APPENDIX I: Immunocompromised State Diagnosis and Procedure Codes

Immunocompromised state diagnosis codes: (IMMUNID)

B20	Human immunodeficiency virus [HIV] disease	E41	Nutritional marasmus
B59	Pneumocystosis	E42	Marasmic kwashiorkor
C802	Malignant neoplasm associated with transplanted organ	E43	Unspecified severe protein-calorie malnutrition
C888	Other malignant immunoproliferative diseases	I120	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease
C9440	Acute panmyelosis with myelofibrosis not having achieved remission	I1311	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease
C9441	Acute panmyelosis with myelofibrosis, in remission	I132	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease
C9442	Acute panmyelosis with myelofibrosis, in relapse	K912	Postsurgical malabsorption, not elsewhere classified
C946	Myelodysplastic disease, not classified	N185	Chronic kidney disease, stage 5
D4622	Refractory anemia with excess of blasts 2	N186	End stage renal disease
D4701	Cutaneous mastocytosis	T8600	Unspecified complication of bone marrow transplant
D4702	Systemic mastocytosis	T8601	Bone marrow transplant rejection
D4709	Other mast cell neoplasms of uncertain behavior	T8602	Bone marrow transplant failure
D471	Chronic myeloproliferative disease	T8603	Bone marrow transplant infection
D479	Neoplasm of uncertain behavior of lymphoid, hematopoietic and related tissue, unspecified	T8609	Other complications of bone marrow transplant
D47Z1	Post-transplant lymphoproliferative disorder (PTLD)	T8610	Unspecified complication of kidney transplant
D47Z2	Castleman disease	T8611	Kidney transplant rejection
D47Z9	Other specified neoplasms of uncertain behavior of lymphoid, hematopoietic and related tissue	T8612	Kidney transplant failure
D6109	Other constitutional aplastic anemia	T8613	Kidney transplant infection
D61810	Antineoplastic chemotherapy induced pancytopenia	T8619	Other complication of kidney transplant

D61811	Other drug-induced pancytopenia
D61818	Other pancytopenia
D700	Congenital agranulocytosis
D701	Agranulocytosis secondary to cancer chemotherapy
D702	Other drug-induced agranulocytosis
D704	Cyclic neutropenia
D708	Other neutropenia
D709	Neutropenia, unspecified
D71	Functional disorders of polymorphonuclear neutrophils
D720	Genetic anomalies of leukocytes
D72810	Lymphocytopenia
D72818	Other decreased white blood cell count
D72819	Decreased white blood cell count, unspecified
D7381	Neutropenic splenomegaly
D7581	Myelofibrosis
D761	Hemophagocytic lymphohistiocytosis
D762	Hemophagocytic syndrome, infection-associated
D763	Other histiocytosis syndromes
D800	Hereditary hypogammaglobulinemia
D801	Nonfamilial hypogammaglobulinemia
D802	Selective deficiency of immunoglobulin A [IgA]
D803	Selective deficiency of immunoglobulin G [IgG]subclasses
D804	Selective deficiency of immunoglobulin M [IgM]
D805	Immunodeficiency with increased immunoglobulin M [IgM]
D806	Antibody deficiency with near-normal immunoglobulins or with hyperimmunoglobulinemia
D807	Transient hypogammaglobulinemia of infancy
D808	Other immunodeficiencies with predominantly antibody defects
T8620	Unspecified complication of heart transplant
T8621	Heart transplant rejection
T8622	Heart transplant failure
T8623	Heart transplant infection
T86290	Cardiac allograft vasculopathy
T86298	Other complications of heart transplant
T8630	Unspecified complication of heart-lung transplant
T8631	Heart-lung transplant rejection
T8632	Heart-lung transplant failure
T8633	Heart-lung transplant infection
T8639	Other complications of heart-lung transplant
T8640	Unspecified complication of liver transplant
T8641	Liver transplant rejection
T8642	Liver transplant failure
T8643	Liver transplant infection
T8649	Other complications of liver transplant
T865	Complications of stem cell transplant
T86810	Lung transplant rejection
T86811	Lung transplant failure
T86812	Lung transplant infection
T86818	Other complications of lung transplant
T86819	Unspecified complication of lung transplant
T86830	Bone graft rejection
T86831	Bone graft failure
T86832	Bone graft infection
T86838	Other complications of bone graft
T86839	Unspecified complication of bone graft

D809	Immunodeficiency with predominantly antibody defects, unspecified	T86850	Intestine transplant rejection
D810	Severe combined immunodeficiency [SCID] with reticular dysgenesis	T86851	Intestine transplant failure
D811	Severe combined immunodeficiency [SCID] with low T-and B-cell numbers	T86852	Intestine transplant infection
D812	Severe combined immunodeficiency [SCID] with low or normal B-cell numbers	T86858	Other complications of intestine transplant
D8130	Adenosine deaminase deficiency, unspecified	T86859	Unspecified complication of intestine transplant
D8131	Severe combined immunodeficiency due to adenosine deaminase deficiency	T86890	Other transplanted tissue rejection
D8132	Adenosine deaminase 2 deficiency	T86891	Other transplanted tissue failure
D8139	Other adenosine deaminase deficiency	T86892	Other transplanted tissue infection
D814	Nezelof's syndrome	T86898	Other complications of other transplanted tissue
D816	Major histocompatibility complex class I deficiency	T86899	Unspecified complication of other transplanted tissue
D817	Major histocompatibility complex class II deficiency	T8690	Unspecified complication of unspecified transplanted organ and tissue
D8189	Other combined immunodeficiencies	T8691	Unspecified transplanted organ and tissue rejection
D819	Combined immunodeficiency, unspecified	T8692	Unspecified transplanted organ and tissue failure
D820	Wiskott-Aldrich syndrome	T8693	Unspecified transplanted organ and tissue infection
D821	Di George's syndrome	T8699	Other complications of unspecified transplanted organ and tissue
D822	Immunodeficiency with short-limbed stature	Z4821	Encounter for aftercare following heart transplant
D823	Immunodeficiency following hereditary defective response to Epstein-Barr virus	Z4822	Encounter for aftercare following kidney transplant
D824	Hyperimmunoglobulin E [IgE] syndrome	Z4823	Encounter for aftercare following liver transplant
D828	Immunodeficiency associated with other specified major defects	Z4824	Encounter for aftercare following lung transplant
D829	Immunodeficiency associated with major defect, unspecified	Z48280	Encounter for aftercare following heart-lung transplant

D830	Common variable immunodeficiency with predominant abnormalities of B-cell numbers and function	Z48288	Encounter for aftercare following multiple organ transplant
D831	Common variable immunodeficiency with predominant immunoregulatory T-cell disorders	Z48290	Encounter for aftercare following bone marrow transplant
D832	Common variable immunodeficiency with autoantibodies to B- or T-cells	Z48298	Encounter for aftercare following other organ transplant
D838	Other common variable immunodeficiencies	Z4901	Encounter for fitting and adjustment of extracorporeal dialysis catheter
D839	Common variable immunodeficiency, unspecified	Z4902	Encounter for fitting and adjustment of peritoneal dialysis catheter
D840	Lymphocyte function antigen-1 [LFA-1] defect	Z4931	Encounter for adequacy testing for hemodialysis
D841	Defects in the complement system	Z4932	Encounter for adequacy testing for peritoneal dialysis
D848	Other specified immunodeficiencies	Z940	Kidney transplant status
D849	Immunodeficiency, unspecified	Z941	Heart transplant status
D893	Immune reconstitution syndrome	Z942	Lung transplant status
D89810	Acute graft-versus-host disease	Z943	Heart and lungs transplant status
D89811	Chronic graft-versus-host disease	Z944	Liver transplant status
D89812	Acute on chronic graft-versus-host disease	Z9481	Bone marrow transplant status
D89813	Graft-versus-host disease, unspecified	Z9482	Intestine transplant status
D8982	Autoimmune lymphoproliferative syndrome [ALPS]	Z9483	Pancreas transplant status
D8989	Other specified disorders involving the immune mechanism, not elsewhere classified	Z9484	Stem cells transplant status
D899	Disorder involving the immune mechanism, unspecified	Z9489	Other transplanted organ and tissue status
E40	Kwashiorkor	Z992	Dependence on renal dialysis

Immunocompromised state procedure codes: (IMMUNIP)

02YA0Z0	Transplantation of Heart, Allogeneic, Open Approach	30233Y4	Transfusion of Allogeneic Unspecified Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
02YA0Z2	Transplantation of Heart, Zooplastic, Open Approach	30240AZ	Transfusion of Embryonic Stem Cells into Central Vein, Open Approach
0BYC0Z0	Transplantation of Right Upper Lung Lobe, Allogeneic, Open Approach	30240G0	Transfusion of Autologous Bone Marrow into Central Vein, Open Approach

0BYC0Z2	Transplantation of Right Upper Lung Lobe, Zooplastic, Open Approach
0BYD0Z0	Transplantation of Right Middle Lung Lobe, Allogeneic, Open Approach
0BYD0Z2	Transplantation of Right Middle Lung Lobe, Zooplastic, Open Approach
0BYF0Z0	Transplantation of Right Lower Lung Lobe, Allogeneic, Open Approach
0BYF0Z2	Transplantation of Right Lower Lung Lobe, Zooplastic, Open Approach
0BYG0Z0	Transplantation of Left Upper Lung Lobe, Allogeneic, Open Approach
0BYG0Z2	Transplantation of Left Upper Lung Lobe, Zooplastic, Open Approach
0BYH0Z0	Transplantation of Lung Lingula, Allogeneic, Open Approach
0BYH0Z2	Transplantation of Lung Lingula, Zooplastic, Open Approach
0BYJ0Z0	Transplantation of Left Lower Lung Lobe, Allogeneic, Open Approach
0BYJ0Z2	Transplantation of Left Lower Lung Lobe, Zooplastic, Open Approach
0BYK0Z0	Transplantation of Right Lung, Allogeneic, Open Approach
0BYK0Z2	Transplantation of Right Lung, Zooplastic, Open Approach

30240G1	Transfusion of Nonautologous Bone Marrow into Central Vein, Open Approach
30240G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Open Approach
30240G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Open Approach
30240G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Open Approach
30240U2	Transfusion of Allogeneic Related T-cell Depleted Hematopoietic Stem Cells into Central Vein, Open Approach
30240U3	Transfusion of Allogeneic Unrelated T-cell Depleted Hematopoietic Stem Cells into Central Vein, Open Approach
30240U4	Transfusion of Allogeneic Unspecified T-cell Depleted Hematopoietic Stem Cells into Central Vein, Open Approach
30240X0	Transfusion of Autologous Cord Blood Stem Cells into Central Vein, Open Approach
30240X1	Transfusion of Nonautologous Cord Blood Stem Cells into Central Vein, Open Approach
30240X2	Transfusion of Allogeneic Related Cord Blood Stem Cells into Central Vein, Open Approach
30240X3	Transfusion of Allogeneic Unrelated Cord Blood Stem Cells into Central Vein, Open Approach
30240X4	Transfusion of Allogeneic Unspecified Cord Blood Stem Cells into Central Vein, Open Approach
30240Y0	Transfusion of Autologous Hematopoietic Stem Cells into Central Vein, Open Approach

0BYL0Z0	Transplantation of Left Lung, Allogeneic, Open Approach	30240Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Central Vein, Open Approach
0BYL0Z2	Transplantation of Left Lung, Zooplastic, Open Approach	30240Y2	Transfusion of Allogeneic Related Hematopoietic Stem Cells into Central Vein, Open Approach
0BYM0Z0	Transplantation of Bilateral Lungs, Allogeneic, Open Approach	30240Y3	Transfusion of Allogeneic Unrelated Hematopoietic Stem Cells into Central Vein, Open Approach
0BYM0Z2	Transplantation of Bilateral Lungs, Zooplastic, Open Approach	30240Y4	Transfusion of Allogeneic Unspecified Hematopoietic Stem Cells into Central Vein, Open Approach
0DY50Z0	Transplantation of Esophagus, Allogeneic, Open Approach	30243AZ	Transfusion of Embryonic Stem Cells into Central Vein, Percutaneous Approach
0DY50Z2	Transplantation of Esophagus, Zooplastic, Open Approach	30243G0	Transfusion of Autologous Bone Marrow into Central Vein, Percutaneous Approach
0DY60Z0	Transplantation of Stomach, Allogeneic, Open Approach	30243G1	Transfusion of Nonautologous Bone Marrow into Central Vein, Percutaneous Approach
0DY60Z2	Transplantation of Stomach, Zooplastic, Open Approach	30243G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Percutaneous Approach
0DY80Z0	Transplantation of Small Intestine, Allogeneic, Open Approach	30243G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Percutaneous Approach
0DY80Z2	Transplantation of Small Intestine, Zooplastic, Open Approach	30243G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Percutaneous Approach
0DYE0Z0	Transplantation of Large Intestine, Allogeneic, Open Approach	30243U2	Transfusion of Allogeneic Related T-cell Depleted Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
0DYE0Z2	Transplantation of Large Intestine, Zooplastic, Open Approach	30243U3	Transfusion of Allogeneic Unrelated T-cell Depleted Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
0FY00Z0	Transplantation of Liver, Allogeneic, Open Approach	30243U4	Transfusion of Allogeneic Unspecified T-cell Depleted Hematopoietic Stem Cells into Central Vein, Percutaneous Approach

0FY00Z2	Transplantation of Liver, Zooplastic, Open Approach
0FYG0Z0	Transplantation of Pancreas, Allogeneic, Open Approach
0FYG0Z2	Transplantation of Pancreas, Zooplastic, Open Approach
0TY00Z0	Transplantation of Right Kidney, Allogeneic, Open Approach
0TY00Z2	Transplantation of Right Kidney, Zooplastic, Open Approach
0TY10Z0	Transplantation of Left Kidney, Allogeneic, Open Approach
0TY10Z2	Transplantation of Left Kidney, Zooplastic, Open Approach
0WY20Z0	Transplantation of Face, Allogeneic, Open Approach
0XYJ0Z0	Transplantation of Right Hand, Allogeneic, Open Approach
0XYK0Z0	Transplantation of Left Hand, Allogeneic, Open Approach
30230AZ	Transfusion of Embryonic Stem Cells into Peripheral Vein, Open Approach
30230G0	Transfusion of Autologous Bone Marrow into Peripheral Vein, Open Approach
30230G1	Transfusion of Nonautologous Bone Marrow into Peripheral Vein, Open Approach
30230G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Open Approach
30243X0	Transfusion of Autologous Cord Blood Stem Cells into Central Vein, Percutaneous Approach
30243X1	Transfusion of Nonautologous Cord Blood Stem Cells into Central Vein, Percutaneous Approach
30243X2	Transfusion of Allogeneic Related Cord Blood Stem Cells into Central Vein, Percutaneous Approach
30243X3	Transfusion of Allogeneic Unrelated Cord Blood Stem Cells into Central Vein, Percutaneous Approach
30243X4	Transfusion of Allogeneic Unspecified Cord Blood Stem Cells into Central Vein, Percutaneous Approach
30243Y0	Transfusion of Autologous Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
30243Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
30243Y2	Transfusion of Allogeneic Related Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
30243Y3	Transfusion of Allogeneic Unrelated Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
30243Y4	Transfusion of Allogeneic Unspecified Hematopoietic Stem Cells into Central Vein, Percutaneous Approach
3E03005	Introduction of Other Antineoplastic into Peripheral Vein, Open Approach
3E0300M	Introduction of Monoclonal Antibody into Peripheral Vein, Open Approach
3E0300P	Introduction of Clofarabine into Peripheral Vein, Open Approach
3E030U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Open Approach

30230G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Open Approach
30230G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Open Approach
30230U2	Transfusion of Allogeneic Related T-cell Depleted Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30230U3	Transfusion of Allogeneic Unrelated T-cell Depleted Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30230U4	Transfusion of Allogeneic Unspecified T-cell Depleted Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30230X0	Transfusion of Autologous Cord Blood Stem Cells into Peripheral Vein, Open Approach
30230X1	Transfusion of Nonautologous Cord Blood Stem Cells into Peripheral Vein, Open Approach
30230X2	Transfusion of Allogeneic Related Cord Blood Stem Cells into Peripheral Vein, Open Approach
30230X3	Transfusion of Allogeneic Unrelated Cord Blood Stem Cells into Peripheral Vein, Open Approach
30230X4	Transfusion of Allogeneic Unspecified Cord Blood Stem Cells into Peripheral Vein, Open Approach
30230Y0	Transfusion of Autologous Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30230Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30230Y2	Transfusion of Allogeneic Related Hematopoietic Stem Cells into Peripheral Vein, Open Approach
3E030WL	Introduction of Immunosuppressive into Peripheral Vein, Open
3E03305	Introduction of Other Antineoplastic into Peripheral Vein, Percutaneous Approach
3E0330M	Introduction of Monoclonal Antibody into Peripheral Vein, Percutaneous Approach
3E0330P	Introduction of Clofarabine into Peripheral Vein, Percutaneous Approach
3E033U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Percutaneous Approach
3E033WL	Introduction of Immunosuppressive into Peripheral Vein, Percutaneous
3E04005	Introduction of Other Antineoplastic into Central Vein, Open Approach
3E0400M	Introduction of Monoclonal Antibody into Central Vein, Open Approach
3E0400P	Introduction of Clofarabine into Central Vein, Open Approach
3E040WL	Introduction of Immunosuppressive into Central Vein, Open
3E04305	Introduction of Other Antineoplastic into Central Vein, Percutaneous Approach
3E0430M	Introduction of Monoclonal Antibody into Central Vein, Percutaneous Approach
3E0430P	Introduction of Clofarabine into Central Vein, Percutaneous Approach

30230Y3	Transfusion of Allogeneic Unrelated Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30230Y4	Transfusion of Allogeneic Unspecified Hematopoietic Stem Cells into Peripheral Vein, Open Approach
30233AZ	Transfusion of Embryonic Stem Cells into Peripheral Vein, Percutaneous Approach
30233G0	Transfusion of Autologous Bone Marrow into Peripheral Vein, Percutaneous Approach
30233G1	Transfusion of Nonautologous Bone Marrow into Peripheral Vein, Percutaneous Approach
30233G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Percutaneous Approach
30233G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Percutaneous Approach
30233G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Percutaneous Approach
30233U2	Transfusion of Allogeneic Related T-cell Depleted Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
30233U3	Transfusion of Allogeneic Unrelated T-cell Depleted Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
30233U4	Transfusion of Allogeneic Unspecified T-cell Depleted Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
3E043WL	Introduction of Immunosuppressive into Central Vein, Percutaneous
3E0A305	Introduction of Other Antineoplastic into Bone Marrow, Percutaneous Approach
3E0A30M	Introduction of Monoclonal Antibody into Bone Marrow, Percutaneous Approach
3E0D705	Introduction of Other Antineoplastic into Mouth and Pharynx, Via Natural or Artificial Opening
3E0G705	Introduction of Other Antineoplastic into Upper GI, Via Natural or Artificial Opening
3E0J3U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Percutaneous Approach
3E0J7U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening
3E0J8U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening Endoscopic
XW03351	Introduction of Blinatumomab Antineoplastic Immunotherapy into Peripheral Vein, Percutaneous Approach, New Technology Group 1
XW033B3	Introduction of Cytarabine and Daunorubicin Liposome Antineoplastic into Peripheral Vein, Percutaneous Approach, New Technology Group 3
XW033Q5	Introduction of Tagraxofusp-erzs Antineoplastic into Peripheral Vein, Percutaneous Approach, New Technology Group 5

30233X0	Transfusion of Autologous Cord Blood Stem Cells into Peripheral Vein, Percutaneous Approach
30233X1	Transfusion of Nonautologous Cord Blood Stem Cells into Peripheral Vein, Percutaneous Approach
30233X2	Transfusion of Allogeneic Related Cord Blood Stem Cells into Peripheral Vein, Percutaneous Approach
30233X3	Transfusion of Allogeneic Unrelated Cord Blood Stem Cells into Peripheral Vein, Percutaneous Approach
30233X4	Transfusion of Allogeneic Unspecified Cord Blood Stem Cells into Peripheral Vein, Percutaneous Approach
30233Y0	Transfusion of Autologous Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
30233Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
30233Y2	Transfusion of Allogeneic Related Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach
30233Y3	Transfusion of Allogeneic Unrelated Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach

XW033S5	Introduction of Iobenguane I-131 Antineoplastic into Peripheral Vein, Percutaneous Approach, New Technology Group 5
XW04351	Introduction of Blinatumomab Antineoplastic Immunotherapy into Central Vein, Percutaneous Approach, New Technology Group 1
XW043B3	Introduction of Cytarabine and Daunorubicin Liposome Antineoplastic into Central Vein, Percutaneous Approach, New Technology Group 3
XW043Q5	Introduction of Tagraxofusp-erzs Antineoplastic into Central Vein, Percutaneous Approach, New Technology Group 5
XW043S5	Introduction of Iobenguane I-131 Antineoplastic into Central Vein, Percutaneous Approach, New Technology Group 5
XW0DXJ5	Introduction of Apalutamide Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5
XW0DXL5	Introduction of Erdafitinib Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5
XW0DXR5	Introduction of Venetoclax Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5
XW0DXT5	Introduction of Ruxolitinib into Mouth and Pharynx, External Approach, New Technology Group 5
XW0DXV5	Introduction of Gilteritinib Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5