**List of IR Implanted Devices and MRI Safety**

February 2, 2016

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| **Device**  **Manufacturer** | **MRI Safe? / Level** | **MRI Strength**  **(Tesla)** | **Note** |
| **MReye Coil**  Cook | **YES**  Conditional 5 | 3.0 | Level 5 definition below |
| **Nester Coil**  Cook | **YES**  Conditional 5 | 3.0 |  |
| **Flipper Coil**  Cook | **YES**  Conditional 5 | 3.0 |  |
| **Interlock Fibered IDC Coil**  Boston Scientific | **YES**  Conditional 8 | 3.0 | Level 8 definition below |
| **Target Detachable 360 Ultra Coil**  Stryker Neurovascular | **YES**  Conditional 5 | 3.0 |  |
| **Penumbra 400 Coil**  Penumbra | **YES**  Conditional 5 | 3.0 |  |
| **VortX Diamond & 2D Helical Coil**  Boston Scientific | **YES**  Conditional 5 | 3.0 |  |
| **GDC 18-Fibered Detachable Coil**  Boston Scientific-Stryker | **YES**  Conditional 5 | 3.0 |  |
| **POD (Peripheral Occlusion Device)**  Penumbra | **YES**  Conditional | 3.0 |  |
| **Ruby Coils**  Penumbra | **YES**  Conditional | 3.0 |  |
| **Gianturco-Roehm Bird’s Nest IVC Filter**  Cook | **YES**  Conditional 6 | 3.0 | Stainless steel.  MRI should be postponed for 6 weeks post placement to assure device incorporation |
| **Amplatzer Vascular Plug**  St. Jude Medical |
| **Günther Tulip and Celect IVC Filter**  Cook | YES  Conditional | 3.0 |  |
| **Option IVC Filter**  Rex Medical | **YES**  Conditional | 3.0 |  |
| **Amplatz Vascular Obstruction Device (Vascular Spider)**  Cook (discontinued) | **Possibly YES**  NA | NA | Typically made of Stainless Steel. |
| **Guidewires (use as embolic agent)**  (PTFE-Coated, Bentson, etc) |

**Stainless Steel Embolic Agents:**

Devices made of stainless steel include some old coils, Amplatz Vascular Obstruction Device (Vascular Spider, discontinued), Amplatzer Vascular Plug and core-removed guidewires used as embolic agents for massive lesions (e.g. PTFE-Coated, Bentson, etc by Cook, Boston Scientific and others).

In general, stainless steel coils are MR Conditional. Patient with this coil may be scanned safely any time after placement under the following conditions:

1- Static Magnetic field ≤ 3.0 tesla

2- Maximum spatial magnetic gradient ≤ 1,600 gauss/cm

3- Maximum MR system reported, whole-body-averaged specific absorption rate (SAR) ≤ 2.0 W/kg normal operating mode for 15 minutes of scanning or less (i.e., per scanning sequence).

Heating from stainless steel coils produced a maximum temperature rise of 1.8 °C during 15 minutes of MR imaging (i.e., for one scanning sequence) in a 3 tesla MR at an MR system reported whole-body-averaged SAR of 2.9 W/kg.

Image Artifact may occur within ~ 75 mm of the stainless steel coil. Therefore, it may be necessary to optimize MR imaging parameters.

**Core-removed guide wires:** Not rated. Marked MRI artefacts and image deterioration were noted in 2 of our patients with implanted stainless steel core-removed guidewires. There were no complications but the exams were terminated due to very poor of image quality.

\*\* **Conditional 5, 6 and 8**: Patient with this device can be scanned safely immediately after placement under the following conditions: -Field ≤ 3 Tesla, Maximum SGMF ≤ 720-Gauss/cm and MR whole-body SAR ≤ 3 W/kg for 15 minutes pulse sequence. Heating ≤ 4.0 degrees C. In **Conditional 5**, artifacts may compromise image relative to the size of the device. **Conditional 8** is labelled at 1.5-Tesla and 3-Tesla Only. Artifacts may compromise image relative to the size of the device or slightly larger.