VALUE ANALYSIS BRIEF:
MatrixWAVE™ MMF System
Maxillomandibular Fixation

Maxillomandibular fixation (MMF) is a crucial step in the management of maxillofacial trauma. Adequate fracture reduction by aligning the maxillary and mandibular dentition in occlusion must be obtained to fixate fractures correctly. Various methods have been championed by surgeons to achieve MMF including Arch Bars secured with interdental wires and IMF Screws. While these techniques have been used for several years, there are several disadvantages to both treatments.

Limitations of Arch Bars

- Prolonged operating room time and expense to apply and remove the system
- High incidence of needle stick injuries carrying a potential risk of blood-borne pathogens transmission between patient and healthcare provider
- Difficulty in maintaining oral hygiene and gingival health
- Wires tightened during the application of arch bars around the teeth may cause ischemic necrosis of the mucosa and the periodontal membrane and the potential for tooth loss
- Secondary OR Procedure for removal

Limitations of IMF Screws

- Posterior mandible fractures are more prone to poor reduction and subsequent malocclusion
- Potential risk of screw back-out
- Cannot be used alone as definitive treatment for mandible fractures

Given these limitations there is a need to develop a versatile MMF system. MatrixWAVE™ MMF is a bone borne MMF system that combines the strength and rigidity of arch bars with the speed and simplicity of IMF screws. MatrixWAVE™ MMF system is a novel system that expands and compresses to achieve maxillomandibular fixation.
Potential Patient and Surgeon Benefits of the MatrixWAVE MMF System

- **Adaptability:** MatrixWAVE MMF System has an adaptable wave plate that surgeons can stretch or compress with or without the use of an instrument to optimize screw hole location and avoid interference with definitive plating and incision location.

- **Post Application Adjustability:** The novel wave plate pattern enables surgeons to refine bone segment alignment after wiring without repositioning screws.

- **Versatility:** Accessible screw heads are designed to sit proud and offer additional anchor points for occlusional stability and approximation of bone segments and to help minimize soft tissue growth over the screw.

- **Designed to Help Avoid Soft Tissue and Tooth Root Injury:** MatrixWAVE MMF System is designed to protect the gingival soft tissue and enable the surgeon to avoid critical anatomic structures such as tooth roots and nerves.

Potential Patient and Provider Benefits of the MatrixWAVE MMF System

- **Fast Application for Greater OR Efficiency:** MatrixWAVE MMF System combines an adaptable plate with self-drilling locking screws to facilitate faster MMF than arch bars for greater OR efficiency.

- **Designed to Reduce Wire Sticks:** Design eliminates interdental wiring which may reduce the risk of wire sticks for healthcare providers.

- **Removed in Office or Clinic:** MatrixWAVE MMF System can be removed under local anesthesia in the clinic or office setting to reduce the need for OR based removal procedures.

- **MatrixWAVE MMF Provides Opportunity for Better Oral Hygiene:** MatrixWAVE MMF System covers less tooth surface giving patients more access to the teeth for cleaning than Hybrid MMF and arch bars.

- **Designed to Help Avoid Tooth Loosening:** The bone-borne design eliminates the need for interdental wiring potentially reducing the risk of tooth loosening.

- **Designed for Patient Comfort:** The MatrixWAVE MMF plate is designed with rounded, smooth edges. Plate hooks can be bent toward the gingiva after wiring. Screw heads are rounded to help minimize the impact on patient’s soft tissue.
References


9. Mechanical test data on file at DePuy Synthes. Mechanical test results are not necessarily indicative of clinical performance.