

MT30 Supplemental materials

References

1. Kloosterman, R., et al., An umbrella review of the surgical performance of Harmonic ultrasonic devices and impact on patient outcomes. BMC Surg, 2023. 23(1): p. 180.
2. PINC AI™ Applied Sciences, Premier Inc. PINC AI™ Healthcare Database: Data that informs and performs (White Paper). . 2023 [cited 2024 Mar 28 2024]; Available from: <https://offers.pinc-ai.com/PINC-AI-Healthcare-Database-White-Paper-LP.html>.
3. Consumer price index for hospital services in the US., Bureau of Labor Statistics, Editor. 2024, US Bureau of Labor Statistics: Washing D.C.
4. Austin, P.C., An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. Multivariate Behav Res, 2011. 46(3): p. 399-424.
5. Cuva, D., et al., Comparison of Postoperative Bleed Rates and Location of Bleed Between Vessel Sealing Devices after Laparoscopic Sleeve Gastrectomy. J Laparoendosc Adv Surg Tech A, 2024.
6. Rawlins, L., et al., Comparative Effectiveness Assessment of Two Powered Surgical Stapling Platforms in Laparoscopic Sleeve Gastrectomy: A Retrospective Matched Study. Med Devices (Auckl), 2020. 13: p. 195-204.

Study codes

Blood transfusion

ICD-10-PCS

| | |
|---------|---|
| 30233H0 | Transfusion of Autologous Whole Blood into Peripheral Vein, Percutaneous Approach |
| 30233N0 | Transfusion of autologous Red blood cells into peripheral vein, percutaneous approach |
| 30243H0 | Transfusion of Autologous Whole Blood into Central Vein, Percutaneous Approach |
| 30243N0 | Transfusion of Autologous Red Blood Cells into Central vein, percutaneous approach |
| 30233H1 | Transfusion of Nonautologous Whole Blood into Peripheral Vein, Percutaneous Approach |
| 30243H1 | Transfusion of Nonautologous Whole Blood into Central vein, percutaneous approach |
| 30233N1 | Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Percutaneous Approach |
| 30233P1 | Transfusion of Nonautologous Frozen Red Cells into Peripheral Vein, Percutaneous Approach |
| 30243N1 | Transfusion of Nonautologous Red Blood Cells into Central vein, percutaneous approach |
| 30243P1 | Transfusion of Nonautologous Frozen Red Cells into Central vein, percutaneous approach |

| | |
|---------|---|
| 30230H0 | Transfusion of Autologous Whole Blood into Peripheral Vein, Open Approach |
| 30230H1 | Transfusion of Nonautologous Whole Blood into Peripheral Vein, Open Approach |
| 30230J0 | Transfusion of Autologous Serum Albumin into Peripheral Vein, Open Approach |
| 30230J1 | Transfusion of Nonautologous Serum Albumin into Peripheral Vein, Open Approach |
| 30230K0 | Transfusion of Autologous Frozen Plasma into Peripheral Vein, Open Approach |
| 30230K1 | Transfusion of Nonautologous Frozen Plasma into Peripheral Vein, Open Approach |
| 30230L0 | Transfusion of Autologous Fresh Plasma into Peripheral Vein, Open Approach |
| 30230L1 | Transfusion of Nonautologous Fresh Plasma into Peripheral Vein, Open Approach |
| 30230M0 | Transfusion of Autologous Plasma Cryoprecipitate into Peripheral Vein, Open Approach |
| 30230M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Peripheral Vein, Open Approach |
| 30230N0 | Transfusion of Autologous Red Blood Cells into Peripheral Vein, Open Approach |
| 30230N1 | Transfusion of Nonautologous Red Blood Cells into Peripheral Vein, Open Approach |
| 30230P0 | Transfusion of Autologous Frozen Red Cells into Peripheral Vein, Open Approach |
| 30230P1 | Transfusion of Nonautologous Frozen Red Cells into Peripheral Vein, Open Approach |
| 30230Q0 | Transfusion of Autologous White Cells into Peripheral Vein, Open Approach |
| 30230Q1 | Transfusion of Nonautologous White Cells into Peripheral Vein, Open Approach |
| 30230R0 | Transfusion of Autologous Platelets into Peripheral Vein, Open Approach |
| 30230R1 | Transfusion of Nonautologous Platelets into Peripheral Vein, Open Approach |
| 30230S0 | Transfusion of Autologous Globulin into Peripheral Vein, Open Approach |
| 30230T0 | Transfusion of Autologous Fibrinogen into Peripheral Vein, Open Approach |
| 30230V0 | Transfusion of Autologous Antihemophilic Factors into Peripheral Vein, Open Approach |
| 30230W0 | Transfusion of Autologous Factor IX into Peripheral Vein, Open Approach |
| 30233J0 | Transfusion of Autologous Serum Albumin into Peripheral Vein, Percutaneous Approach |
| 30233J1 | Transfusion of Nonautologous Serum Albumin into Peripheral Vein, Percutaneous Approach |
| 30233K0 | Transfusion of Autologous Frozen Plasma into Peripheral Vein, Percutaneous Approach |
| 30233K1 | Transfusion of Nonautologous Frozen Plasma into Peripheral Vein, Percutaneous Approach |
| 30233L0 | Transfusion of Autologous Fresh Plasma into Peripheral Vein, Percutaneous Approach |

| | |
|---------|---|
| 30233L1 | Transfusion of Nonautologous Fresh Plasma into Peripheral Vein, Percutaneous Approach |
| 30233M0 | Transfusion of Autologous Plasma Cryoprecipitate into Peripheral Vein, Percutaneous Approach |
| 30233M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Peripheral Vein, Percutaneous Approach |
| 30233P0 | Transfusion of Autologous Frozen Red Cells into Peripheral Vein, Percutaneous Approach |
| 30233Q0 | Transfusion of Autologous White Cells into Peripheral Vein, Percutaneous Approach |
| 30233Q1 | Transfusion of Nonautologous White Cells into Peripheral Vein, Percutaneous Approach |
| 30233R0 | Transfusion of Autologous Platelets into Peripheral Vein, Percutaneous Approach |
| 30233R1 | Transfusion of Nonautologous Platelets into Peripheral Vein, Percutaneous Approach |
| 30233S0 | Transfusion of Autologous Globulin into Peripheral Vein, Percutaneous Approach |
| 30233T0 | Transfusion of Autologous Fibrinogen into Peripheral Vein, Percutaneous Approach |
| 30233V0 | Transfusion of Autologous Antihemophilic Factors into Peripheral Vein, Percutaneous Approach |
| 30233W0 | Transfusion of Autologous Factor IX into Peripheral Vein, Percutaneous Approach |
| 30240H0 | Transfusion of Autologous Whole Blood into Central Vein, Open Approach |
| 30240H1 | Transfusion of Nonautologous Whole Blood into Central Vein, Open Approach |
| 30240J0 | Transfusion of Autologous Serum Albumin into Central Vein, Open Approach |
| 30240J1 | Transfusion of Nonautologous Serum Albumin into Central Vein, Open Approach |
| 30240K0 | Transfusion of Autologous Frozen Plasma into Central Vein, Open Approach |
| 30240K1 | Transfusion of Nonautologous Frozen Plasma into Central Vein, Open Approach |
| 30240L0 | Transfusion of Autologous Fresh Plasma into Central Vein, Open Approach |
| 30240L1 | Transfusion of Nonautologous Fresh Plasma into Central Vein, Open Approach |
| 30240M0 | Transfusion of Autologous Plasma Cryoprecipitate into Central Vein, Open Approach |
| 30240M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Central Vein, Open Approach |
| 30240N0 | Transfusion of Autologous Red Blood Cells into Central Vein, Open Approach |
| 30240N1 | Transfusion of Nonautologous Red Blood Cells into Central Vein, Open Approach |
| 30240P0 | Transfusion of Autologous Frozen Red Cells into Central Vein, Open Approach |
| 30240P1 | Transfusion of Nonautologous Frozen Red Cells into Central Vein, Open Approach |
| 30240Q0 | Transfusion of Autologous White Cells into Central Vein, Open Approach |
| 30240Q1 | Transfusion of Nonautologous White Cells into Central Vein, Open Approach |
| 30240R0 | Transfusion of Autologous Platelets into Central Vein, Open Approach |

| | |
|---------|--|
| 30240R1 | Transfusion of Nonautologous Platelets into Central Vein, Open Approach |
| 30240S0 | Transfusion of Autologous Globulin into Central Vein, Open Approach |
| 30240T0 | Transfusion of Autologous Fibrinogen into Central Vein, Open Approach |
| 30240V0 | Transfusion of Autologous Antihemophilic Factors into Central Vein, Open Approach |
| 30240W0 | Transfusion of Autologous Factor IX into Central Vein, Open Approach |
| 30243J0 | Transfusion of Autologous Serum Albumin into Central Vein, Percutaneous Approach |
| 30243J1 | Transfusion of Nonautologous Serum Albumin into Central Vein, Percutaneous Approach |
| 30243K0 | Transfusion of Autologous Frozen Plasma into Central Vein, Percutaneous Approach |
| 30243K1 | Transfusion of Nonautologous Frozen Plasma into Central Vein, Percutaneous Approach |
| 30243L0 | Transfusion of Autologous Fresh Plasma into Central Vein, Percutaneous Approach |
| 30243L1 | Transfusion of Nonautologous Fresh Plasma into Central Vein, Percutaneous Approach |
| 30243M0 | Transfusion of Autologous Plasma Cryoprecipitate into Central Vein, Percutaneous Approach |
| 30243M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Central Vein, Percutaneous Approach |
| 30243P0 | Transfusion of Autologous Frozen Red Cells into Central Vein, Percutaneous Approach |
| 30243Q0 | Transfusion of Autologous White Cells into Central Vein, Percutaneous Approach |
| 30243Q1 | Transfusion of Nonautologous White Cells into Central Vein, Percutaneous Approach |
| 30243R0 | Transfusion of Autologous Platelets into Central Vein, Percutaneous Approach |
| 30243R1 | Transfusion of Nonautologous Platelets into Central Vein, Percutaneous Approach |
| 30243S0 | Transfusion of Autologous Globulin into Central Vein, Percutaneous Approach |
| 30243T0 | Transfusion of Autologous Fibrinogen into Central Vein, Percutaneous Approach |
| 30243V0 | Transfusion of Autologous Antihemophilic Factors into Central Vein, Percutaneous Approach |
| 30243W0 | Transfusion of Autologous Factor IX into Central Vein, Percutaneous Approach |
| 30250H0 | Transfusion of Autologous Whole Blood into Peripheral Artery, Open Approach |
| 30250H1 | Transfusion of Nonautologous Whole Blood into Peripheral Artery, Open Approach |
| 30250J0 | Transfusion of Autologous Serum Albumin into Peripheral Artery, Open Approach |
| 30250J1 | Transfusion of Nonautologous Serum Albumin into Peripheral Artery, Open Approach |

| | |
|---------|---|
| 30250K0 | Transfusion of Autologous Frozen Plasma into Peripheral Artery, Open Approach |
| 30250K1 | Transfusion of Nonautologous Frozen Plasma into Peripheral Artery, Open Approach |
| 30250L0 | Transfusion of Autologous Fresh Plasma into Peripheral Artery, Open Approach |
| 30250L1 | Transfusion of Nonautologous Fresh Plasma into Peripheral Artery, Open Approach |
| 30250M0 | Transfusion of Autologous Plasma Cryoprecipitate into Peripheral Artery, Open Approach |
| 30250M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Peripheral Artery, Open Approach |
| 30250N0 | Transfusion of Autologous Red Blood Cells into Peripheral Artery, Open Approach |
| 30250N1 | Transfusion of Nonautologous Red Blood Cells into Peripheral Artery, Open Approach |
| 30250P0 | Transfusion of Autologous Frozen Red Cells into Peripheral Artery, Open Approach |
| 30250P1 | Transfusion of Nonautologous Frozen Red Cells into Peripheral Artery, Open Approach |
| 30250Q0 | Transfusion of Autologous White Cells into Peripheral Artery, Open Approach |
| 30250Q1 | Transfusion of Nonautologous White Cells into Peripheral Artery, Open Approach |
| 30250R0 | Transfusion of Autologous Platelets into Peripheral Artery, Open Approach |
| 30250R1 | Transfusion of Nonautologous Platelets into Peripheral Artery, Open Approach |
| 30250S0 | Transfusion of Autologous Globulin into Peripheral Artery, Open Approach |
| 30250T0 | Transfusion of Autologous Fibrinogen into Peripheral Artery, Open Approach |
| 30250V0 | Transfusion of Autologous Antihemophilic Factors into Peripheral Artery, Open Approach |
| 30250W0 | Transfusion of Autologous Factor IX into Peripheral Artery, Open Approach |
| 30253H0 | Transfusion of Autologous Whole Blood into Peripheral Artery, Percutaneous Approach |
| 30253H1 | Transfusion of Nonautologous Whole Blood into Peripheral Artery, Percutaneous Approach |
| 30253J0 | Transfusion of Autologous Serum Albumin into Peripheral Artery, Percutaneous Approach |
| 30253J1 | Transfusion of Nonautologous Serum Albumin into Peripheral Artery, Percutaneous Approach |
| 30253K0 | Transfusion of Autologous Frozen Plasma into Peripheral Artery, Percutaneous Approach |
| 30253K1 | Transfusion of Nonautologous Frozen Plasma into Peripheral Artery, Percutaneous Approach |
| 30253L0 | Transfusion of Autologous Fresh Plasma into Peripheral Artery, Percutaneous Approach |
| 30253L1 | Transfusion of Nonautologous Fresh Plasma into Peripheral Artery, Percutaneous Approach |

| | |
|---------|---|
| 30253M0 | Transfusion of Autologous Plasma Cryoprecipitate into Peripheral Artery, Percutaneous Approach |
| 30253M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Peripheral Artery, Percutaneous Approach |
| 30253N0 | Transfusion of Autologous Red Blood Cells into Peripheral Artery, Percutaneous Approach |
| 30253N1 | Transfusion of Nonautologous Red Blood Cells into Peripheral Artery, Percutaneous Approach |
| 30253P0 | Transfusion of Autologous Frozen Red Cells into Peripheral Artery, Percutaneous Approach |
| 30253P1 | Transfusion of Nonautologous Frozen Red Cells into Peripheral Artery, Percutaneous Approach |
| 30253Q0 | Transfusion of Autologous White Cells into Peripheral Artery, Percutaneous Approach |
| 30253Q1 | Transfusion of Nonautologous White Cells into Peripheral Artery, Percutaneous Approach |
| 30253R0 | Transfusion of Autologous Platelets into Peripheral Artery, Percutaneous Approach |
| 30253R1 | Transfusion of Nonautologous Platelets into Peripheral Artery, Percutaneous Approach |
| 30253S0 | Transfusion of Autologous Globulin into Peripheral Artery, Percutaneous Approach |
| 30253T0 | Transfusion of Autologous Fibrinogen into Peripheral Artery, Percutaneous Approach |
| 30253V0 | Transfusion of Autologous Antihemophilic Factors into Peripheral Artery, Percutaneous Approach |
| 30253W0 | Transfusion of Autologous Factor IX into Peripheral Artery, Percutaneous Approach |
| 30260H0 | Transfusion of Autologous Whole Blood into Central Artery, Open Approach |
| 30260H1 | Transfusion of Nonautologous Whole Blood into Central Artery, Open Approach |
| 30260J0 | Transfusion of Autologous Serum Albumin into Central Artery, Open Approach |
| 30260J1 | Transfusion of Nonautologous Serum Albumin into Central Artery, Open Approach |
| 30260K0 | Transfusion of Autologous Frozen Plasma into Central Artery, Open Approach |
| 30260K1 | Transfusion of Nonautologous Frozen Plasma into Central Artery, Open Approach |
| 30260L0 | Transfusion of Autologous Fresh Plasma into Central Artery, Open Approach |
| 30260L1 | Transfusion of Nonautologous Fresh Plasma into Central Artery, Open Approach |
| 30260M0 | Transfusion of Autologous Plasma Cryoprecipitate into Central Artery, Open Approach |
| 30260M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Central Artery, Open Approach |
| 30260N0 | Transfusion of Autologous Red Blood Cells into Central Artery, Open Approach |

| | |
|---------|--|
| 30260N1 | Transfusion of Nonautologous Red Blood Cells into Central Artery, Open Approach |
| 30260P0 | Transfusion of Autologous Frozen Red Cells into Central Artery, Open Approach |
| 30260P1 | Transfusion of Nonautologous Frozen Red Cells into Central Artery, Open Approach |
| 30260Q0 | Transfusion of Autologous White Cells into Central Artery, Open Approach |
| 30260Q1 | Transfusion of Nonautologous White Cells into Central Artery, Open Approach |
| 30260R0 | Transfusion of Autologous Platelets into Central Artery, Open Approach |
| 30260R1 | Transfusion of Nonautologous Platelets into Central Artery, Open Approach |
| 30260S0 | Transfusion of Autologous Globulin into Central Artery, Open Approach |
| 30260T0 | Transfusion of Autologous Fibrinogen into Central Artery, Open Approach |
| 30260V0 | Transfusion of Autologous Antihemophilic Factors into Central Artery, Open Approach |
| 30260W0 | Transfusion of Autologous Factor IX into Central Artery, Open Approach |
| 30263H0 | Transfusion of Autologous Whole Blood into Central Artery, Percutaneous Approach |
| 30263H1 | Transfusion of Nonautologous Whole Blood into Central Artery, Percutaneous Approach |
| 30263J0 | Transfusion of Autologous Serum Albumin into Central Artery, Percutaneous Approach |
| 30263J1 | Transfusion of Nonautologous Serum Albumin into Central Artery, Percutaneous Approach |
| 30263K0 | Transfusion of Autologous Frozen Plasma into Central Artery, Percutaneous Approach |
| 30263K1 | Transfusion of Nonautologous Frozen Plasma into Central Artery, Percutaneous Approach |
| 30263L0 | Transfusion of Autologous Fresh Plasma into Central Artery, Percutaneous Approach |
| 30263L1 | Transfusion of Nonautologous Fresh Plasma into Central Artery, Percutaneous Approach |
| 30263M0 | Transfusion of Autologous Plasma Cryoprecipitate into Central Artery, Percutaneous Approach |
| 30263M1 | Transfusion of Nonautologous Plasma Cryoprecipitate into Central Artery, Percutaneous Approach |
| 30263N0 | Transfusion of Autologous Red Blood Cells into Central Artery, Percutaneous Approach |
| 30263N1 | Transfusion of Nonautologous Red Blood Cells into Central Artery, Percutaneous Approach |
| 30263P0 | Transfusion of Autologous Frozen Red Cells into Central Artery, Percutaneous Approach |
| 30263P1 | Transfusion of Nonautologous Frozen Red Cells into Central Artery, Percutaneous Approach |

| | |
|---------|---|
| 30263Q0 | Transfusion of Autologous White Cells into Central Artery, Percutaneous Approach |
| 30263Q1 | Transfusion of Nonautologous White Cells into Central Artery, Percutaneous Approach |
| 30263R0 | Transfusion of Autologous Platelets into Central Artery, Percutaneous Approach |
| 30263R1 | Transfusion of Nonautologous Platelets into Central Artery, Percutaneous Approach |
| 30263S0 | Transfusion of Autologous Globulin into Central Artery, Percutaneous Approach |
| 30263T0 | Transfusion of Autologous Fibrinogen into Central Artery, Percutaneous Approach |
| 30263V0 | Transfusion of Autologous Antihemophilic Factors into Central Artery, Percutaneous Approach |
| 30263W0 | Transfusion of Autologous Factor IX into Central Artery, Percutaneous Approach |

CPT

| | |
|-------|--|
| 36430 | Transfusion blood and blood products |
| 86890 | Under Transfusion Medicine Procedures |
| 86891 | Under Transfusion Medicine Procedures |
| 86985 | Under Transfusion Medicine Procedures |
| P9010 | Blood (whole), for transfusion, per unit |
| P9011 | Blood, split unit |
| P9012 | Cryoprecipitate, each unit |
| P9016 | Red blood cells, leukocytes reduced, each unit |
| P9017 | Fresh frozen plasma (single donor), frozen within 8 hours of collection, each unit |
| P9019 | Platelets, each unit |
| P9020 | Platelet rich plasma, each unit |
| P9021 | Red blood cells, each unit |
| P9022 | Red blood cells, washed, each unit |
| P9023 | Plasma, pooled multiple donor, solvent/detergent treated, frozen, each unit |
| P9032 | Platelets, irradiated, each unit |
| P9033 | Platelets, leukocytes reduced, irradiated, each unit |
| P9034 | Platelets, pheresis, each unit |
| P9035 | Platelets, pheresis, leukocytes reduced, each unit |
| P9036 | Platelets, pheresis, irradiated, each unit |
| P9037 | Platelets, pheresis, leukocytes reduced, irradiated, each unit |
| P9038 | Red blood cells, irradiated, each unit |
| P9039 | Red blood cells, deglycerolized, each unit |

| | |
|-------|---|
| P9040 | Red blood cells, leukocytes reduced, irradiated, each unit |
| P9043 | Infusion, plasma protein fraction |
| P9044 | Plasma, cryoprecipitate reduced, each unit |
| P9048 | Infusion, plasma protein fraction (human), 5%, 250 ml |
| P9050 | Granulocytes, pheresis, each unit |
| P9051 | Whole blood or red blood cells, leukocytes reduced, cmv-negative, each unit |
| P9052 | Platelets, hla-matched leukocytes reduced, apheresis/pheresis, each unit |
| P9053 | Platelets, pheresis, leukocytes reduced, cmv-negative, irradiated, each unit |
| P9054 | Whole blood or red blood cells, leukocytes reduced, frozen, deglycerol, washed, each unit |
| P9055 | Platelets, leukocytes reduced, cmv-negative, apheresis/pheresis, each unit |
| P9056 | Whole blood, leukocytes reduced, irradiated, each unit |
| P9057 | Red blood cells, frozen/deglycerolized/washed, leukocytes reduced, irradiated, each unit |
| P9058 | Red blood cells, leukocytes reduced, cmv-negative, irradiated, each unit |
| P9059 | Fresh frozen plasma between 8-24 hours of collection, each unit |
| P9060 | Fresh frozen plasma, donor retested, each unit |
| P9070 | Plasma, pooled multiple donor, pathogen reduced, frozen, each unit |
| P9071 | Plasma (single donor), pathogen reduced, frozen, each unit |
| P9072 | Platelets, pheresis, pathogen reduced or rapid bacterial tested, each unit |

Bleeding

ICD-10-CM

| | |
|-------|---|
| D62 | Acute posthemorrhagic anemia |
| R58 | Hemorrhage, not elsewhere classified |
| K92.1 | Melena (Black stools that occur as a result of gastrointestinal bleeding) |
| K92.2 | Gastrointestinal hemorrhage, unspecified |

| | |
|---------|---|
| K91.840 | Postprocedural hemorrhage of a digestive system organ or structure following a digestive system procedure |
| K91.841 | Postprocedural hemorrhage of a digestive system organ or structure following other procedure |
| K91.61 | Intraoperative hemorrhage and hematoma of a digestive system organ or structure complicating a digestive system procedure |
| K91.62 | Intraoperative hemorrhage and hematoma of a digestive system organ or structure complicating other procedure |
| K91.870 | Postprocedural hematoma of a digestive system organ or structure following a digestive system procedure |
| K91.871 | Postprocedural hematoma of a digestive system organ or structure following other procedure |