Background: Propofol infusions are often used to sedate children undergoing MRI scans as this drug has the advantage of a rapid onset and offset. Special MRI compatible infusion pumps must be used as ferromagnetic devices are a hazard and may cause artifacts in the MRI suite. In the past, infusion pumps were placed outside the scanner with tubing extensions for drug delivery. Potential problems (inaccurate flow rates or tubing caught in the scanner door) were concerns (1). The MRidium pump (IRadimed Corp., Winter Park FL) is specifically designed for use with the 0.2 – 3.0 Tesla MRI systems when placed at the 10,000 Gauss line as it has a non-magnetic ultrasonic motor for drug delivery.

Case Series: There have been 5 reported incidents at our institution with the MRidium pump (model 3850 R) and its infusion tubing; patients did not receive the infusion despite the flashing green light on the actual infusion pump and the wireless remote. Movement of the syringe plunger does not occur with this system, and the first sign of inadequate sedation was patient movement. In one case the child actually began to crawl out of the scanner, but fortunately, no patient injury occurred! A rapid bolus of propofol permitted resedation and completion of the imaging study in all 5 cases, but the interruption prolonged the procedure.

Conclusion: Vigilance while monitoring sedated patients undergoing MRI studies is very important, but can be challenging. Patients are monitored from a room outside the scanning room with various screens and the wireless remote. Extra care must be taken to ensure patients are actually receiving propofol by visual confirmation of a change in the level of propofol in the syringe, visualization of air bubbles rising within the propofol syringe after starting the infusion, and the continued presence of propofol in the vascular tubing when these devices are used in the MRI suites.

References: