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## Can a detailed neurological exam improve prediction of extubation success in neurocritically ill patients?

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## **CAN A DETAILED NEUROLOGICAL EXAM IMPROVE PREDICTION OF EXTUBATION SUCCESS IN NEUROCRITICALLY ILL PATIENTS?**

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Predictors of extubation success in neurocritically ill patients differ from those in the medical or surgical ICU without acute neurological injury. Presence of a cough and a higher Glasgow Coma Scale has previously been associated with extubation success. A recent study in neurocritically ill patients at Harvard Medical School has suggested that a detailed neurological exam may identify important additional signs of extubation success. This cohort, however, included predominantly stroke patients. We aimed to validate these findings in our mixed patient cohort including neurotrauma, stroke and status epilepticus.

In this ongoing prospective observational cohort study, we have enrolled 61 neurocritically ill patients who have required intubation and followed them through their hospital course. Routine care included daily evaluation for extubation readiness, including spontaneous breathing trials, arterial blood gases and weaning according to an institutional weaning protocol. Prior to a planned extubation, patients underwent a simple neurological exam by the bedside nurse according to study protocol. After extubation, patients were followed for extubation failure, defined as re-intubation within 72 hours of extubation.

Additional data on possible confounders is collected, including chest X-ray appearance, infectious complications, and other comorbid conditions. Mean age of the sample was 59 years and 64% were male, Mean GCS was 12. Extubation failure was seen in 6.5 %, diagnosis of pneumonia 72 hours prior to extubation 24%, after an average number of 3 intubation days. Enrollment will continue until July 2012. A planned analysis includes the identification of predictors of extubation success, focusing on aspects of the neurological examination while controlling for key confounders. We also plan to combine our cohort with the Harvard cohort to improve the power of our analysis.

We hope to identify important predictors of extubation success in a broad neurocritical care cohort in order to build a more generalizable model that may improve the prediction of extubation success in neurocritically ill patients.