3860+

MRidium®

MRI INFUSION SYSTEM FOR CRITICAL CARE PATIENTS

IRADIMED

ARE YOU PART OF THE MRI PROBLEM OR THE SOLUTION?

Every hospital and clinician has special requirements when sending their ICU patient to MRI. What is your practice for patients needing IV infusions?

OPTION 1

"WE WAIT UNTIL ALL IVS CAN BE DISCONTINUED"

Our policy is that we do not send our critically ill patients to MRI until their infusions can be discontinued.

Since the pumps we use in our ICU department are not MRI safe, we wait until the patient is stable enough and no longer on critical infusions. Patients have had to wait several days before they can get their physician-ordered MRI exam.

OPTION 2

"WE USE TRADITIONAL PUMPS WITH EXTENSION LINES"

When our critically ill patients need an MRI, we send them down with the same infusion pump used in the ICU department.

Our ICU pumps are not MRI safe and cannot be placed inside the MRI scanner room. We end up leaving our pump outside in the control room and attach about 20 to 30 feet of extension lines to reach the MRI bore.

OPTION 3

"WE USE A NON-MAGNETIC INFUSION PUMP"

We own an infusion pump that is designed specifically for MRI procedures and extend the same bedside practice within the MRI that we use in the ICU.

Using a non-magnetic IV infusion pump allows us to infuse critical medications at the MRI bore, regardless of patient status. Infusing at the bore keeps the patient's IV lines off of the contaminated floor and minimizes medication waste.

1 MRI DELAY CAN BE MORE COSTLY AND HARMFUL THAN TREATMENT MISTAKES [1]

In reviewing 25 years of U.S. malpractice claim payouts, Johns Hopkins researchers found that diagnostic errors accounted for the most severe patient harm and the highest total of penalty payouts. They define diagnostic error as a diagnosis that is missed, wrong, or delayed.[1]

29%
of Malpractice Claims
are associated with diagnostic error [delay] [1]

$3,184
Per Day of Direct ICU Costs
can be incurred for each day a patient is delayed their physician-ordered MRI diagnosis [2]

70%
of Diagnostic Procedures
with Critical Care patients result in a change in therapy. [11]

"Overall, diagnostic errors have been underappreciated and under-recognized because they're difficult to measure and keep track of," Newman-Toker, a Johns Hopkins researcher, says. "These are frequent problems that have played second fiddle to medical and surgical errors." [1]

The practice of delaying an MRI diagnosis because the necessary equipment has not been acquired may end up costing you and your patients more in the long run.

Waiting for a critically ill patient to be stable enough to discontinue all continuous IV infusions can delay their MRI diagnosis by several days. This MRI diagnosis delay can not only add significant cost but also delays a patient's diagnosis, corresponding treatment, and release.

An average ICU cost per day is estimated at $3,184 US, climbing to $3,968 US when mechanical ventilation is needed. [2]

Transporting critical patients for an MRI has demonstrated a good risk / benefit ratio. The results from diagnostic examinations have directly resulted in a change in patient therapy and management for up to 70% of critically ill patients[11].

Delaying a critically ill patient's MRI diagnosis can be directly correlated to a delay in therapy, which can result in a longer stay for the vast majority of cases.

2 ADDING LONG IV EXTENSIONS TO CONDUCT AN MRI SCAN CAN BE HARMFUL FOR PATIENTS

87%
of Blood Stream Infections
are associated with intravascular devices [4]

INCREASED RISK OF A HAI: HOSPITAL ACQUIRED INFECTION

Critically ill patients are susceptible to HAIs, which are one of the major causes of death among hospitalized patients.[3] **Airborne contaminants often settle on floors, where IV tubing may be inadvertently contaminated** when allowed to contact the floor[5] or through subsequent manipulation of multiple connections and access ports.

300%
More Flow Resistance
can be experienced with 30 foot IV lines vs. a standard IV set[6,7]

IV EXTENSION TUBING CAN REDUCE THE FLOW RATE

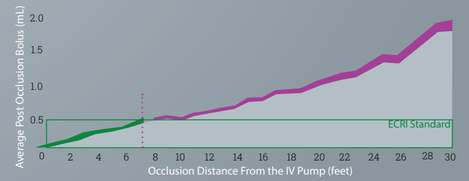
Alterations in infusion flow rates caused by extension tubing can create under infusions, which can be detrimental with certain drugs (i.e. vasopressors and cardiac drugs). The length of IV tubing directly impacts the resistance needed to push the medication through the tubing. Physics proves that tubing having **twice the length will have twice the resistance, which reduces flow**.[6,7]

35
Minute Occlusion Delay
can occur when multiple long extension lines are used[10]

OCCLUSIONS CAN BE DANGEROUS

Increasing the IV tubing length has been shown to **prolong critical occlusion alarms by nearly 35 minutes,** resulting in a delay in therapy that can be catastrophic for some ICU patients.[10]

A post occlusion bolus in excess of 2.0 mL[9] drastically exceeds the 0.5 mL ECRI patient safety guideline[8] for post occlusion boluses, putting the patient at risk.



3

THE BETTER CHOICE FOR CRITICALLY ILL PATIENTS NEEDING AN MRI DIAGNOSIS

Reduce Your Patient's Time Away From Their Care Unit

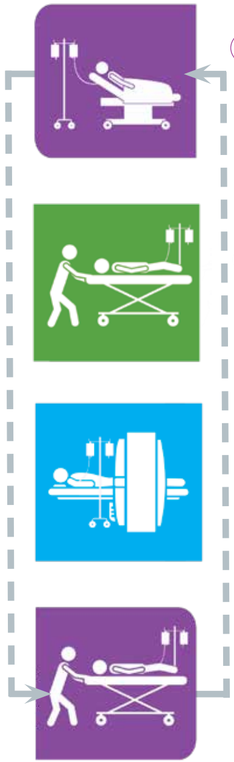
Portability is at the heart of the IRadimed® MRidium® non-magnetic MRI infusion system. Connecting the patient to an MRI infusion pump in their originating department, such as an Intensive Care Unit, decreases the patient's time off of their care unit. Using the MRidium® in the Critical Care departments allows pump transfers to happen in a familiar environment with appropriate equipment and staff to handle complications. Infusing at the bore provides the following advantages:

- 'Continuity of Care' During Intra-departmental Transports
- Reduced Risk of Misconnections and Drug Mixing
- Reduction in Time Critical Patients are 'Off Unit'
- Assurance on Drug Delivery Accuracy
- Expedited MRI Diagnosis

#38
JCHAO Sentinel Event
Requires the sole use of MRI tested and approved infusion equipment[12]

50+
Common High Alert Meds
Require the use of DERS to deliver infusions during MRI exams[13]

MRI Care Cycle



1 SETUP IN ICU
Connect the MRidium® at the patient's point of care.

2 MRI TRANSPORT
Time away from the ICU is shortened using an MRI pump.

3 MRI EXAM
MRidium® eliminates long IV extension workarounds.

4 ICU TRANSPORT
Patient returns to the ICU immediately post MRI exam.

"Finally, an efficient way
to transport
our critically ill patients to MRI"

Iradimed® partners with your team to evaluate your current procedural workflow and will provide strategies on how our solutions will improve your critical care MRI care cycle.

THE MRIDIUM SYSTEM

The MRidium® 3860+ MRI IV Infusion System meets the demanding clinical needs of today's patients by allowing continuous delivery of fluids and medication throughout the MRI care cycle.

3860+

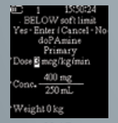
MRIDIUM IV INFUSION PUMP

The non-magnetic[14] MRidium® 3860+ and its ability to infuse medications within the MRI room maintains the same standard of care experienced in the ICU.

3861

MRIDIUM SIDECAR CHANNEL

The MRIdium® with additional Sidecar Channel offers a unique and effective way to deliver multiple IV fluids, safely and accurately next to the MRI system.



1145

DERS: DOSE ERROR REDUCTION SYSTEM

Designed to reduce infusion errors, the DERS custom drug library enhances infusion safety, provides potential cost savings, and allows compliance with ISMP and The Joint Commission recommendations.

3865

MRIDIUM WIRELESS REMOTE CONTROL

The Wireless Remote eliminates delays caused by stopping the MRI scan to titrate or bolus by providing clinicians full operation from the MRI control room.

YES, NON-MAGNETIC IS A BETTER WAY

The non-magnetic design allows the MRidium® infusion pump to operate safely in ultra high magnetic fields without the need for the workarounds required with traditional infusion pumps.

Using a traditional pump near an MRI has the following risks:

- Erratic performance [12]
- Infusion flow accuracy [7]
- Occlusion alarm delay [10]
- MRI image artifact [15]
- Projectile hazard [12]

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RoHS COMPLIANT

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[11] Waydhas, C: Equipment review: Intrahospital transport of critically ill patients, February 1999.
[12] The Joint Commission: Preventing accidents and injuries in the MRI suite. *Sentinel Event Alert #38*, February 14, 2008
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[14] MRidium uses a non-magnetic motor and contains less than 15 grams of ferrous material allowing it to operate at 10,000 Gauss.
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[Note] Content may be edited for style and length.

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