MAIN POINTS ON **NEEDLE STICK INJURY (NSI)**

VYGON
Value Life

1 DEFINITION

Based on the definition of the Centre for Disease Control and Prevention (CDC)[1]:

A needle stick injury is defined as an accidental skin-penetrating stab wound from a hollow-bone needle (or any sharp) containing another person's blood or body fluid.

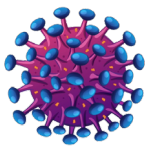
2 THE MOST HIGH-RISK GESTURE

NSI is one of the **most important occupational injury** in medical care[2]. They mostly occur during medicine delivery, surgical operations, blood sample collection, needle recapping, and improper needle removal[3].

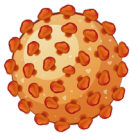
One of the highest NSI prevalence has been **needle recaping**[3]. The manipulation of implantable ports is one of the procedures with the **highest risk of sustaining a needlestick injury**[11]. The lack of safety equipment is also one of the causes of NSIs[3].

3 OCCUPATIONAL HAZARD

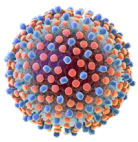
20 BLOODBORNE PATHOGENS, such as[4]:



HIV
Human Immunodeficiency Virus
4.5%



HBV
Hepatitis B Virus
37%



HCV
Hepatitis C Virus
39%

% of infections of these diseases due to NSI among HCWs[3].

3 MILLION/YEAR

of HCWs* being infected with HIV or other bloodborne diseases by needle sticks or others sharp objects[3].

NSI are a leading cause of infection, illness, disability, and mortality among HCWs, including nurses[3].

*HCW: Healthcare worker

4 AN UNDER REFERENCED CONCERN

The actual number of NSI is relatively difficult to obtain, as it seems to be largely under-reported according to the literature. As the INS states in its practical recommendation B.1:"Address the importance of reporting needlestick injuries and exposure to bloodborne pathogens; needlestick injuries are prevalent and **underreported in several countries**.[2,7,16-21] (I)"[5]

AS AN EXAMPLE:

50% of the estimated NSI among HCWs in the USA go unreported each year*.

20 to 30% of percutaneous accidents are under-reported**.

Only **10%** of nurses had referred the NSI to the infection control units of their hospitals***.

WHY IS THERE A LACK OF INCIDENTS REPORTING[2,3]?

- Lack of time
- NSI happened before the procedure began
- Fear of losing their job
- Lack of knowledge about NSI importance
- Nurses forget about the accidents
- Worrying about a positive test result

*according to CDC[3]
**according to an Italian study[6]
***according to an Iranian study carried out on 101 nurses[1], the 10% nurses are among all NSI positive cases

5 THE KNOWN SITUATION

HIGH OVERALL WORLDWIDE NSI PREVALENCE[3]

41%

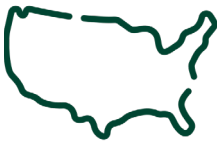
4 NSI/PERSON/YEAR

In average, among HCWs in Africa, Asia and Western Mediterranean according to the World Health Organization[3].

DEVELOPED COUNTRIES PREVALENCE[3]: **30,5%**

DEVELOPING COUNTRIES PREVALENCE[3]: **46,6%**

LOWEST PREVALENCE



USA[3]
25,1%

Africa[3]
45,5%

HIGHEST PREVALENCE

Southeast Asia[3]
49,9%

INSIGHTS FROM DIFFERENT COUNTRIES

385 000

Experienced injuries caused by needle and sharp objects in America[3].

57,4%

Nurses had already experienced NSI according to an Iranian study based on 1010 nurses[2].
Another Iranian study shows that almost **half of Iranian healthcare workers** are exposed to the risk of NSI[9].

Blood exposure accidents
=
Road traffic accidents

Car accidents resulting in bodily injury: **57 522**[7]
Blood exposure accidents: **55 373**[8]

525 000 NSI/year

Is the number of NSI/Year estimated to occur in Japan[10].

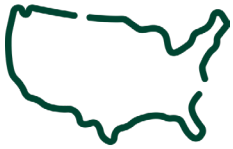
These numbers, which are already **very worrying,** do not reflect reality due to the lack of reporting, which leads us to assume the gravity of the situation.

**Huber needle*

6 NURSING STUDENTS, A RISKY POPULATION

THE PREVALENCE OF NSI AMONG NURSING STUDENTS[4]:

Student and intern nurses are more often affected by NSI which are the most common hazards they face during their clinical practice. During their training, they must deal with unfamiliar environments and skills. They also have to gain clinical experience and learn about occupational health and protection[4].



USA: 9%

EUROPE: 30%

ASIA: 38%

7 LACK OF KNOWLEDGE

WHAT IS THE REASON FOR NOT REPORTING NSI?

27.5%

of a total of 488 people in an Iranian study cited these 3 answers[2]

- "I do not know how to report"
- "I did not know it must be reported"
- "I thought it was not so important"

These responses show us that NSI seem to be underestimated due to a lack of information on the danger of NSI and the importance of reporting them.

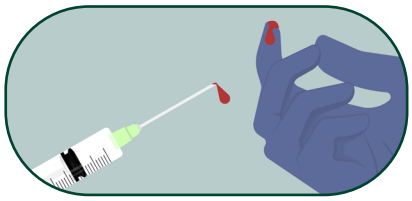
WHAT IS THE **LEVEL OF KNOWLEDGE** OF NURSES ABOUT BLOOD-BORNE DISEASES[2]?

Score lower than the mean

Among all nurses[2]

55,4% for HBV*

52,8% for HCV**



Among nurses affected by NSI positive case[2]

57,1% for HBV*

51,4% for HCV**

*Hepatitis B Virus
**Hepatitis C Virus

More than half of nurses, whether or not affected by an NSI, have a score lower than the mean on the subject of blood borne diseases.
These results highlight their limited knowledge on the subject.

8 FINANCIAL AND EMOTIONAL COSTS

DIRECT COST[13]

- Testing the patient and the exposed Healthcare personnel
- Post-exposure medical visits
- Treatment (prophylaxis)

INDIRECT COST[13]

- Productivity loss
- Emotional distress and anxiety
- Litigation / Compensation

NSIs are not only a health problem, but also a major source of expenses for healthcare establishments.

Indeed, the treatments for this type of infections, such as postexposure laboratory tests or prophylaxis, generate costs which can be a heavy financial burden[2]. Internationally, both direct and indirect can cost around 747$[13].

It is also necessary to consider the loss of productivity. In fact, the nurse's working time is impacted. A resource is immobilized, which generates stress on the service.

NOT TO MENTION THE STRESS FOR THE PERSON AFFECTED BY THE NSI.

NSI is **distressing**, especially with high-risk patients[3].

It can negatively impact mental health

Between 42 and 60%

of nurses and other HCWs experience **stress & depression** due to NSI[3].

9 VYGON SOLUTIONS

Published literature highlights that NSI remains an **important topic which is too often neglected**. NSI should be **higher on the agenda** according to the recommendations.

HOW DID THE **NUMBER OF NEEDLESTICK INJURIES DIMINISH**?

In Abdelmalik and al. study, it was proven that **developed countries** may have a **low prevalence of NSI** thanks to the implementation of:

- NSI prevention programs
- Training courses
- Information related to NSI management[3].

43.4% to **100%**

reduction in NSI was achieved through the **use of safety devices that cover the needle tip**.

Since **1990**,

the **introduction of security devices for port manipulation** has played a major role in the **reduction of prevalence of NSIs in developed countries**[11].

Training in best practices were put in place where **security devices** were used to **reduce NSI risks**[11]:

In a **German hospital university**, they introduced **safety devices** for **all services**. **Trainings** were performed to **master new devices**.

> After 2 years:

The number of NSIs dropped from **448 NSIs** to **350 NSIs** → **21.9%** of decline

HOW MUCH WOULD IT **COST** TO PURCHASE **SAFETY DEVICES** ONLY?

Although safety needles have a higher acquisition cost than conventional ones, multiple studies show they lead to significant savings by reducing NSIs.

SWITCHING TO SAFETY DEVICES LED TO[12]:

SWEDEN

- **80%** reduction in needle injuries
- **3,125** prevented incidents.

BELGIUM

- **86%** reduction in NSIs
- **51.710€** of generated net savings for **420** bed hospitals.

CALIFORNIA

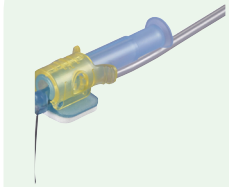
-Annual savings of **$320 million**, mainly by preventing new cases of HIV and hepatitis.

By drastically reducing the number of NSIs thanks to safety devices, hospitals reduce these recuring costs.

HOW CAN WE CONTRIBUTE TO THE REDUCTION OF NSIs IN YOUR FACILITY?

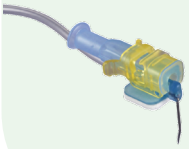
OUR PPS® RANGE OF SAFETY HUBER NEEDLES

Our PPS® range fits with the **guidelines** which recommend the **use of safety devices**.

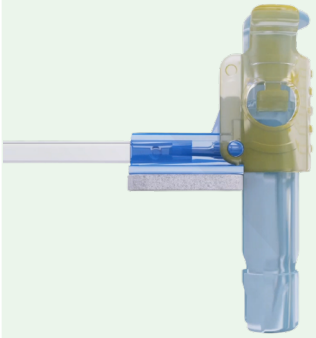


PPS®

PPS® CT

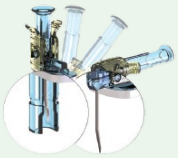


PPS® Flow +



PREVENTION OF NEEDLESTICK INJURIES

- One handed removal
- No rebound effect when withdrawing the needle
- No risk of contact with the body of the needle
- Total protection until discarded in sharps container



TRAIN & SUPPORT

Studies draw our attention to the fact that it is important to ensure that safety devices are **introduced effectively.**

It is also, in agreement with INS's recommendation:"*the risk of needlestick injury is reduced when education is combined with implementation of sharps safety products.*"

Our products are designed to meet the **highest clinical standards**, but their full potential can only be realized through **proper training**. That's why we offer **dedicated training sessions**, enabling healthcare teams to become familiar with the devices, to understand their specific features, and to ensure safe and optimal use.

VYGON
Value Life

BY THE SIDE OF ALL HEALTHCARE WORKERS

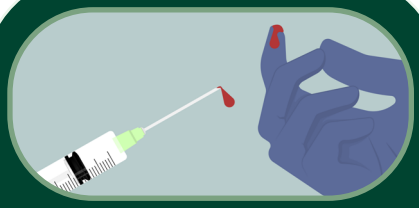
TRAINING SCHOOL

HOSPITAL

HOME CARE

NON-SAFETY HUBER NEEDLE USERS:

We provide you support when you want to switch to safety.



NSIs PREVENTION:

We know how to support staff in the NSI prevention.

NEW NURSING STUFF AND STUDENT NURSES:

We ensure continuous training to guarantee the proper use of safety devices.

CONCLUSION

The quality of care relies as much on the **effectiveness of medical devices** as on the h**ealthcare professionals' ability to use them properly**.

Our products come with **dedicated training sessions** designed to enhance safety, efficiency, and team confidence.

Training means **preventing errors**, **strengthening team trust**, and **improving the patient experience**. Together, let's make expertise a driving force for quality and safety.

10 SUPPORTIVE GUIDELINES

SF2H[14]

Prevention of accidents with exposure to blood or any biological product of human origin.

Recommendation 23:
*"For care using a sharp object: use the **medical safety devices** available"*

INS 2024[5]
INFUSION THERAPY STANDARDS OF PRACTICE 9TH EDITION

"16.4 Safety-engineered devices that isolate or remove the bloodborne pathogens hazard are available in the workplace and used in accordance with manufacturer's directions for use."

Practice Recommendations:
A.1. Use **safety-engineered devices** to prevent needlestick injury.1-8 (I)
B. Educate clinicians and patients/caregivers in safe practices relative to handling sharps, medical waste disposal, and **use of safety-engineered devices; the risk of needlestick injury is reduced when education is combined with the implementation of sharps safety products**.

DIRECTIVE 2010/32/UE[15]

"Clause 11 allows Member States and the Community (replaced by the Union since December 1st 2009) to retain and **introduce provisions** that are **more in favor of protecting workers** against injuries caused by sharp objects used medical."

NIOSH[16]

"Needlestick injuries can be avoided by eliminating the unnecessary use of needles, **using devices with safety features,** and **promoting education and safe work practices** for handling needles and related systems."

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15. COUNCIL DIRECTIVE 2010/32/EU from May 10, 2010. Implementing the framework agreement relating to the prevention of injuries from sharp objects in the hospital and health sector concluded by HOSPEEM and EPSU.

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Icon credits: Flaticon

NOTES

HOW TO ENSURE YOUR SAFETY WITH OUR PRODUCTS

Scan the QR codes to watch videos explaining the insertion and withdrawal steps for our different Huber needles:

PPS®

PPS® CT

PPS® Flow+

The range PPS® is indicated for the administration into or withdrawal of fluids from implanted ports.
The range PPS® Huber needles is sterilized with ethylene oxide. Single use. DEHP-FREE - LATEX-FREE.
The range PPS® is a sterile medical device of class IIa; complies with the directive 93/42/EEC, according to annex II.
Certification established by GMED, notified body n°0459. Device manufactured by PEROUSE MEDICAL and distributed by VYGON. The range PPS® is a registered trademark of PEROUSE MEDICAL.
Before use, it is necessary to read the instructions for use.

Icon credits: Flaticon

***HN: Huber needle*

VYGON
Value Life

FOR FURTHER INFORMATION, PLEASE CONTACT: **questions@vygon.com**

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