

Interoperative Neuro-Monitoring Needle Safety Flap

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SUNY Upstate Medical University is actively seeking partners interested in commercializing a new safety feature for interoperative neuromonitoring (IONM) needle electrodes which protects medical technicians from needle sticks during the procedure.

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IONM needle electrodes frequently cause needle stick injuries

At Upstate Hospital, the most common type of injury associated by IONM needles are needle stick puncture wounds caused by the exposed tip of an IONM needle that has reemerged through a patient's skin. When moving or shifting a patient, medical technicians inadvertently, or often unavoidably due to the large numbers of needles used, apply pressure to one or more of the shallowly placed IONM needle electrodes, forcing them back up through the skin surface and into their hand. Needle stick injuries can be very costly to an institution and dangerous to the person stuck. Current packaging for many IONM needle electrodes includes a cover over the needle to protect medical personnel before the needle's use, and some IONM needle electrodes incorporate safety chambers into which the IONM needle electrode can be withdrawn to protect personnel after use, but until now no IONM needle electrode has incorporated a safety feature to protect personnel during a procedure, while the needle electrode is in place in a patient.

A new safety flap protects medical personnel from needle sticks

Upstate's new safety feature for IONM needle electrodes is a safety flap that is attached to the IONM needle electrode such that, once the needle is placed in the patient, the safety flap is positioned against the patient's skin over the tip of the needle electrode, forming a pierce-resistant barrier between medical personnel and any needle tip that re-emerges. Upstate's safety flap can be attached to a bare IONM needle as a low-cost solution (Fig. 1), or can be combined with a safety chamber into which the needle can be retracted after use (Fig. 2). An optional layer of adhesive on the skin-facing side of the safety flap secures both the flap and the needle in place, eliminating the need for the separate strip of adhesive tape frequently used by technicians to hold the needle in place. To make post-operation removal of needles incorporating an adhesive safety flap easier, the flap can be formed to break-away from the needle upon a sharp pull on the wire.

Large and growing market

The number of neuromonitoring procedures has been growing rapidly in recent years, and currently there are about one million surgeries performed annually in the US alone requiring the use of IONM needle electrodes, with between 16 and 32 electrodes used during each procedure. Although it cannot be predicted, it is possible, given the frequency of IONM needle stick injuries, that regulators will require the use of IONM needles incorporating a safety flap at some point in the future.



Fig 1. Low-cost prototype of IONM needle electrode incorporating a safety flap

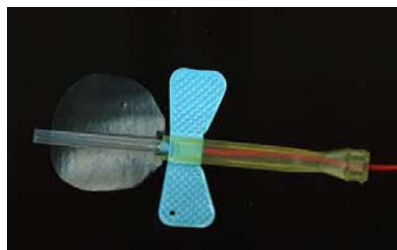


Fig 2. Prototype incorporating retraction chamber to protect medical personnel before, during and after an IONM procedure