**Supplementary Material 1.** Current procedural terminology (CPT) and International Classification of Diseases (ICD) codes

### Total elbow arthroplasty:

**CPT codes:**
- 24361 Arthroplasty, elbow, with distal humeral prosthetic replacement
- 24363 Arthroplasty, elbow, with distal humeral and proximal ulnar prosthetic replacement; total elbow
- 24160 Implant removal, elbow
- 24587 Open treatment of peri-articular fracture with implant

**ICD-9 Procedure codes:**
- 8184: Total elbow replacement
- 8009: Arthrotomy for removal of prosthesis of elbow

**ICD-10 Procedure codes:**
- 0RRM07Z Replacement of Left Elbow Joint with Autologous Tissue Substitute, Open Approach
- 0RRM0JZ Replacement of Left Elbow Joint with Synthetic Substitute, Open Approach
- 0RRL07Z Replacement of Right Elbow Joint with Autologous Tissue Substitute, Open Approach
- 0RRL0JZ Replacement of Right Elbow Joint with Synthetic Substitute, Open Approach
- 0RWL Revision of left elbow joint
- 0RWL Revision of left elbow joint

### Soft-tissue reconstruction:

**CPT codes:**
- 14020: Adjacent tissue transfer or rearrangement, scalp, arms and/or legs.
- 14021: Adjacent tissue transfer or rearrangement, scalp, arms and/or legs, additional.
- 15100: Split-thickness autograft, trunk, arms, legs.
- 15101: Split-thickness autograft, trunk, arms, legs, additional 100sq cm.
- 15110: Epidermal autograft, trunk, arms, legs.
- 15111: Epidermal autograft, trunk, arms, legs, additional 100sq cm.
- 15130: Dermal autograft, trunk, arms, legs.
- 15131: Dermal autograft, trunk, arms, legs, additional 100sq cm.
- 15271: Application of skin substitute graft to trunk, arms, legs total wound surface area up to 100sq cm.
- 15272: Application of skin substitute graft to trunk, arms, legs total wound surface area up to 100sq cm, additional 20sq cm.
- 15273: Application of skin substitute graft to trunk, arms, legs, 100sq cm.
- 15274: Application of skin substitute graft to trunk, arms, legs, additional 100sq cm.
- 15572: Formation of direct or tubed pedicle, with or without transfer; scalp, arms or legs.
- 15610: Delay of flap or sectioning of flap at scalp, arms or legs.
- 15650: Transfer, intermediate, of any pedicle flap any location.
- 15736: Muscle, myocutaneous, or fasciocutaneous flap upper extremity.
- 15740: Flap; island pedicle requiring identification and dissection of an anatomically named axial vessel.
- 15750: 15740 with neurovascular pedicle.
- 15756: Free muscle or myocutaneous with microvascular anastomosis.
- 15757: Free skin flap with microvascular anastomosis.
- 15758: Free fascial flap with microvascular anastomosis.
- 15760: Graft; composite including primary closure, donor area.

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ICD-9 Procedure codes:

86.7 Pedicle grafts or flaps
- 86.70 Pedicle or flap graft, not otherwise specified
- 86.71 Cutting and preparation of pedicle grafts or flaps
- 86.72 Advancement of pedicle graft
- 86.73 Attachment of pedicle or flap graft to hand
- 86.74 Attachment of pedicle or flap graft to other sites
- 86.75 Revision of pedicle or flap graft

86.6 Free skin graft
- 86.60 Free skin graft, not otherwise specified
- 86.61 Full-thickness skin graft to hand
- 86.62 Other skin graft to hand
- 86.63 Full-thickness skin graft to other sites
- 86.89 Other repair and reconstruction of skin and subcutaneous tissue

ICD-10 Procedure codes:

0XW707 Revision of Autologous Tissue Substitute in Left Upper Extremity, Open Approach
0KX80Z Transfer Left Upper Arm Muscle
0KX70 Transfer Right Upper Arm Muscle
0KZF0 Transfer Right Trunk Muscle
0KZF0Z Transfer Left Trunk Muscle
0KXH0Z Transfer Right Thorax Muscle
0KXH0 Transfer Left Thorax Muscle
0KX50Z Transfer Right Shoulder Muscle
0KX50 Transfer Left Shoulder Muscle
0KX90Z Transfer Right Lower Arm and Wrist Muscle
0KX90 Transfer Left Lower Arm and Wrist Muscle
0HX6XZ Transfer Back Skin
0HX8XZ Transfer Buttock Skin
0HX5XZ Transfer Chest Skin
0HDXZ Transfer Right Lower Arm Skin
0HXEXZ Transfer Left Lower Arm Skin
0HXCXZ Transfer Left Upper Arm Skin
0HXBXZ Transfer Right Upper Arm Skin
0HXJXZ Transfer Left Upper Leg Skin
0HXHXZ Transfer Right Upper Leg Skin

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