# Shoulder Injury after Vaccine Administration (SIRVA): Awareness and Prevention

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## What is SIRVA?

SIRVA stands for "Shoulder Injury Related to Vaccine Administration." SIRVA injury is rare but these risks still exists and are caused by incorrect vaccine administration technique or wrong needle size. This type of injury is the result of incorrect placement of the vaccine into the shoulder joint or the shoulder bursa, rather than into the deltoid muscle tissue. It can occur when a vaccine is injected into the subdeltoid burst and an immune response is mounted causing severe inflammation. The immune response may be due to the antigenic or non-antigenic components of the vaccine (antimicrobial, preservatives, etc). This improper vaccine administration can lead to severe pain, which can lead to complications.

Common symptoms of SIRVA include:

- Intense, prolonged pain after a vaccination
- Limited mobility of the shoulder joint
- Stiffness and pain in shoulder joint ("frozen shoulder")
- Weakness in the arm
- Significant chronic shoulder pain

SIRVA is diagnosed when patients experience acute shoulder pain, usually within 48 hours of vaccine administration. Pain will typically increase over time, cause limited mobility of the joint, and functions of the arm and shoulder may also be limited.

The most common cause of SIRVA is usually from the administration of the seasonal influenza vaccine because this vaccine is given to millions of people in the deltoid muscle of the arm every year. Although, any vaccine administered into the shoulder can have risks of SIRVA.

## How to prevent SIRVA?

Proper administration technique is the key to preventing SIRVA.

- Make sure that everyone giving immunizations are properly trained and certified.
- Have the patient expose the arm completely in order to correctly see where the placement of the needle should be administered. Some patients may need to remove their shirt if the sleeves cannot roll up to expose the entire shoulder.
- Make sure that the patient and the immunizer are both seated in order to inject the vaccine at the correct angle and to avoid high delivery of the vaccine.
- Administer immunization in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process.



• Choose appropriate needle size based on the patient's weight.

Adults ≥ age 19 yrs		
Male or female less than 130 lbs	5/8" – 1" (*See note)	Deltoid muscle of arm
Female 130-200 lbs Male 130-260 lbs	1"-1 1/2"	Deltoid muscle of arm
Female 200+ lbs Male 260+ lbs	1 1/2"	Deltoid muscle of arm

Note: May use 5/8" needle <u>only</u> if skin is stretched tight and subcutaneous tissue is not bunched, and injection is made at 90° angle.

### How is SIRVA treated?

Treatment for SIRVA can include:

- Resting the muscles, ligaments, and tendons in the shoulder to help alleviate stress due to the inflammation.
- Steroid injections and oral steroids such as prednisone, hydrocortisone, and other corticosteroids to help suppress inflammation and relieve symptoms
- Pain medications such as ibuprofen or acetaminophen may be used to help relieve the pain.
  For more severe pain, the provider may provide a prescription for narcotics.
- In some cases, patients may need physical therapy to aid in improving range of motion and muscle strength.
- In some cases, patients find no relief with medications and continue to experience with persistent pain. Surgery may be needed for repair and reconstruction when significant joint damage occurs.

Advise patients who report SIRVA that even with effective treatment, pain and range of mobility can take months to years to resolve.

## Report any SIRVA injuries to the Vaccine Adverse Event Reporting System (VAERS).

### References:

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