal risk of infection. The equipment used should be in good working order and used in the correct way”- NHS website (November 2016)

From the chief executive and board directors, who have overall legal responsibility for the health and safety of their staff, to the individual nurse or healthcare worker – all have a duty to ensure that they protect themselves and others around them by safely using and disposing of sharp equipment. - Royal College of Nursing, (Safety Sharps Guidance Document 2013)
NHS Trust's Needlestick policy sets out the procedures that are in place in order to protect both employees and patients from contracting blood borne virus (BBV) via inoculation or contamination of injuries and that of incident. The policy also includes risk assessment, which state that, the managers and employees are responsible for personal protective equipment (PPE), vaccination and correct use of sharps disposal. - NHS Trust’s Needlestick policy and guidelines

But as the NHS treats more than one million patients every 36 hours, accidents will occur and do so with extremely detrimental effects to the injured individual(s) and their health. With a single needlestick incident, the individual will be potentially exposed to an unknown and highly dangerous infection which ranges from more than 20 different pathogens (viruses, bacteria etc.).

The three immediate health hazardous are hepatitis B and C (which can lead to liver disease) and HIV (which can lead on to AIDS). Not only does the injured person suffer the initial trauma of the sharp object piercing their skin which often causes bleeding, swelling and tenderness of the area, they also have the worry that they may have contracted a blood-borne virus (BBV). The severe emotional impact experienced by the injured person, intense anxiety and often depression, can gradually escalate while waiting for the follow up results which can last anywhere up to 3 to 12 months. In just a single incident, a human being’s health, and ultimately their life, can be forever damaged while, ironically, visiting the one place commonly known for improving both. So, what has healthcare done to prevent NSIs and protect their workers and patients?

Due to the many potential risks posed in a healthcare environment, the EU, UK government, and NHS have worked together over the years to review past practices in which they created several legally bidding directives to protect the workforce and their patients.

Since The Health and Safety at Work Act 1974, there has been a legal duty on employers to provide for the health and safety of their employees. NHS trusts have been subject to the full requirements of this legislation since 1991.

These legal duties extend under a number of other Regulations including:

- The Safety Representatives and Safety Committee Regulations 1977
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)
- The Control of Substances Hazardous to Health Regulations 2002
- Health Act (2006)
A fourth relevant Directive was published on 1 June 2010. The EU Directive on the Prevention from Sharp Injuries in the Hospital and Healthcare sector aims to reduce such incidents by achieving the ‘safest possible working environment’. The EU law came into force across the UK in May 2013 and applies to all employers, employees and contractors providing healthcare services in the NHS, voluntary, private and independent sector.

The purpose of the Directive is:

- to achieve a safe working environment
- to prevent injuries with all medical sharps including needle sticks
- to protect workers at risk
- to set up an integrated approach establishing policies in risk assessment, risk prevention, training, information, awareness raising and monitoring
- to put in place response and follow-up procedures.

The regulations - Health and Safety: (Sharp Instruments in Healthcare) Regulations 2013 - will add new requirements to the already comprehensive health and safety legislation which applies to NHS organisations. Some of the specific new requirements for employers include:

- promoting the safe use and disposal of medical sharps
- providing detailed information and training for employees
- responding effectively if an injury occurs
- reviewing procedures on a regular basis

So what happens if a hospital fails to comply to these deeply important policies?

Simply put, they are breaking the law. These legislative directives are not guidelines, general advice, or friendly reminders. If healthcare employers and employees do not follow the law, put in place to protect the healthcare worker force and their patients, the responsible individual(s) and trust(s) can be prosecuted.

By failing to prevent needle stick injuries, trusts can be found to be in breach of regulations, and many have settled such cases, resulting in substantial legal expenses and compensation payments. Further on in this document we detail the possible financial implications that healthcare organisation’s face if they fail to implement these safety measures.

Even though multiple laws and policies have been set in place during the last four decades to drive the healthcare sector in creating a safer working environment, a worrying report was produced by
Health and Safety Executive (HSE) in April 2016 which examined ‘Sharp Instruments Compliancy’ in a large number of NHS Trusts. The HSE found that healthcare services were still lacking the proper systems and knowledge to reduce the number of harmful incidents, like needles stick injuries, in their trusts.

The HSE’s inspection was focused on 40 organisations; 34 from England (including 3 ambulance Trusts), 4 from Wales, and 2 from Scotland (one a dental hospital). This was not a random sample of NHS organisations. The visits were targeted to organisations where intelligence suggested there might be non-compliance, for example from reported RIDDORs and / or purchasing data.

Key findings:

- Health and safety breaches were identified in 90% of organisations visited.
- 83% failed to fully comply with the Sharps Regulations.
- Improvement notices were issued to 45% of the organisations visited
- Organisations had failed to provide needles with safety mechanism that are readily available
- Generally, a failure to use safer sharps where reasonably practicable, or inconsistent use of safer sharps across the organisation.

Unfortunately, this report highlights the need to engage with the key decision makers and clarify why such an obvious ‘gap’ in compliancy has been allowed to continue which weakens the quality of our healthcare services. The future wellbeing of their workforce, patients, and the possibility of the NHS itself, depends on those, who have influence, to be a proactive and decisive force for positive change in the healthcare sector.

Whilst preventative measures through adequate training and safer working practices can help reduce incidents, the emergence of new technologies to stop all risk is now being looked at more favourably. The World Health Organisation (WHO), European Agency of Occupational Safety, Health Protection Agency and Health and Safety Executive also stress the importance of a preventative approach. This means NHS trusts must adopt safer practice guidance and need to consider the procurement of new technologies which can help to reduce the risk of a needle stick incident occurring.

A study by the Royal College of Nursing showed that a combination of training, safer working practices and the use of medical devices incorporating sharps protection mechanisms, can prevent more than 80% of needle stick and sharps injuries.
A National Issue

According to the World Health Organisation (WHO), accidental needle stick injuries account for 86% of all occupationally related infectious disease transmission. NSIs can happen in a variety of ways, either via a ‘dirty’ needle accidently being used on a patient and/or a needle, already used by an infected patient, accidently sticks and transmits the patient’s infection to a healthcare worker. But most NSIs are caused by needles which have been carelessly discarded or disposed of into the wrong type of refuse container.

As mentioned earlier, some NSIs also go unreported, so exact figures are hard to come by, but in 2014 a survey carried out by the British Association of Dental Nurses among their membership found that:

- Just over half of the respondents had needle stick injury at some stage in their career
- 60% of those said they had more than one 11% had been injured within the last year.
- In terms of when their injury had occurred, 41% said that it had happened after use, before disposal.

These astounding findings highlights the fact that NSIs can happen at any time. So, as logic would dictate, needles need to be made safe every step of the way. From when they first arrive in their packaging, to using on a patient in a healthcare setting, to finally being disposed of and away from human interaction.

The UK trade union UNISON has over 1.3 million members, 440,000 of whom are health workers. Unison actively promotes the need to improve needle safety. Regulation 7 of the Control of Substance Hazardous to Health Regulations 1999 makes it clear that ‘risks from biological agents must be eliminated or, where this is not possible, control methods including using equipment with so called "engineering controls" (such as safer needles) should be used to minimise risk, where reasonably practicable.’

Financial Impact

There are so many variables when analysing the potential savings of a safer needles device such as differing risk situations, varying needle prices, cost of testing patients and exposed staff, record keeping, staff cover and replacement costs. All that before the word compensation is mentioned plus
the potential cost of treatment. Compensation for a "straightforward" downstream injury can often reach between £3,000 and £5,000.

At the far end of the scale, it was reported that a Doctor who developed a needle phobia after a needlestick injury received £465,000. This begs the question on how much compensation a worker who is infected with HEP C or HIV would receive?

As seen in the accompanying document [NSI Mind Map], in the cost-effective point, breaks, actions required for the NHS to test, administrate, replace/substitute resource, treat, and compensate just one needle stick injury. There are costs attached to each of these actions, as seen at the end of chain, but the number of times these actions are taken and how long they would take to complete would vary from case to case. However, taking the average from the previously mentioned compensation figure, £4000 per NSI case, and apply that to the number of reported needlestick cases per year in the UK, 100,000 (reported by The Safer Needles Network), the UK’s healthcare service is paying out approximately £400 million pounds a year in NSIs compensation.

If the NHS were only able to remove the expense of needle stick compensation, £400m, those savings would equate to the following:

- 2.5% of the NHS's spend on medicines (£15.5bn) in England (2014–2015)
- 9% of the targeted savings that the NHS's Five Year Forward View Plans has set out. (If the £400m spend were removed, every year, during the 5-year plan)
- 40% of the projected spend on agency nurses (£980m) for all 220 NHS trusts
- 95% of the projected 2016 cancer drug spend (£420m)

This does beg one of the most important questions for the healthcare sector, if the NHS implement a more effective means of preventing NSI’s for the ever-growing visiting patient and its own workforce, are they willing to pay out millions of pounds more, year-on-year, in NSI compensation? What will another financial drain like this do to the NHS?

**The Solution**

A solution might be closer than most people think and has already been making its transition into healthcare. Let’s observe a closely related sector in which a workforce uses needles daily.
Taken from a publication in the British Dental Journal, a study was run at the Royal London School of Medicines and Dentistry, to evaluate several different types of disposable safety syringes so that future dental practices could reduce the number of needle stick injuries occurring. One third of all reported sharps injuries were due to use of non-disposable dental syringes so questions were naturally raised if there were alternatives to reduce the risk of injury.

Explained in the report, the controlled study recognised the long term use of metal cartridge syringes, first introduced in 1921, and the very few modifications in its design since its initial introduction. Even as recent as 2001, dentists typically used non-disposable syringes that needed to be re-sheathed and the some of its parts sent for autoclaving. Hardly a convenient process and turning out to be a dangerous practice as most needle stick injuries would occur during this time. A survey has shown that US dentists would, on average, sustain 3 injuries per year, and up to 33% of those injuries were needle stick injuries.

Exactly the same as a needle stick injuries in a hospital, dentists were exposed to life changing illnesses, such as blood borne viruses (HIV, Hepatitis B and C). This led issues of losing vital employees, resources, and money.

As manufacturers were responding to the market’s need by creating several different types of safety syringes, a dental school comprised of 300 staff (undergraduates, postgraduates students, qualified dentists, dental nurses, hygienists and therapists) decided it was time to investigate and consider the change over to safety syringes.

Their study’s aim was to carry out an analysis of who was at risk, where within practices did a needle stick injury most likely occurred, and what situations were preventable so they could provide evidence and justify the need for change. The data analysed was taken from the injuries over the previous 3 years and then from the 2 years in which a safety syringe was introduced.

The next stage was to test four different safety syringes, by two qualified dentists, over a month’s trial period. A range of different questions were asked when using each type of syringe, for example:

- How quickly the syringe was assembled?
- Could the syringe accept different size needles and cartridges?
- Was there a wide enough sheath to protect the needle while the syringe was not in use?
• Was it quick and easy to dispose of the syringe?
• Did the syringe need autoclaving?
• What risk level was there when using that certain syringe?

One syringe noticeably stood out in the trial which it was found to be easy to use, adaptable to different types of needles/cartridges, did not need autoclaving, little training of the device was required, quick to dispose of, and, most importantly, achieved the lowest risk ranking. After a few slight improvements made to this this device, it became the chosen product and was adopted as the syringe of choice.

Following from this, an introduction of the new safe syringes was made to a dental school in which the clinics were being asked to choose a new syringe. This gave a good opportunity to engage with other users, gain feedback, and spread awareness. Through the devices successful integration, it influenced a worker at the dental school to take the new safety syringe concept, with its evidence, and present the findings at a teaching hospital.

Through this controlled study and the use of the new safety syringe used in the dental school produced very telling results. Avoidable needle stick injuries reduced from an average of 11.8 to 0 per 1,000,000 hours worked per year as compared to a control unit who reduced their frequency from 26 to 20 injuries per 1,000,000 hours worked.

It was also found that the cost of safety syringes is comparable to non-disposal syringes but the reduction in the cost of the management of needle stick injuries, including the trauma inflicted on the injured person(s), was significant.

What true figure might be saved if the NHS utilised this type of device? The countless millions of pounds saved for the NHS? The countless minutes patients spent worrying about results? The countless lives saved from contracting life changing infections?

**Conclusion**

The purpose of this document was to examine the long-standing issue surrounding needle stick injuries in the healthcare sector. The data used within this article has been consolidated from numerous official sources in which to educate the discussion around NSIs and to further clarify its impact on the NHS and the wider public.
iQ Pharma Limited provides niche services and technologies to support in the development and growth of both the pharmaceutical industry and the provision of healthcare. If you would like to discuss the needlestick issue or any other related subjects, please do not hesitate to contact us.

**Quick Facts**

- *Needlestick injuries account for the highest number of accidents to staff in hospitals. Every year there are more than 100,000 reported needlestick injuries in hospitals throughout the UK.*

- *There are more than 20 different pathogens (viruses, bacteria etc.) which have been transmitted from infected patients to workers via needles. Three are particularly hazardous: hepatitis B and C (which can lead to liver disease) and HIV (which can lead on to AIDS).*

- *The majority of needlestick injuries are preventable. Many workplaces maintain high safety standards and have put effective precautions in place to try to avoid injury. But these procedures alone cannot stop needlestick injuries. The introduction of specially designed safer needles would greatly reduce the current number of injuries.*

**Notes**

**Other information on the Directive**

- The [Safer Needles Network](#) and the [Health, Safety and Wellbeing Partnership Group (HSWPG) - formerly POSHH](#), have agreed advice for the NHS on preparing for implementation of the sharps Directive. The advice is intended to help employers in ensuring that they are ready and compliant once UK legislation is passed. It provides guidance on the practical implementation of the Directive and should be read in conjunction with relevant national legislation and guidance.

- The [Royal College of Nursing](#) has published guidance on the prevention of sharps injuries. The publication, [Sharps Safety](#), covers the law on sharps injuries, including the European Directive and its underlying principles, as well as its requirements on healthcare providers.

- The [European Biosafety Network](#) was established following the adoption of the new European Directive on Sharps Injuries to improve the safety of patients and healthcare and non-healthcare workers. The Network has [published guidance](#) that provides a practical toolkit to aid in the implementation of the Directive on the prevention of sharps injuries in the hospital and healthcare sector.
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