FIT4Safety UK and Ireland will provide evidence-based best practice information which encompasses all people at risk of needle stick injury and accidental blood or other body fluid exposure. The aim of these recommendations is to protect individuals and prevent injury. The goal of ensuring that risk assessment and safe practice are the norm will be accomplished through raising awareness, education, training and easily accessible information.

Objectives

- Help individuals and organisations identify risk associated with sharps and accidental blood or body fluid exposure
- Raise awareness of EU Directive 2010/32 Sharps Injuries
- Support individuals and organisations to apply the new EU Directive to clinical practice in their field of care
- Inform individuals and organisations using contemporaneous evidence-based practice to minimise risk and promote safer practice
- Facilitate opportunities in which best practice can be discussed, developed, implemented and evaluated throughout UK and Ireland

Forward

The EU Directive 2010/32 (1) sets out a new legal framework for the management of sharps and needlestick injuries (NSI). The new regime which must be fully transposed into UK and Irish law by May 2013 has focused attention on the need to provide greater protection to all healthcare workers, downstream workers and others who are at risk of sharps injury.

The Directive sets out to:
- Ensure safest possible working environment
- Prevent workers’ injuries by medical sharps
- Protect workers and patients at risk
- Require the establishment of integrated policies in control and prevention specialist...
- Risk assessment
- Risk prevention
- Training
- Information awareness
- To require implementation of follow up and response procedures.

The Forum for Injection Technique (FIT) body has responded to the need to improve injection technique through a range of evidence based recommendations, education, training & materials and support. FIT will now extend its remit to include sharps safety as a natural progression and development of its role.

In October 2011, 57 leaders in the field of injection technique and sharp safety from 14 different countries convened in Brussels to attend the Workshop on Injection Safety in Endocrinology (WISE). The group from the UK delegates included Consultant Nurses and Specialist Nurses in Diabetes along with Infection Control and Prevention Specialist and a Medical General Practitioner. This group later formed to become the FIT4Safety group.

The WISE meeting delegates explored data from large survey of NSI which took part in Europe in 2010 (appendix 4). Data from this survey demonstrated clearly the risk that sharps and accidental blood exposure pose in diabetes care.

The survey demonstrated that diabetes care has one of the highest risks for sharps injury across all healthcare settings.

The EU Directive 2010/32 makes it very clear that injuries experienced by many clinicians as a result of sharps and accidental blood exposure must be prevented. The Directive sets out a number of measures that will help eliminate the risk of exposure or if unavoidable reduce it to as low a level as possible by:
- Eliminating the unnecessary use of sharps
- The use of medical devices incorporating safety-engineered mechanisms where indicated
- Banning the practice of recappping or re-sheathing
- Implementing safe procedures for the use and disposal of sharps
- Use of effective disposal procedures
- Use of clearly marked safe sharps disposal containers
- Keeping containers close to areas where sharps are used
- Maintaining safe work systems to prevent the risk of infection
- Use of personal protective equipment
- Use of vaccinations.

FIT4Safety is committed to supporting the implementation of the Recommendations in order to protect all those at risk of sharps injury and accidental blood exposure. Commitment is also made to developing the Recommendations in such a way that as many people as possible can influence its advice.
Attendees to WISE agreed that for the strength of a recommendation the following scale would be used:

- **STRONGLY RECOMMENDED**
- **RECOMMENDED**
- **UNRESOLVED ISSUE**

For the scientific support the following scale was used:

1. At least one randomised controlled study
2. At least one non-randomised (or non-controlled or epidemiologic) study
3. Consensus expert opinion based on extensive patient experience.

Thus each recommendation is followed by both a letter and number (i.e. A2). The letter indicates the weight a recommendation should have in daily practice and the number, its degree of support in the medical literature. The most relevant publications bearing on a recommendation are also cited. There are comparably few randomised clinical trials in the field of injection technique (compared, for example, with blood pressure control) so judgements such as “strongly recommended” versus “recommended” are based on a combination of the weight of clinical evidence, the implications for patient therapy and the judgement of the group of experts.

These recommendations apply to the majority of people with diabetes using injectable therapy, but there will inevitably be individual exceptions for which these rules must be adjusted.


Informed these recommendations and we thank the editors of Diabetes & Metabolism for permission to use material from this article.

**Endorsements**

**Diabetes UK**

"Diabetes UK both welcomes and supports the FIT initiative. Good injection technique leads to good blood glucose control which is vital in preventing the long term complication of diabetes. As so many people with diabetes are now being prescribed injectable medication, this is a timely and important enterprise which will bring great benefit to them."

Simon O’Neill, Director of Care, Information and Advocacy
Diabetes UK.

**The Safer Needles Network**

"The Safer Needles Network welcomes the extension of FIT’s remit to include sharps safety and its work in improving injection technique. The EU Sharps Directive comes into legal force across Europe in May 2013 and requires risk assessment to be carried out, the elimination of workers exposure by safe disposal, the elimination of unnecessary use of sharps and the provision of training and safety engineered devices. We join with FIT4Safety in ensuring that these simple measures are implemented to prevent the risk of sharps injury and accidental blood exposure."

Dr. Paul Grime
Chair of the Safer Needles Network.

**Infection Prevention Society**

“The vision of the Infection Prevention Society is that no person is harmed by a preventable infection. We welcome the evidence-based and common-sense advice contained in this document, which will help protect those involved in the management of diabetes from sharps injury and subsequent risk of infection.”

Tracey Cooper
IPS President
“BD is committed to raising awareness of the risks faced by healthcare workers and the methods for improving safety. BD has made significant investments, as well as dedicating human resources and technical innovation, to the task of reducing sharps injuries. BD fully supports the FIT4Safety initiative. These recommendations, if followed, will go a long way toward reducing needles stick injuries and accidental blood exposure, thus protecting individuals from injury in the work place and beyond. With the EU Directive transposition into UK and Irish Law imminent, the superb work FIT4Safety is doing, will help healthcare workers and their employers put into practice, improved safety measures in advance of the impending legislation.”

Carol Phillips
Business Manager UK & Ireland
BD Medical-Diabetes Care

“Advances in the treatment of diabetes have led to an increase in the number of injectable therapies available. Correct technique is of paramount importance in order to ensure the benefits of injectable therapies such as insulin and GLP-1s. The Forum for Injection Technique (FIT) provides comprehensive evidenced based guidelines to improve the safety of healthcare workers and the process and education of self injection technique for people with diabetes. As a company committed to improving the care of patients with diabetes and those who care for them, Lilly Diabetes UK & Ireland welcomes the FIT4Safety initiative as an important step in supporting diabetes care in the United Kingdom.”

Ian Dane
Senior Director
Eli Lilly & Company

“Sanofi is a diversified company that strives to improve the care for people with diabetes on insulin therapy. We are proud to support the FIT (Forum for Injection Technique) initiative, which is aiming to improve current practice by promoting best practice and sharing up-to-date scientific evidence. We support FIT in highlighting the importance of good injection technique to ensure people with diabetes on insulin therapy achieve the greatest benefit from their medication. We look forward to working with FIT to achieve our common goals.”

Thomas Butler
Product Manager - Insulins, Sanofi Diabetes

“Novo Nordisk fully endorse the FIT4Safety initiative. The benefits of modern injectable medications for the treatment of diabetes can only be fully realised through the use of correct injection technique. Novo Nordisk believe it is essential that Healthcare Professionals understand the importance of good injection technique and convey this to people with diabetes under their care.”

Peter Kjeldgard
Marketing Manager, Novo Nordisk
1.0 Risks

1. Sharp devices represent a risk for the transmission of blood-borne pathogens to the user in the event of a NSI or muco-cutaneous blood exposure.  
2. This risk can also extend to "downstream" workers (not the original user e.g. technical and kitchen personnel, cleaning persons, rubbish removers, incinerators and general public) if they receive an accidental NSI or muco-cutaneous blood exposure involving infectious material.  
3. Studies have shown that the incidence of NSI among Healthcare Workers (HCW) giving injections to patients with diabetes or drawing blood with lancets is just as high, or higher, than workers in other departments or wards.  
4. The prevalence of HBV, HCV and HIV in patients with diabetes is reported to be as high, or higher, than in healthy individuals or in patients with other disease states.  
5. The priority for employers must be to secure the safest possible workplace. The Management of Health and Safety at Work Regulations 1999 make it a legal requirement for employers to carry out risk assessment of their activities. This should identify the measures they need to have in place to comply with their duties under health and safety. This should be achieved through a combination of awareness raising, information, risk assessment, preventing or controlling the risk, safe disposal of sharps and reporting incidents (Appendix 1).  
6. Risk assessment will have to be undertaken in all situations where there is the potential for exposure to any sharps injury.  
7. Elements of any risk assessment will have to take into account a number of criteria which, must include but is not limited to: technology, work organization, working conditions, education and training to identify how exposure can be eliminated. This must include consideration of alternative systems of working and technology.

2.0 European Legislation

1. In accordance with a new EU Directive and its transpositions into member-state legislation, use of sharps (Clause 3: definition 4) must be carried out using safety engineered devices where available.  
2. Elements of any risk assessment will have to take into account a number of criteria which, must include but is not limited to: technology, work organization, working conditions, education and training to identify how exposure can be eliminated. This must include consideration of alternative systems of working and technology.

3. The use of safety devices where available should be considered for people with diabetes who self care, e.g. those known to be positive for HIV, HBV and HCV.  
4. Where there are vulnerable people within the household of someone with diabetes, safety engineered devices should be made available. This also includes those who have limited access to safe sharps disposal.  
5. HBV vaccination must remain individual choice but be available free-of-charge where there is occupational risk.
Device Implications

1. When introduced into healthcare settings where a culture of safety has been fostered and appropriate training given, safety-engineered devices can significantly and sustainably decrease the incidence of NSI.20

2. In accordance with EU Directive, workers (Clause 3: definition 2) should be involved in the evaluation and selection of devices used in their healthcare setting. Key participants in this evaluation should at least include experienced end users, infection control & prevention professionals, occupational health experts, risk management and trainers.27

3. A safety device for diabetes injections must include the features outlined in Appendix 1.18

4. Any health care setting (EU Directive Ref. 12 clause 3 definition 2), which uses insulin pens must follow a strict one-pen policy.20

5. When pens are used, the optimal safety device must protect against sharps injury from both the patient and non-patient (cartridge) ends of the needle.26

6. When syringes are used, only safety-engineered ones must be accepted and the protective mechanism must be integral to the device.26

7. All workers must be encouraged and supported to report NSIs.26

8. Manufacturers must assess NSI’s reported with safety devices and using Personal Protective Equipment (e.g. gloves).26

9. Performance and reliability data must be made available on each safety device at the time of market introduction.26

Injection Technique Implications

1. Since safety mechanisms will not protect against NSI through lifted skin folds, the use of shorter needles (e.g. 4.5mm pen needles) without a lifted skin fold is recommended.29, 30. Of note, very young children or extremely slim or muscular adults may still need to raise a skin fold.31, 32

2. Of note, very young children or extremely slim or muscular adults may still need to raise a skin fold.31, 32

Education and Training (Creating a “Safety Culture”)

1. NSI awareness campaigns must be carried out regularly and should include all persons in potential contact with medical sharps.33

2. All persons at risk must receive appropriate education and training on ways to minimize risk, including the importance of following optimal injection or lancing techniques, using available safety devices and using Personal Protective Equipment (e.g. gloves).33

3. Education and training should begin in nursing and medical schools and be continued thereafter on a yearly basis. It should be regular, across all shifts, and be repeated to take into account staff turnover.33

4. Needle and lancet recapping must be forbidden. Workers must understand why this is the case and manufacturers should design sharps protection mechanisms which make recapping impossible.33

5. Healthcare Providers must encourage reporting of NSI, near misses and incorrect technique within a “no blame” culture. Central review of these reports must take place regularly to facilitate policy change and assess educational needs.33

6. Review and appraisal of the effectiveness of education and training and of adherence must be performed at regular intervals. A “no blame” reporting system for violations must be put in place, linked where possible into existing adverse event reporting systems. Procedures for what to do following a NSI must be posted in critical locations (Appendix 3 & 4).33

7. Attention must be paid to proper use of safety devices. If they are not activated because of user inattention, forgetfulness or lack of training, they provide no additional risk reduction over conventional (non-safety) devices. Therefore adequate training must be in place.33

8. In all settings suitable sharps disposal containers must be easily reached and located at the point of care, at or below eye level. The containers should be disposed of every 3 months even if not full, by the licensed route in accordance with local policy.**

9. Containers should be lockable and single-use devices which bear a warning such as “Needles can seriously damage the health of others. Please ensure safe disposal”.33

** Containers should be lockable and single-use devices which bear a warning such as “Needles can seriously damage the health of others. Please ensure safe disposal”.

Procedures for what to do in the event of a NSI must be clearly communicated (Appendix 3 & 4). Formal protocols with named clinical care contacts must be available in all areas where sharps are used.
5.0

Education and Training
(Creating a ‘Safety Culture’)

10 While HBV vaccination must be population-wide, at a minimum it should be a mandatory offering by the employer to all workers exposed to sharps. Vaccination status should be reviewed with each employee and all should be made aware of consequences of non-vaccination.68

11 HBV vaccination must remain individual choice but be available free-of-charge where the work environment places the person at risk.68

6.0

Value

1 Cost effectiveness studies suggest that the savings from reductions in sharps injuries with safety devices may offset or compensate for the increased price per device. Additional studies, focused on sharps used in diabetes management, should be carried out.69

7.0

Awareness and Responsibility

1 Safe sharps disposal systems must be present in each region, should be well known to all persons in contact with sharps and should be enforced consistently. Legal and societal consequences of non-adherence to these regulations should be made known.68

2 Proper disposal and personal responsibility must be taught to patients from the initiation of diabetes injection therapy by the dispensing clinician (including pharmacists) and reinforced throughout the literature, personal consultation and education process.68

3 The avoidance of potential adverse events in the patients’ surroundings (e.g. NSI to children, schoolmates, fellow workers) as well as to service providers (e.g. rubbish collectors and cleaners) must be emphasized.

4 Packaging for sharp devices should carry warnings regarding safe disposal and risks to other people.

5 Under no circumstances should sharps of any description be disposed of into the public/household refuse system.
Appendix 1

What defines a safety device

**DURING USE:**

1. The safety feature can be activated using a one-handed technique, or routine use of the device causes the safety mechanism to deploy automatically after the sharp has been used.
2. The safety feature does not obstruct vision of the tip of the sharp.
3. The device offers a good view of any aspirated fluid.
4. The safety device does not require more time to use than a non-safety device.
5. The safety feature works appropriately with a wide variety of hand sizes.
6. The device is easy to handle while wearing gloves.
7. The device will work with all required syringe, pen devices and needle sizes.
8. The device provides a better alternative to traditional recapping.

**AFTER USE:**

10. There is a clear and unmistakable change (audible and/or visible) that occurs when the safety feature is activated.
11. The safety feature operates reliably.
12. The exposed sharp is permanently blunted or covered after use and prior to disposal.
13. The device is no more difficult to dispose of after use than non-safety devices.

**TRAINING:**

14. The user does not need extensive training for correct operation.
15. The design of the device should be intuitive to use.
16. It is not easy to skip a crucial step in proper use of the device.

*These criteria represent optimal target features which may not be achievable in every device; they do not represent an exhaustive list and may evolve as engineering innovations appear.

Appendix 2

Always Events and Safety Compliance Bundle

Reproduced with kind permission of Dr. Debra Adams, January 2012.

**ALWAYS EVENTS – THE PREVENTION OF SHARPS INJURIES Y/N**

It is expected that;

- All healthcare providers will risk assess the need for safety engineered devices (SED) when utilizing sharps in all scenarios.
- All users of sharps should be trained and instructed not to re-cap any sharps devices.
- All healthcare establishments will have in place sharps safety reporting through local governance systems (e.g. Infection Prevention and Control, Occupational Health and Safety, Risk Management et al) to monitor sharps injuries, evaluate potential trends associated with sharps injuries, audit practice, and co-ordinate the trialling and introduction of SED.
- Users of sharps will be involved in trialling and choosing the SED to be used.
- Users of SED will be trained how to optimally use and dispose of the device.
- All users of sharps/SED will be provided with appropriate sharps disposal containers for use at the point of care.
- All sharps will be disposed of in a safe and appropriate manner.
- All sharps disposal containers will be collected appropriately and disposed of according to National guidance.
- All sharps injuries will be reported appropriately through the local reporting system.

Appendix 2

ALWAYS EVENTS – THE PREVENTION OF SHARPS INJURIES SCORE

Alternatively, Safety Bundle Approach might be as follows:

SAFETY COMPLIANCE SCORE

Scores 100% require an action plan to be developed and implemented.

**COMPLIANCE SAFETY STANDARD**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Healthcare providers are aware of the deadline (May 2013) and the implications associated with EU2010/32.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Healthcare providers have risk assessed the need for safety engineered devices (SED) when utilizing sharps in all scenarios e.g. diabetic syringes, vaccinations, needle/syringe, cannulas, suture, lances, blades etc.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Users of sharps are trained to, and do not re-cap any sharps device.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Healthcare providers have developed an Inoculation Injury Review Group (e.g. Infection Prevention and Control, Occupational Health and Safety, Risk Management etc) to monitor NSI, evaluate potential trends associated with NSI, audit practice, and co-ordinate the trialling and introduction of SED.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Users of sharps are involved in trialling and choosing the SED to be used (see Appendix 1 of WISE).</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Users of “Sharps” have been trained in how to optimally operate/activate, and use the SED.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Users of sharps/SED have been provided with appropriate sharps disposal containers for use at the point of care.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sharps are disposed of in a safe and appropriate manner.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Management policies have been determined to ensure that sharps disposal containers are collected promptly and are disposed of according to National guidance.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Home users are informed of how sharps disposal containers should be stored in the home and how disposal of the boxes may be actioned.</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 3

WHAT TO DO IF YOU RECEIVE A SHARPS INJURY**

If you suffer an injury from a sharp:

- Encourage the wound to gently bleed, ideally holding it under running water.
- Wash the wound using running water and plenty of soap.
- Don’t scrub the wound whilst you are washing it.
- Don’t suck the wound.
- Dry the wound and cover it with a waterproof plaster/dressing.
- Seek urgent medical advice (for example from your Occupational Health Service), as effective prophylaxis (medicines to help fight infection) are available.
- Report the injury to your employer.

** http://www.hse.gov.uk/healthservices/needlesticks/index.htm

Appendix 4

ACTION FOLLOWING A PUNCTURE WOUND FROM A NEEDLE***

- Encourage the wound to bleed, do not suck the wound – rinse thoroughly under running water. If water is not available, cleansing wipes provided in first aid kits should be used. Cover the wound with a dry plaster/dressing.
- Formally record the incident including details of action taken.
- Seek medical advice and treatment immediately – contact the nearest Accident and Emergency department.

*** Health and Safety Executive. Handling needles in the waste and recycling industry (Waste19 08/07)
Almost a third of nurses surveyed (32%) report suffering a NSI sometime in the past while giving an injection to a person with diabetes. The percentages by country are given below. These injuries put nurses at risk of blood-borne pathogens such as HBV, HCV and HIV.

32% have suffered an NSI while giving a diabetic injection.

57% remove pen needles using their fingers.

29% of NSI injuries occurred while recapping a used needle.

The results indicate a high frequency of improper disposal of just-used sharps by nurses in hospitals and similar facilities, in the EU. Education on the seemingly innocuous practices of recapping needles, storing unprotected needles temporarily on a tray, trolley or cart and unscrewing used pen needles with one’s hands would go a long way to reducing NSI risk.

Questionnaire for nurses giving injections to patients with diabetes in hospital setting

Countries and Nurses participating in survey

634 nurses participated from 13 western European countries and Russia. Most replies (69%) came from nurses on Endocrine/diabetes wards or Internal Medicine wards and most participants were currently injecting patients with diabetes at least twice a day. 634 nurses out of 635 (99%) had experience treating patients who used insulin pens at home and 542 nurses out of 635 (85%) had patients who used syringes at home, hence the majority of nurses were familiar with both devices.

31% who acknowledge suffering a NSI while giving injections to persons with diabetes

- Russia
- Greece
- NL
- Austria
- Belgium
- France
- Spain
- Germany
- Italy
- Switzerland
- UK
- Denmark
- Sweden
- Finland
- Ireland
- Estonia

Who gives the diabetes injection in the hospital?

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>270</td>
<td>42%</td>
</tr>
<tr>
<td>Greece</td>
<td>107</td>
<td>17%</td>
</tr>
<tr>
<td>NL</td>
<td>78</td>
<td>12%</td>
</tr>
<tr>
<td>Austria</td>
<td>50</td>
<td>8%</td>
</tr>
<tr>
<td>Belgium</td>
<td>46</td>
<td>7%</td>
</tr>
<tr>
<td>France</td>
<td>35</td>
<td>5%</td>
</tr>
<tr>
<td>Spain</td>
<td>33</td>
<td>5%</td>
</tr>
<tr>
<td>Germany</td>
<td>29</td>
<td>4%</td>
</tr>
<tr>
<td>Italy</td>
<td>20</td>
<td>3%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>12</td>
<td>2%</td>
</tr>
<tr>
<td>UK</td>
<td>11</td>
<td>2%</td>
</tr>
<tr>
<td>Denmark</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>Sweden</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Finland</td>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>Ireland</td>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>Estonia</td>
<td>3</td>
<td>1%</td>
</tr>
</tbody>
</table>

Percent = 100%

<table>
<thead>
<tr>
<th>Staff are involved in 64% cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.0 Patient where possible</td>
</tr>
<tr>
<td>25.0 Initially staff then the patient takes over</td>
</tr>
<tr>
<td>24.0 Both staff and patient throughout the stay</td>
</tr>
<tr>
<td>5.0 Other</td>
</tr>
<tr>
<td>3.0 Always staff</td>
</tr>
</tbody>
</table>

However, there were considerable differences by country with several southern European countries merely entrusting staff to give the injections while northern European countries allowed the patients to give their own injections.

WHO INJECT?

- RC 42%
- NL 17%
- Austria 12%
- Belgium 7%
- France 5%
- Spain 5%
- Germany 4%
- Italy 3%
- Switzerland 2%
- UK 2%
- Denmark 1%
- Sweden 1%
- Finland 1%
- Ireland 1%
- Estonia 1%

Device and circumstances which cause NSI

- Russia 25
- Greece 15
- NL 12
- Belgium 9
- France 6
- Spain 6
- Germany 4
- Italy 4
- Switzerland 4
- UK 3
- Denmark 2
- Sweden 2
- Finland 2
- Ireland 1

<table>
<thead>
<tr>
<th>Method for Removing Pen Needles after Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>I unscrew it with my fingers</td>
</tr>
<tr>
<td>The patient unscrews it</td>
</tr>
<tr>
<td>I unscrew it with an instrument such as clamps or tweezers</td>
</tr>
<tr>
<td>I use a specifically designed needle remover</td>
</tr>
<tr>
<td>I twist it off using the top of the sharps container</td>
</tr>
<tr>
<td>I do not remove it</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timing and Circumstances of reported NSIs Did the injury occur?</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.5 Before use of item</td>
</tr>
<tr>
<td>14.2 During use of item</td>
</tr>
<tr>
<td>2.4 Passing instruments</td>
</tr>
<tr>
<td>7.3 While recapping a used needle</td>
</tr>
<tr>
<td>1.0 While putting item into sharps container</td>
</tr>
<tr>
<td>5.1 After disposal (e.g., time protruding from opening of sharps container or piercing side of replaced cap)</td>
</tr>
<tr>
<td>2.1 Injured by patient holding the contaminated needle</td>
</tr>
<tr>
<td>3.1 Other</td>
</tr>
</tbody>
</table>

Most hospitals have a written policy on the prevention of NSI; (34.4% haven’t), but nurses are not always aware of them. 62% of the nurses had not attended any training on the prevention of NSI and only 13% had attended one in the last year.

67% of the nurses had not attended any training on the prevention of NSI, unfamiliar with them (29%) or untrained in NSI prevention (67%). When Policies on safer practices are available nurses are often unfamililiar with them (29%) or untrained in NSI prevention (67%).

Almost 2/3 (623 nurses out of 634 (98%) of the nurses are involved in 64% cases

Most have a written policy on the prevention of NSI, 34.4% haven’t, but nurses are not always aware of this. 62% of the nurses had not attended any training on the prevention of NSI and only 13% had attended one in the last year. When Policies on safer practices are available nurses are often unfamiliar with them (29%) or untrained in NSI prevention (67%).

Nursing policies on NSI prevention vary considerably by country with several southern European countries mainly entrusting staff to give the injections while northern European countries allowed the patients to give their own injections.

Nurses were asked how they performed this step.

Removing pen needle is a critical and dangerous step, the user’s fingers must come very close to the exposed tip. Nurses were asked how they performed this step.

When changing pen needles, how is needle removed?

- I do not remove it
- I twist it off using the top of needle remover
- I use a specifically designed needle remover
- The patient unscrews it
- I unscrew it with my fingers
- Other

Almost a third of nurses surveyed (32%) report suffering a NSI sometime in the past while giving an injection to a person with diabetes. The percentages by country are given below. These injuries put nurses at risk of blood-borne pathogens such as HBV, HCV and HIV.
Frequently nated' (known previous percutaneous exposure was known and the sharp item was 'contami-
ln 80% of cases the source patient's identity have shown: NSI rates fall dramatically after
with a conventional pen needle, 1.2% with a
with a conventional (non-safety) syringe, 44%
Of those who received a NSI, 49% occurred
to patient) in almost half the cases (43%).

Severity of the injury
Nurses who had had NSIs rated them as 'superficial to moderate' (based on amount of
resultant blood flow) in almost all cases (96%).

Nurses who had suffered a NSI with pen
needles were asked which end of the needle caused the injury.

Most of them were injured by the patient end
of the needle but nearly 1 out of 10 reported
being injured by the cartridge end.

Severity of the injury
Nurses who had had NSIs rated them as 'superficial to moderate' (based on amount of
resultant blood flow) in almost all cases (96%).

In 80% of cases the source patient's identity was known and the sharp item was 'contami-
nated' (known previous percutaneous exposure to patient) in almost half the cases (43%).

Of those who received a NSI, 49% occurred
with a conventional (non-safety) syringe, 44%
with a conventional pen needle, 1.2% with a

43%
sharp items were contaminated.

Pen injection devices aspirate human cells back into the cartridge. [5-6] These potentially
infectious cells can then be deposited back into the needle and then transmitted accidentally after
safety devices are adopted.

Timing and Circumstances of reported NSIs
The sharp item was:
Before the injection
70.3
Cartridge End

Patient End

Cartridge End

After the injection
NSIs were reported to the proper authorities in 2/3 of cases.

Reasons given for not reporting NSIs
If you didn't report the NSI, what was the reason?
67.2 I didn't think the incident presented a health risk
8.8 I was too busy at the time
2.7 I was too embarrassed
6.9 I thought reporting might have negative repercussions for my job
0.6 I did not want to know the answer
30.4 Other

After use:
There is a clear and unmistakable change
after disposal
After use:
A 'safety device' requires that once in
second hand, the device continues to be 'safe' in terms of risk to the user
and after disposal
Safety Devices
A 'safety device' requires that once in
safe mode, the safety feature(s) protect against accidental sharps injury until safe disposal. In addition for diabetes
device, shorter needle lengths should be used so as to prevent
having to raise a skinfold for injection, therefore avoiding
"through-and-through" NSIs. [64]
The initial purchase costs of safety
injection devices may be higher than

HBV is stable in dried blood for at least
seven days and HCV for at least 16 hours [62],
thus NSI with devices used previously can still
be infectious. Not all healthcare workers (HCW)
are covered by HBV vaccination; in fact the
European range is from 30-90% depending on
the country and branch of medicine [63]...
References

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