### Title: BLOOD CONSERVATION IN TOTAL JOINT ARTHROPLASTY

### Target Audience:
Total Joint Surgeons, Anesthesiologists, Hospitalists, OR Staff, Acute Care Nurses, Physical Therapists

### Scope/Patient Population:
All patients scheduled for and undergo elective primary/revision total hip or knee replacement surgery.

### Rationale:
Patients undergoing total joint arthroplasty have historically been frequent (37%) recipients of blood product(s); with the adoption of modern arthroplasty techniques and through the use of supportive agents, the number of patients receiving blood products have been dramatically reduced. Complications range from fever to death. The risk of post-operative surgical site and prosthetic joint infections increase when blood products are given at the time of index arthroplasty. Additionally, blood product administration is associated with increased levels of nursing care, prolonged hospitalizations, increased costs, dynamic fluid shifts, and risk for transfusion reactions. Standardizing practices and reducing clinical variation will lead to a reduction of blood transfusions, which are often unnecessary, thereby saving lives, reducing complications, and decreasing overall healthcare costs.

### Objective
Keep the overall transfusion rate for elective joint replacement patients at or below the following targets:

1. Primary Total Knees - <2.5%
2. Primary Total Hips - <5.0%
3. Revision Total Knees - <2.5%
4. Revision Total Hips - <10.0%
<table>
<thead>
<tr>
<th>Recommendations:</th>
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<tbody>
<tr>
<td>1. CBC without differential needs to be obtained (within 30 days of surgery) to evaluate for the presence of anemia, if not previously addressed by PCP. Referral will be made for patients with a hemoglobin/hematocrit &lt;11%/33 g/dL respectively.</td>
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<td>2. Avoid routine use of suction and/or reinfusion drains during/after total joint arthroplasty.</td>
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<td>3. Utilize regional and/or relative hypotensive anesthesia to minimize BP related bleeding in the surgical field.</td>
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<td>4. Use Tranexamcic acid (TXA) either topical or IV, as a hemostatic agent via antifibrinolysis during total joint arthroplasty.</td>
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<tr>
<td>a. <strong>IV protocol</strong> – For both Total Hip and Total Knee Arthroplasty procedures: TXA 1gm IV prior to incision or inflation of tourniquet and 1gm IV at final implantation/closure during total joint replacements.</td>
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<td>i. Contraindications to IV formulations include acquired defective color vision, active intravascular clotting or subarachnoid hemorrhage. Oral contraindications include: active thromboembolic disease, history or intrinsic risk of thrombosis or thromboembolism; concurrent use of hormonal contraception.</td>
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<td>b. <strong>Topical protocol</strong> – For Total Hip Arthroplasty procedures: TXA 3 gm mixed in 60 mL Normal Saline for a total of 90 mL volume where 60 mL to be used prior to final implantation and 30 mL in the arthrotomy/surgical field at closure. For Total Knee Arthroplasty procedures: TXA 1 gm mixed in 20 mL Normal Saline.</td>
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<td>i. Limited evidence exists regarding the efficacy of topical and oral administration. IV administration is preferred and should be used unless contraindications for IV use are present.</td>
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<td>5. Decision to transfuse blood products after surgery should follow the MHS blood product transfusion policy.</td>
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Evidence:


### List of Implementation Items and Patient Education:
- Orthopedic Pre-Admission Order Set
- Total Joint QlikView Quality Improvement Dashboard
- Total Joint Patient Guidebook

### Metrics Plan:
- Measure Transfusion Rates as part of the QlikView Quality Improvement Dashboard
- Goals referenced in “objective” section above.

### PDCA Plan:
The MMA Total Joint Program Medical Director will monitor Blood Transfusion rates on a quarterly basis and determine appropriate Quality Improvement countermeasures as indicated.

### Point of Contact:
MMA Total Joint Program Medical Director

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<tr>
<th>Approval By:</th>
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<tbody>
<tr>
<td>Medical Staff Committee(ies) Quality Steering Council</td>
<td>12/31/2014</td>
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<tr>
<td>Original Date:</td>
<td>09/10/2015</td>
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<td>Revision Dates:</td>
<td>09/17/2015</td>
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<td>Reviewed by Surgery Collaborative:</td>
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<td>Reviewed with no Changes Dates:</td>
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