

Methodology for Low-Field, Portable Magnetic Resonance Neuroimaging at the Bedside

Authors: Dual-center: Yale New Haven Hospital ED and ICU (Aug 2020 - current) and Mass General Neuro ICU (Jan 2021 - current)

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Study

In this dual-center prospective study, Yale New Haven Hospital and Massachusetts General Hospital used the Swoop portable MRI for point of care neuroimaging in their Emergency Department and Intensive Care Unit (ICU) and their Neuroscience Intensive Care Units respectively. Their goal in this report was to describe the use of Swoop pMRI, how they incorporated it into their clinical workflow in various settings, and details on consideration and challenges for specific patient populations.

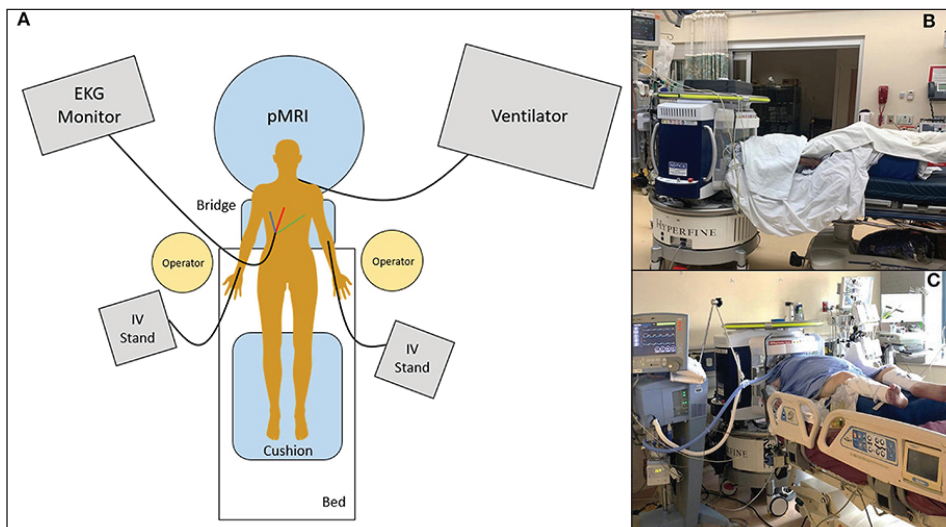
Conclusion from Abstract

“This technology has expanded the population of patients who can receive MRI imaging by increasing accessibility

and timeliness for scan completion by eliminating the need for transport and increasing the potential for serial monitoring. Here we describe our methods for screening, coordinating, and executing pMRI exams and provide further detail on how to scan specific patient populations.”

Relevance of Study

Dual center, peer-reviewed, publicly available methodology paper that is helpful to multiple Swoop program stakeholders in the hospital. This paper includes images of the room setup, lists available sequences and scan times, has a flowchart of MRI scanning methodology, and has consideration suggestions for specific patient populations.



Portable MRI scan setup. (A) The pMRI was positioned behind the head of the patient's bed. The bridge was deployed so that the scanner adjoined with the bed, and the patient was positioned into the head coil. The pMRI was safe to use in the presence of ferromagnetic equipment, including an EKG monitor and leads, IV stand(s) and lines, ventilator and endotracheal tube, etc. These devices were not detached from the patient during scan setup or acquisition. At minimum, two operators were needed to position the patient into the scanner's coil. A cushion was provided underneath the legs to make the exam more comfortable. pMRI exams were conducted in the (B) emergency department and (C) intensive care units at Yale New Haven Hospital.