



What Is A Needlestick Injury (NSI)?

A needlestick injury (NSI) is an inadvertent (accidental) puncture of the skin by a needle. Needlestick injuries are a major concern in human medicine because they can potentially transmit serious viral diseases, such as human immunodeficiency virus (HIV) and hepatitis viruses. Needlestick injuries and their prevention receive much less attention in veterinary medicine, even though they're quite common. **Most NSIs associated with animal care do not cause a problem, but occasionally the consequences can be severe.**



What Are The Concerns About Needlestick Injuries?

- **Trauma:** Needles can cause trauma ranging from small, almost imperceptible puncture wounds to large gashes in the skin (i.e. lacerations). More severe trauma is more common with large needles and injuries that occur during fast movement.



- **Effects of drugs:** Needles are often attached to syringes containing medication, which can result in accidental injection of the drug when a NSI occurs. The amount injected may be very small, or may be the entire dose that was originally in the syringe. The effects of such an injection depend on the type of drug, the amount of drug and where in the body it is injected. It's more of a concern in livestock because the volume of drugs used is usually much larger.
- **Drug reactions:** Some individuals are allergic to very small amounts of certain drugs, such as some types of antibiotics. There can be enough medication on or in a needle to cause a severe, even life-threatening reaction in someone who is allergic to the drug, even if they are only stabbed and nothing is injected. Unpredictable reactions to virtually any drug (called *idiosyncratic reactions*) can also occur. Although these reactions are rare, they can be anything from mild to very severe.
- **Infection:** Infection of NSIs is a significant concern. A needle can introduce bacteria into any of the tissues under the puncture site, including muscles, tendons, joints and the deeper layers of the skin. The bacteria on the needle may come from the **environment** (if the needle was improperly handled), the **skin or hair of the animal** that was injected, or even a **person's own skin** – which means even a poke from a sterile needle can become infected.
 - ▶ In human medicine, transmission of bloodborne pathogens like HIV and hepatitis viruses is a major concern with NSIs caused by needles used on other people. Currently, there are no common bloodborne viruses that can be transmitted to people from pets in this manner. However, new infectious diseases continue to emerge all the time, and there is no way to know whether the next important infectious disease will be one that can be transmitted from the blood of pets.

As A Pet Owner, Do I Need To Worry About Needlestick Injuries?

In some cases, **yes**. Sometimes pet owners need to learn to give their animal injections, to administer medications (e.g. insulin) or subcutaneous fluids (fluids given under the skin for treatment of certain problems). **Anytime needles are used, there is a risk of NSIs.**

- There is no information about how often pet owners in general treat their animals using injections. Anecdotally, this practice has become quite common, particularly for animals with diabetes (insulin injections) and chronic kidney disease (administration of subcutaneous fluids).
- It is also unknown how common NSIs are in pet owners. Considering how common they are in trained veterinary staff, these injuries are likely common in owners as well, but not reported.
- The vast majority of NSIs are preventable using basic needle handling practices, so it's important to take appropriate precautions whenever you handle needles.



Preventing Needlestick Injuries – What You Can Do

While the risks of serious complications associated with NSIs from pets are quite low, it's still prudent (and relatively easy) to prevent NSIs and avoid any problems. Injuries can occur before injecting your pet (e.g. while preparing the injection), while you're injecting your pet, and after the injection is done, until the needle is properly disposed.



Before injecting:

- ▶ **If you're not comfortable injecting your pet, don't do it.** Ask someone who is comfortable with the procedure to do it for you, or ask your veterinarian for more instructions. If it is your first time giving your pet an injection, you may be more comfortable doing so at your veterinary clinic so someone can talk you through the procedure.
- ▶ Use a new needle for each injection - **never re-use a needle.**
- ▶ **Never walk around with an uncapped needle.**

While injecting:

- ▶ The first few times you give your pet an injection, it's important to have another person hold or restrain the animal for you, because you don't know how your pet will respond. It is best to hold the animal on something (e.g. table, chair, bed, floor) rather than having the person hold the animal in his/her arms. Even some quiet, well-behaved animals may object strongly to injections. Struggling with an animal while trying to inject makes it more likely you'll injure yourself (or your pet) with the needle.
 - **Ideally your animal should always be held or restrained in some way when you are giving it an injection**, but eventually some animals and their owners get very accustomed to the procedure and very little or no restraint is required. It is still very important to be aware of your pet's demeanor at all times, in case it suddenly starts to object to the injections for a reason of which you may not be aware.
- ▶ Use a **careful, deliberate motion** when injecting (but still be gentle!). Hesitation and unsure motions increase the risk of injury and can make it more uncomfortable for your pet. If you'd like to practice the motion, try injecting some water into a large fruit (e.g. an orange).
- ▶ You should be able to push down the plunger of the syringe smoothly – **don't try to inject too fast** as this may make your pet uncomfortable which can result in squirming or attempts to bite or scratch. If it is very difficult to push down the plunger, the tip of the needle may not be in the right spot - don't try to force it. Stop and try a different spot, or ask your veterinarian for advice.

After injecting:

- ▶ Immediately **dispose of the needle directly into an approved sharps container.** You should be able to get such a container from your veterinarian or a medical supply store. These containers are clearly labeled, puncture-proof and are designed to prevent needles from falling out or being deliberately removed from the container.
 - The needle and syringe can be placed in the container together. Alternatively, the needle can be removed using the needle removal device on the sharps container.
 - When the sharps container is three-quarters full, securely close the cap and return it to your veterinarian, medical supply store or other location for proper disposal.
 - Never use a temporary container to dispose of needles – used needles should go directly into a sharps container.
 - **Never leave a needle** on a counter, or anywhere else, including your pockets - you, or anyone handling your laundry, could be jabbed.



Does Recapping Needles Make Things Safer?

No. Ideally, needles should not be recapped. Immediate disposal is preferred. Recapping is a common cause of NSIs - it is surprisingly easy to miss the cap and jam the needle into your finger by accident. The needle can also be pushed through the side of the needle cap and into a finger.

- If the needle cannot be disposed of immediately and recapping is necessary, **this should never be done by hand.** There are recapping methods that can be used to reduce the risk of a needlestick, such as using forceps of some kind (e.g. tweezers, pliers) to hold the cap so that the fingers cannot be injured.



Safer Injection Devices

There are various injection devices now available that are designed to reduce the risk of NSIs, but they are not yet commonly used in veterinary medicine. These devices include syringe-and-needle combinations that automatically retract the needle into the syringe after the injection is done, and needles with caps that can be closed without putting any fingers near the needle tip.



What Should I Do If I Have A Needlestick Injury?

- **Wash the puncture site immediately** with lots of soap and water.
- If the needle in question was still sterile (i.e. it had not touched any animal, medication or other surface), cleaning the wound is likely all that's needed. Nonetheless, the wound should be monitored for any signs of infection such as swelling, discharge or persistent pain. If any concerns arise, consult your physician.
- If the NSI is caused by a needle that had already been used on an animal, the risk of infection may be higher. However, if the puncture is not over a joint and the person has a normal immune system, the wound should still simply be cleaned thoroughly and monitored carefully. If the wound is over a joint or the person's immune system is weakened (e.g. HIV/AIDS, cancer or transplant patients), it's best to consult a physician.
- If the offending needle potentially contained medication, consult a physician, particularly if there are any concerns that the injured person may be allergic to the drug involved.
- After a NSI, always **consider why it happened** and what can be done to try to prevent the same thing from happening again in the future. If you are unsure how to prevent further injuries, you need to re-assess whether you should be treating your pet with injections.

