Hybrid OR: A Collaborative Multi-disciplinary Approach from Conception to Execution

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Discussion

• Mayo Clinic Arizona opened a new image integrated hybrid OR on April 30, 2019 and since that time has completed over 500 procedures. These operating rooms, the first with all of the technologies are the only group that has multiple modalities available. The hybrid OR space has a group of 3 ORs; a tumor room, MRI/OR suite, and a Pheno room. Mayo Clinic Arizona is the only center in the country with the ability to utilize all three within one space.

• Prior to opening extensive research was performed which included multiple site visits throughout the country and in Switzerland in order to gain access to different patient care flow and procedures. These site visits were conducted with a multi-disciplinary team to represent the services which are included in the hybrid space. This fostered and supported the development of a high functioning collaborative multi-disciplinary team.

• The hybrid tumor OR is equipped with the MR table and the pilot patient transfer board. The Lucent headframe allows the ability to transfer a patient while in pins to the MRI with seamless, streamlined efficiency. After obtaining MRI, patient can return to the hybrid OR for further resection, if necessary while remaining fixated in pins with no position or navigation changes. Radiology technologists (magnetic resonance imaging, interventional and diagnostic radiology), OR staff and Neurosurgery Advanced Practice Providers are all involved in patient care when moving from room to room.

• The MR suite has the capability to function as an OR. The bore is draped in a sterile fashion and the use of guidance technology allows for the patient to undergo imaging while precision navigation directs more accurate targeting to a lesion for biopsy or laser ablation. Instruments used during these procedures are titanium and are only used when procedures are performed completely within the MRI suite. The 3 Tesla MR table with a one of a kind surgical table that houses the MR imaging coils to improve image quality. Extensive training was completed and effective communication between all members of the team is used to help prevent bore breaches while in the MRI suite.

• The hybrid Pheno OR has robot technology which offers outstanding image quality for a variety of procedures. The Pheno can be utilized in a neurosurgical hybrid space to perform interventional, endovascular as well as spinal fusion. The Pheno expands clinical possibilities to enhance patient outcomes in addition to clinical and organizational goals. The Pheno OR also has the ability to transition into the MRI OR.

• The hybrid OR space has enhanced and streamlined our ability to deliver cutting edge and high quality care to our patients. Through this process, we have established a high functioning multidisciplinary approach to patient care. Our teams are inclusive and collaborative.

Objective

To open a state-of-the-art image-guided hybrid surgical suite by executing a deliberate, collaborative, multidisciplinary team approach. The process was designed to position the institution for an on-time opening and subsequent rapid utilization of the new facility. The suite is the first of its kind in the United States and enables Mayo Clinic to perform innovative neurosurgical procedures.
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