

Surgical Face Masks 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 face masks in decreasing the risk of infectious complications following spinal procedures.

Myth: Although I don't wear a face mask during spinal injection procedures, I am not putting my patients at increased risk for infectious complications.

Fact: Wearing a face mask during spinal injection procedures decreases the risk of infectious complications.

Unmasking the Evidence

CDC has investigated multiple outbreaks of bacterial meningitis among patients undergoing spinal injection procedures. Some outbreaks have occurred among patients in acute care hospitals who received spinal anesthesia or epidural anesthesia, and also among patients at an outpatient imaging facility who underwent myelography. In each of these outbreaks, nearly all spinal injection procedures that resulted in infection were performed by a healthcare provider who did not wear a face mask.¹ The strain of bacteria isolated from the cerebrospinal fluid of these patients was identical to the strain recovered from the oral flora of the healthcare provider who performed the spinal injection procedure. These findings illustrate the risk of bacterial meningitis associated with droplet transmission of the oral flora from healthcare providers to patients during spinal injection procedures.

In 2004, CDC investigated eight cases of post-myelography meningitis that either were reported to CDC or identified through a survey of the Emerging Infections Network of the Infectious Disease Society of America. Blood and/or cerebrospinal fluid of all eight cases of bacterial meningitis yielded streptococcal species consistent with oropharyngeal flora. Equipment and products used during these procedures (*e.g.*, contrast media) were excluded as probable sources of contamination. Procedural details available for seven cases determined that antiseptic skin preparations and sterile gloves had been used. However, none of the clinicians wore a face mask, giving rise to the speculation that droplet transmission of oropharyngeal flora was the most likely explanation for these infections.²

Bacterial meningitis following myelogram and other spinal procedures (*e.g.*, lumbar puncture, spinal and epidural anesthesia, intrathecal chemotherapy) has been reported previously.³⁻¹² As a result, the question of whether face masks should be worn to prevent droplet spread of oral flora during spinal procedures has been debated.^{13,14} Face masks are effective in limiting the dispersal of oropharyngeal

droplets.¹⁵ In October 2005, the Healthcare Infection Control Practices Advisory Committee (HICPAC) reviewed the evidence and concluded that there is sufficient experience to warrant the additional protection of a face mask for the individual placing a catheter or injecting material into the spinal or epidural space.²

In 2010, the American Society of Anesthesiologists (ASA) published “Practice Advisory for the Prevention, Diagnosis, and Management of Infectious Complications Associated with Neuraxial Techniques.” Practice advisories are not supported by scientific literature to the same degree as standards or guidelines because of the lack of sufficient numbers of adequately controlled studies. However their Advisory followed a rigorous methodological process obtained from two principal sources: scientific evidence and opinion based evidence. Within that Advisory, it was strongly recommended that aseptic techniques should always be used during spinal procedures in addition to the use of face masks that cover both the mouth and nose. There was some uncertainty as to whether aseptic techniques should include changing masks before each new case.¹⁶

Conclusions & Recommendations

Since face masks have been shown to limit spread of droplets arising from the oral flora,¹⁵ the Society’s Patient Safety Task Force agrees with the CDC recommendation and the 2010 ASA Practice Advisory that face masks be used by healthcare providers when performing spinal injection procedures and by anyone in close proximity to the injection site or injection materials.² When adhered to, this recommendation should decrease the risk for infections such as bacterial meningitis, spinal abscess, and discitis.

These recommendations apply not only in acute care settings such as hospitals, but in any setting where spinal injections (*i.e.* interlaminar or transforaminal epidural injections, facet joint injection and medial branch blocks, sacroiliac injections, radiofrequency neurolysis, discography, sympathetic blocks) are performed, such as outpatient imaging facilities, ambulatory surgery centers, and pain management clinics.

References:

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