**Background:**
Prior to magnetic resonance imaging (MRI), it is essential that every patient undergo formal safety screening. This screening is performed by a technologist in concert with a patient’s other medical providers, and is intended to identify unsafe implanted devices, foreign objects such as metallic fragments and/or MRI incompatible medical equipment external to the patient. The presence of any of these can place a patient at risk for skin burns or other serious injuries, especially if metallic objects are pulled into the scanner by its strong magnetic field. Typically MRI suites are divided into Zones, 1 through 4, with increasing restriction to access. Only the patient, the technologist, and medical personnel vital to the patient’s support during the examination are permitted in Zone 4 (room with MRI scanner).

**What happened:**
A 72 year-old man was admitted to the ICU with pneumonia. His mental status worsened and brain MRI was ordered. A respiratory therapist and ICU nurse transported the patient to MRI. The patient’s screening form was missing. Upon arrival to the MRI anteroom (Zone 2), the patient’s oxygen tank was appropriately exchanged for an MRI compatible tank but inadvertently placed into a non-MRI compatible oxygen caddy. A formal safety check was not performed prior to the patient, the technologist, and the respiratory therapist entering the MRI scanner (Zone 4). The patient’s oxygen caddy and the respiratory therapist’s phone were both pulled into the MRI magnet. Fortunately, there were no injuries and the MRI scanner was not damaged. The MRI technologist was able to remove the oxygen tank and caddy as well as the phone from the MRI.

**What went wrong?**
Several factors contributed to this event. The MRI screening form was not present upon the patient’s arrival to MRI and when found, had not been completely filled out. The oxygen caddy was not identified as incompatible with MRI and therefore was not removed before the patient entered the scanner suite. Additionally, the team working with the patient had all worked together before and as such did not think to perform a final safety check before entering Zone 4. Lastly, not all providers had received MRI safety training.

**What we are doing to improve:**

- **MRI timeout procedure**—A pre-MRI timeout has been formalized to take place in Zone 3 prior to entering the scanner room. During the timeout, each individual is now confirmed to be MRI SAFE.
- **MRI safety verification and patient screening forms**—A new MRI Safety Verification Form has been introduced and requires that the MRI technologist attest to the MRI compatibility of medical equipment accompanying the patient as part of the formal MRI timeout. This form supplements the MRI Patient Screening Form, which should be completed and reviewed before the patient is transported to MRI.
- **MRI compatible oxygen tanks**—The medical center has committed to eliminating all non-MRI compatible oxygen tanks and caddies.
- **MRI safety training**—The MRI safety training modules have been revised and must be completed annually by providers who require access to the MRI facilities.

From the UCSF Patient Safety Committee and Office of GME. Editors: Adrienne Green MD (Professor of Medicine, Associate CMO), Jim Stotts RN (Patient Safety Manager), Mary H. McGrath, MD (Professor of Surgery and Office of GME) & Kiran Gupta, MD, MPH (Assistant Clinical Professor of Medicine, Assistant Medical Director for Patient Safety). Please contact Kiran Gupta at Kiran.Gupta@ucsf.edu with questions. Disclaimer: Clinical details of cases have been altered to protect patient & provider confidentiality.