

Appendix 1: Two by Two Tables of IONM Modalities using three different Assumptions for cases with IONM alerts that recovered and did not have NND.

Both IONM Modalities(TcMEP and SSEP):

Assumption 1

	NND or avoided NND	No NND
Alert	True positive $C (6) + B (41)$ 47	False positive D 3
No Alert	False negative $E (3) + A (1)$ 4	True negative F 221

Sensitivity = $47/51 = 92.2\%$ (95% CI 81.5 – 96.9%).

Specificity = $221/224 = 98.7\%$ (95% CI 96.1 – 99.5%)

PPV = $47/50 = 94.0\%$ (95% CI 83.8 – 97.9%).

NPV = $221/225 = 98.2\%$ (95% CI 95.5 – 99.3%).

Assumption 2

Suppose we assume that 50% (N=20) of the patients with alerts in whom the signal was recovered should be treated as false positives, in other words, they would not have had an NND even if no action had been taken.

	NND or avoided NND	No NND
Alert	True positive $C (6) + B/2 (21)$ 27	False positive $D (3) + B/2 (20)$ 23
No Alert	False negative $E (3) + A (1)$ 4	True negative F 221

Sensitivity = $27/31 = 87.1\%$ (95% CI 71.1 – 94.9%).

Specificity = $221/244 = 90.6\%$ (95% CI 86.3 – 93.6%).

PPV = $27/50 = 54.0\%$ (95% CI 40.4 – 67.0%).

NPV = $221/225 = 98.2\%$ (95% CI 95.5 – 99.3%).

Assumption 3

Suppose we assume that patients with alerts in whom the signal was recovered should be treated as false positives, in other words, they would not have had an NND even if no action had been taken.

	NND or avoided NND	No NND
Alert	True positive $C (6)$ 6	False positive $D (3) + B (41)$ 44
No Alert	False negative $E (3) + A (1)$ 4	True negative F 221

Sensitivity = $6/10 = 60.0\%$ (95% CI 31.3 – 83.2%).

Specificity = $221/265 = 83.3\%$ (95% CI 78.4 – 87.4%).

PPV = $6/50 = 12.0\%$ (95% CI 5.6 – 23.8%).

NPV = $221/225 = 98.2\%$ (95% CI 95.5 – 99.3%).

TcMEP:

Assumption 1

	NND or avoided NND	No NND
Alert	True positive $C (6) + B (37)$ 43	False positive D 2
No Alert	False negative $E (2) + A (1)$ 3	True negative F 220

Sensitivity = $43/46 = 93.5\%$ (95% CI 82.5 – 97.8%).

Specificity = $220/222 = 99.1\%$ (95% CI 96.8 – 99.8%).

PPV = $43/45 = 95.6\%$ (95% CI 85.2% - 98.8%).

NPV = $220/223 = 98.7\%$ (95% CI 96.1 – 99.5%).

Assumption 2

Suppose we assume that 50% (18) of the patients with alerts in whom the signal was recovered should be treated as false positives, in other words, they would not have had an NND even if no action had been taken.

	NND or avoided NND	No NND
Alert	True positive $C (6) + B/2 (19)$ 25	False positive $D (2) + B/2 (18)$ 20
No Alert	False negative $E (2) + A (1)$ 3	True negative F 220

Sensitivity = $25/28 = 89.3\%$ (95% CI : 72.8-96.3%).

Specificity = $220/240 = 91.7\%$ (95% CI: 87.5-94.5 %).

PPV = $25/44 = 56.8\%$ (95% CI 41.2-69.1%).

NPV = $220/223 = 98.6\%$ (95% CI 95.5 – 99.3%).

Assumption 3

Suppose we assume that patients with alerts in whom the signal was recovered should be treated as false positives, in other words, they would not have had an NND even if no action had been taken.

	NND or avoided NND	No NND
Alert	True positive C 6	False positive $D (2) + B (37)$ 39
No Alert	False negative $E (2) + A (1)$ 3	True negative F 220

Sensitivity = $6/9 = 66.7\%$ (95% CI: 35.4-87.9 %).

Specificity = $220/259 = 84.9\%$ (95% CI: 80.1-88.8%)

PPV = $6/45 = 13.3\%$ (95% CI: 6.3-26.2%).

NPV = $220/223 = 98.7\%$ (95% CI: 95.5-99.3 %).

SSEPs:**Assumption 1**

	NND or avoided NND	No NND
Alert	True positive $C (0) + B (7)$ 7	False positive D 1
No Alert	False negative $E (6) + A (2)$ 8	True negative F 243

Sensitivity = $7/15 = 46.7\%$ (95% CI 24.8 – 69.9%).

Specificity = $243/244 = 99.6\%$ (95% CI 97.8 – 99.9%).

PPV = $7/8 = 87.5\%$ (95% CI 52.9 – 97.8%).

NPV = $243/251 = 96.8\%$ (95% CI 93.8 – 98.4%).

Assumption 2

Suppose we assume that 50% (3 or 4) of the patients with alerts in whom the signal was recovered should be treated as false positives, in other words, they would not have had an NND even if no action had been taken.

	NND or avoided NND	No NND
Alert	True positive $C (0) + B/2 (4)$ 4	False positive $D (1) = B/2 (3)$ 4
No Alert	False negative $E (6) + A (2)$ 8	True negative F 243

Sensitivity = $4/12 = 33.3\%$ (95% CI: 13.8-60.9 %).

Specificity = $243/247 = 98.4\%$ (95% CI 95.9 – 99.4%).

PPV = $4/8 = 50\%$ (95% CI: 21.5-78.5%).

NPV = $243/251 = 96.8\%$ (95% CI: 93.8 – 98.4%).

Assumption 3

Suppose we assume that patients with alerts in whom the signal was recovered should be treated as false positives, in other words, they would not have had an NND even if no action had been taken.

	NND or avoided NND	No NND
Alert	True positive $C (0)$	False positive $D (1) + B (7)$ 8
No Alert	False negative $E (6) + A (2)$ 8	True negative F 243

Sensitivity = $0/8 = 0.0\%$ (95% CI: 0.0-32.4 %).

Specificity = $243/251 = 96.8\%$ (95% CI: 93.8-98.4 %).

PPV = $0/8 = 0\%$ (95% CI: 0.0-32.4 %).

PNV = $221/225 = 96.8\%$ (95% CI: 93.8-98.4 %).