

## Swabbing Vial Tops FactFinder

*Committed to providing helpful information to International Spine Intervention Society members about key patient safety issues, the Society's Patient Safety Committee has developed a FactFinder series. FactFinders will explore and debunk myths surrounding patient safety issues. The intent of this FactFinder is to present the evidence regarding the effectiveness of swabbing vial tops in decreasing the risk of infection during spinal procedures.*

**Myth #1: 60-70% alcohol, applied topically, kills all harmful pathogens.**

**Fact: Alcohol is effective against some, but not all, infectious agents.**

At concentrations of 60-70% or greater, isopropyl alcohol has germicidal activity against both gram negative and gram positive bacteria, such as *E. coli* or MRSA, respectively. Alcohol is also effective against many viruses including HIV, influenza, RSV, and HSV. Hepatitis B and C are susceptible to alcohol, but only at concentrations of at least 60%. Alcohol is not effective against bacterial spores (such as those causing *clostridium difficile*).<sup>1</sup>

**Myth #2: Swabbing of single dose vials is unnecessary.**

**Fact: Experts disagree on this issue.**

The 2010 American Society of Anesthesiology (ASA) guidelines support swabbing vial tops.

Use aseptic technique, including use of an alcohol swab or appropriate disinfectant, to cleanse the vial's rubber septum before entering. Cleanse the neck of glass ampules with an alcohol swab and let dry before opening.<sup>2</sup>

In a 2010 position paper, the American Journal of Infection Control has also recently supported disinfecting vial stoppers while using friction with sterile 70% isopropyl alcohol.

Disinfect IV ports and vial stoppers by wiping and using friction with a sterile 70% isopropyl alcohol, ethyl/ethanol alcohol, iodophor or other approved antiseptic swab. Allow the port to dry before accessing.<sup>3</sup>

In the 2007 Centers for Disease Control and Prevention (CDC) Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, no mention is made of swabbing of vial tops.<sup>4</sup>

The last time the World Health Organization (WHO) made a comment on swabbing vial tops was in 2003. The WHO suggests that swabbing vial tops is unnecessary.

Swabbing of clean vial tops or ampoules with an antiseptic or disinfectant is unnecessary. If swabbing with an antiseptic is selected for use, use a clean, single-use swab and maintain product-specific recommended contact time. Do not use cotton balls stored wet in a multi-use container.<sup>5</sup>

The WHO points to several instances of spread of infection after vial swabbing, including an instance of pyogenic abscesses after alcohol swabbing of vaccine vials.<sup>6</sup> In these instances, spread of infection involved cotton swabs in a jar, not single use sterile disposable alcohol swabs.

### **Conclusions & Recommendations**

- The International Spine Intervention Society recommends that its members weigh the risks and benefits of swabbing vial tops with sterile isopropyl alcohol.
- There is limited evidence, which is mostly expert opinion, that swabbing vials after opening may help reduce the risk of infection.
- When vial tops are swabbed with alcohol, the Society recommends that members:
  - allow alcohol to dry,
  - use at least 60-70% alcohol,
  - DO NOT use cotton swabs in a jar, and
  - use only single-use disposable alcohol swabs.

### **References:**

1. Teare, L. Use alcohol hand rubs between patients: they reduce transmission of infection. *BMJ: British Medical Journal* 323.7310 (2001): 411.
2. Recommendations for Infection Control for the Practice of Anesthesiology (3<sup>rd</sup> ed.) American Society of Anesthesiology. Developed by the ASA Committee on Occupational Health Task Force on Infection Control. 2010.
3. Dolan et al. APIC position paper: Safe injection, infusion, and medication vial practices in healthcare. *Am J Infect Control* 2010;38:167-72.
4. Siegel, JD et al. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. Center for Disease Control. 2007.
5. WHO 2003: Hutin et al. Best infection control practices for intradermal, subcutaneous, and intramuscular needle injections. *Bulletin of the World Health Organization* 2003;81:491-500.

6. Simon PA, Chen RT, Elliot JA, Schwartz B. Outbreak of pyogenic abscesses after diphtheria and tetanus toxoids and pertussis vaccination. *Pediatric Infectious Disease* 1993;12:368-71.