SUPPLEMENTAL MATERIAL
Table S1. Administrative Codes Employed in the Identification of Periprocedural Complications.

| Grouping                                      | ICD-10 or CCI code or OHIP billing code                                                                 |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------|
| **Bleeding complications**                    | D78.02; D78.22; E36.02; E89.811; G97.32; G97.52; H59.121; H59.122; H59.123; H59.129; H59.321; H59.322; H59.323; H59.329; H95.22; H95.42; I97.410; I97.411; I97.418; I97.42; I97.610; I97.611; I97.618; I97.620; J95.62; J95.831; K91.62; K91.841; L76.02; L76.22; M96.811; M96.831; N99.62; N99.821; D78.12; E36.12; G97.49; H59.229; H95.32; I97.51; I97.52; J95.72; K91.72; L76.12; M96.821; N99.72; T88.8XXA; K66.1 I60; I61; I62.0; I62.1; I62.9; K92.0; K92.1; K92.2; I85.0; I98.20; I98.3; K22.10; K22.12; K22.14; K22.16; K25.0; K25.2; K25.4; K25.6; K26.0; K26.2; K26.4; K26.6; K27.0; K27.2; K27.4; K27.6; K28.0; K28.2; K28.4; K28.6; K29.0; K63.80; K31.80; K55.20; K62.5; K92.2; K66.1; R04.0; R04.1; R04.2; R04.8; R04.9; H35.6; H43.1; H45.0; M25.0; M79.81; I32.0; N02.0; N02.1; N02.2; N02.3; N02.4; N02.5; N02.6; N02.7; N02.8; N02.9; R31.0; R31.1; R31.9; N93.8; N93.9; N95.0; R58; D68.3 |
| **Transfusion**                                | 1.LZ.19.^^                                                                                              |
| **Vascular complications**                    | T81.718A; T81.72XA; T80.1XXA; S09.0XXS; S15.9XXS; S45.909S; S55.909S; S65.909S; S75.909S; S85.909S; S95.909S; S25.90XS; S35.90XS; T88.9XXS; I77.0; I77.2; S15.009A; S15.309A; S15.209A; S09.0XXA; S15.8XXA; S15.9XXA; S25.00XA; S25.109A; S25.20XA; S25.309A; S25.409A; S25.509A; S25.09XA; S45.809A; S45.009A; S45.109A; S45.209A; S55.109A; S65.109A; S65.009A; S65.909A; S65.209A; S65.309A; S65.409A; S65.509A; S45.809A; S75.009A; S75.209A; S85.309A; S85.409A; S85.009A; S85.509A; S85.909A; S85.109A; S85.139A; S85.809A; S85.169A; S95.109A; S75.809A; S95.809A; 1.IA.80; 1.IB.80; 1.IC.80; 1.ID.80; 1.IJ.80; 1.IK.80; 1.IM.80; 1.IN.80; 1.IS.80; 1.JE.80; 1.JJ.80; 1.JK.80; 1.JL.80; 1.JM.80; 1.JQ.80; 1.JT.80; 1.JU.80; 1.JW.80; 1.JX.80; 1.JY.80; 1.KG.80; 1.KR.80; 1.KT.80; 1.KV.80; 1.KX.80; 1.KY.80; 1.KZ.80 |
| **Vascular complications involving the lower extremities** | S75.909S; S85.909S; S95.909S; S75.009A; S75.209A; S85.309A; S85.409A; S85.009A; S85.509A; S85.009A; S85.169A; S95.109A; S75.809A; S95.809A |
| Complications involving interventional/surgical therapy | Z341; E650; E682; M134; M137; Z401; R790; R795; R862; R781; R708; R783; R784; R785; R855; R856; R808; R873; R864; R825; R826; R818; R819; R820; Z226; 1.VZ.70; 1.IA.80; 1.IB.80; 1.IC.80; 1.ID.80; 1.IJ.80; 1.IK.80; 1.IM.80; 1.IN.80; 1.IS.80; 1.JE.80; 1.JJ.80; 1.JK.80; 1.JL.80; 1.JM.80; 1.JQ.80; 1.JT.80; 1.JU.80; 1.JW.80; 1.JX.80; 1.JY.80; 1.KG.80; 1.KR.80; 1.KT.80; 1.KV.80; 1.KX.80; 1.KY.80; 1.KZ.80; 1.HA.52; 1.HM.80; 1.HM.78; 1.HP.80; 1.HP.78; 1.HZ.80; 1.GV.52.^^ |
| Respiratory complications | J95.851; J95.89; J95.859; J95.88; J95.89; J95.811; J90; J94.2; J94.8; 1.GV.52.^^ |
| Cardiac complications | I97.710; I97.790; I97.88; I97.89; I31.2; I31.4; T82.519A; T82.529A; T82.539A; T82.599A; T82.528A; T82.538A; T82.598A; 1.HA.52; I21.x; I22.x; I25.2; I50.x; 1.HM.80; 1.HM.78; 1.HP.80; 1.HP.78; 1.HZ.80 |
| Neurologic complications | I97.811; I97.821; I60.0; I60.1; I60.2; I60.3; I60.4; I60.5; I60.6; I60.7; I60.9; I61.x; I63.0; I63.1; I63.2; I63.4; I63.5; I63.8; I63.9; I64.x; H34.1; G45.0; G45.1; G45.2; G45.3; G45.8; G45.9; I63; I65; I66; G97.32; G97.52; G97.49 |
| Genitourinary complications | N99.89 |

CCI indicated Canadian Classification of Health Interventions; OHIP, Ontario Health Insurance Plan; ICD-10 = International Statistical Classification of Diseases and Related Health Problems, 10th revision.

Codes to define peri-procedural complications were derived from a compendium of diagnostic codes from ICD-10, procedure codes from CCI, and physician billing codes from OHIP.

Canadian Classification of Health Interventions, 4th edition, Canadian Institute of Health Information (2015). https://www.cihi.ca/sites/default/files/cihi_volume_four_2015_en_0.pdf. Accessed April 25 2018.

Schedule of benefits. Physician services under the Health Insurance Act. Ministry of health and Long Term Care, Ontario (2015). http://www.health.gov.on.ca/en/pro/programs/ohip/sob/physserv/sob_master11062015.pdf. Accessed April 25 2018.
Table S2. Administrative Codes with their Associated Definitions Employed in the Identification of Periprocedural Complications.

| Grouping                  | ICD-10, CCI, or OHIP code | Description                                                                 |
|---------------------------|---------------------------|-----------------------------------------------------------------------------|
| Bleeding complications    | D78.02                    | Intraoperative hemorrhage and hematoma of the spleen complicating other procedure |
|                           | D78.22                    | Postprocedural hemorrhage of the spleen following other procedure            |
|                           | E36.02                    | Intraoperative hemorrhage and hematoma of an endocrine system organ or structure complicating other procedure |
|                           | E89.811                   | Postprocedural hemorrhage of an endocrine system organ or structure following other procedure |
|                           | G97.32                    | Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating other procedure |
|                           | G97.52                    | Postprocedural hemorrhage of a nervous system organ or structure following other procedure |
|                           | H59.121                   | Intraoperative hemorrhage and hematoma of right eye and adnexa complicating other procedure |
|                           | H59.122                   | Intraoperative hemorrhage and hematoma of left eye and adnexa complicating other procedure |
|                           | H59.123                   | Intraoperative hemorrhage and hematoma of eye and adnexa complicating other procedure, bilateral |
|                           | H59.129                   | Intraoperative hemorrhage and hematoma of unspecified eye and adnexa complicating other procedure |
|                           | H59.321                   | Postprocedural hemorrhage of right eye and adnexa following other procedure |
|                           | H59.322                   | Postprocedural hemorrhage of left eye and adnexa following other procedure |
|                           | H59.323                   | Postprocedural hemorrhage of eye and adnexa following other procedure, bilateral |
|                           | H59.329                   | Postprocedural hemorrhage of unspecified eye and adnexa following other procedure |
|                           | H95.22                    | Intraoperative hemorrhage and hematoma of ear and mastoid process complicating other procedure |
|                           | H95.42                    | Postprocedural hemorrhage of ear and mastoid process following other procedure |
|                           | I97.410                   | Intraoperative hemorrhage and hematoma of a circulatory system organ or structure complicating a cardiac catheterization |
|                           | I97.411                   | Intraoperative hemorrhage and hematoma of a circulatory system organ or structure complicating a cardiac bypass |
| Code   | Description                                                                 |
|--------|-----------------------------------------------------------------------------|
| I97.418| Intraoperative hemorrhage and hematoma of a circulatory system organ or structure complicating other circulatory system procedure |
| I97.42 | Intraoperative hemorrhage and hematoma of a circulatory system organ or structure complicating other procedure |
| I97.610| Postprocedural hemorrhage of a circulatory system organ or structure following a cardiac catheterization |
| I97.611| Postprocedural hemorrhage of a circulatory system organ or structure following cardiac bypass |
| I97.618| Postprocedural hemorrhage of a circulatory system organ or structure following other circulatory system procedure |
| I97.620| Postprocedural hemorrhage of a circulatory system organ or structure following other procedure |
| J95.62 | Intraoperative hemorrhage and hematoma of a respiratory system organ or structure complicating other procedure |
| J95.831| Postprocedural hemorrhage of a respiratory system organ or structure following other procedure |
| K91.62 | Intraoperative hemorrhage and hematoma of a digestive system organ or structure complicating other procedure |
| K91.841| Postprocedural hemorrhage of a digestive system organ or structure following other procedure |
| L76.02 | Intraoperative hemorrhage and hematoma of skin and subcutaneous tissue complicating other procedure |
| L76.22 | Postprocedural hemorrhage of skin and subcutaneous tissue following other procedure |
| M96.811| Intraoperative hemorrhage and hematoma of a musculoskeletal structure complicating other procedure |
| M96.831| Postprocedural hemorrhage of a musculoskeletal structure following other procedure |
| N99.62 | Intraoperative hemorrhage and hematoma of a genitourinary system organ or structure complicating other procedure |
| N99.821| Postprocedural hemorrhage of a genitourinary system organ or structure following other procedure |
| D78.12 | Accidental puncture and laceration of the spleen during other procedure |
| E36.12 | Accidental puncture and laceration of an endocrine system organ or structure during other procedure |
| G97.49 | Accidental puncture and laceration of other nervous system organ or structure during other procedure |
| H59.229| Accidental puncture and laceration of unspecified eye and adnexa during other procedure |
| H95.32 | Accidental puncture and laceration of the ear and mastoid process during other procedure |
| Code   | Description                                                                 |
|--------|-----------------------------------------------------------------------------|
| I97.51 | Accidental puncture and laceration of a circulatory system organ or structure during a circulatory system procedure |
| I97.52 | Accidental puncture and laceration of a circulatory system organ or structure during other procedure |
| J95.72 | Accidental puncture and laceration of a respiratory system organ or structure during other procedure |
| K91.72 | Accidental puncture and laceration of a digestive system organ or structure during other procedure |
| L76.12 | Accidental puncture and laceration of skin and subcutaneous tissue during other procedure |
| M96.821| Accidental puncture and laceration of a musculoskeletal structure during other procedure |
| N99.72 | Accidental puncture and laceration of a genitourinary system organ or structure during other procedure |
| T88.8XXA | Other specified complications of surgical and medical care, not elsewhere classified, initial encounter |
| K66.1  | Hemoperitoneum                                                              |
| T81.718A | Complication of other artery following a procedure, not elsewhere classified, initial encounter |
| T81.72XA | Complication of vein following a procedure, not elsewhere classified, initial encounter |
| T80.1XXA | Vascular complications following infusion, transfusion and therapeutic injection, initial encounter |
| S09.0XXS | Injury of blood vessels of head, not elsewhere classified, sequela          |
| S15.9XXS | Injury of unspecified blood vessel at neck level, sequela                   |
| S45.909S | Unspecified injury of unspecified blood vessel at shoulder and upper arm level, unspecified arm, sequela |
| S55.909S | Unspecified injury of unspecified blood vessel at forearm level, unspecified arm, sequela |
| S65.909S | Unspecified injury of unspecified blood vessel at wrist and hand level of unspecified arm, sequela |
| S75.909S | Unspecified injury of unspecified blood vessel at hip and thigh level, unspecified leg, sequela |
| S85.909S | Unspecified injury of unspecified blood vessel at lower leg level, unspecified leg, sequela |
| S95.909S | Unspecified injury of unspecified blood vessel at ankle and foot level, unspecified leg, sequela |
| S25.90XS | Unspecified injury of unspecified blood vessel of thorax, sequela           |
| S35.90XS | Unspecified injury of unspecified blood vessel at abdomen, lower back and pelvis level, sequela |
| Code       | Description                                                                                   |
|------------|----------------------------------------------------------------------------------------------|
| T88.9XXS   | Complication of surgical and medical care, unspecified, sequela                              |
| I77.0      | Arteriovenous fistula, acquired                                                               |
| I77.2      | Rupture of artery                                                                            |
| S15.009A   | Unspecified injury of unspecified carotid artery, initial encounter                           |
| S15.309A   | Unspecified injury of unspecified internal jugular vein, initial encounter                    |
| S15.209A   | Unspecified injury of unspecified external jugular vein, initial encounter                    |
| S09.0XXA   | Injury of blood vessels of head, not elsewhere classified, initial encounter                   |
| 15.8XXA    | Injury of other specified blood vessels at neck level, initial encounter                       |
| S15.9XXA   | Injury of unspecified blood vessel at neck level, initial encounter                            |
| S25.00XA   | Unspecified injury of thoracic aorta, initial encounter                                       |
| S25.109A   | Unspecified injury of unspecified innominate or subclavian artery, initial encounter           |
| S25.20XA   | Unspecified injury of superior vena cava, initial encounter                                  |
| 25.309A    | Unspecified injury of unspecified innominate or subclavian vein, initial encounter             |
| S25.409A   | Unspecified injury of unspecified pulmonary blood vessels, initial encounter                  |
| S25.509A   | Unspecified injury of intercostal blood vessels, unspecified side, initial encounter          |
| S25.90XA   | Unspecified injury of unspecified blood vessel of thorax, initial encounter                   |
| S45.809A   | Unspecified injury of other specified blood vessels at shoulder and upper arm level, unspecified arm, initial encounter |
| S45.009A   | Unspecified injury of axillary artery, unspecified side, initial encounter                    |
| S45.109A   | Unspecified injury of brachial artery, unspecified side, initial encounter                    |
| S45.209A   | Unspecified injury of axillary or brachial vein, unspecified side, initial encounter          |
| S55.109A   | Unspecified injury of radial artery at forearm level, unspecified arm, initial encounter      |
| S65.109A   | Unspecified injury of radial artery at wrist and hand level of unspecified arm, initial encounter |
| S55.009A   | Unspecified injury of ulnar artery at forearm level, unspecified arm, initial encounter       |
| S65.009A   | Unspecified injury of ulnar artery at wrist and hand level of unspecified arm, initial encounter |
| S65.209A   | Unspecified injury of superficial palmar arch of unspecified hand, initial encounter          |
| S65.309A   | Unspecified injury of deep palmar arch of unspecified hand, initial encounter                 |
| S65.409A   | Unspecified injury of blood vessel of unspecified thumb, initial encounter                    |
| S65.509A   | Unspecified injury of blood vessel of unspecified finger, initial encounter                   |
| S45.809A   | Unspecified injury of other specified blood vessels at shoulder and upper arm level, unspecified arm, initial encounter |
| S75.009A   | Unspecified injury of femoral artery, unspecified leg, initial encounter                      |
| Code       | Description                                                                 |
|------------|-----------------------------------------------------------------------------|
| S75.209A   | Unspecified injury of greater saphenous vein at hip and thigh level, unspecified leg, initial encounter |
| S85.309A   | Unspecified injury of greater saphenous vein at lower leg level, unspecified leg, initial encounter |
| S85.409A   | Unspecified injury of lesser saphenous vein at lower leg level, unspecified leg, initial encounter |
| S85.009A   | Unspecified injury of popliteal artery, unspecified leg, initial encounter   |
| S85.509A   | Unspecified injury of popliteal vein, unspecified leg, initial encounter     |
| S85.109A   | Unspecified injury of unspecified tibial artery, unspecified leg, initial encounter |
| S85.139A   | Unspecified injury of anterior tibial artery, unspecified leg, initial encounter |
| S85.809A   | Unspecified injury of other blood vessels at lower leg level, unspecified leg, initial encounter |
| S85.169A   | Unspecified injury of posterior tibial artery, unspecified leg, initial encounter |
| S95.109A   | Unspecified injury of plantar artery of unspecified foot, initial encounter  |
| S75.809A   | Unspecified injury of other blood vessels at hip and thigh level, unspecified leg, initial encounter |
| S95.809A   | Unspecified injury of other blood vessels at ankle and foot level, unspecified leg, initial encounter |
| 1.IA.80    | Ascending aorta repair                                                      |
| 1.IB.80    | Aortic arch repair                                                          |
| 1.IC.80    | Descending aorta repair                                                     |
| 1.ID.80    | Aortic NEC repair                                                           |
| 1.IJ.80    | Coronary artery repair                                                      |
| 1.IK.80    | Coronary vein repair                                                        |
| 1.1M.80    | Pulmonary artery repair                                                     |
| 1.1N.80    | Pulmonary vein repair                                                       |
| 1.1S.80    | Vena caval repair                                                           |
| 1.JE.80    | Carotid artery repair                                                       |
| 1.JJ.80    | Brachiocephalic artery repair                                               |
| 1.JK.80    | Subclavian artery repair                                                    |
| 1.JL.80    | Internal mammary artery repair                                              |
| 1.JM.80    | Arteries of arm NEC repair                                                  |
| Code  | Description                                    |
|-------|-----------------------------------------------|
| I60; I61; I62.0; I62.1; I62.9; K92.0; K92.1; K92.2; I85.0; I98.20; I98.3; K22.10; K22.12; K22.14; K22.16; K25.4; K25.6; K26.0; K26.2; K26.4; K26.6; K27.0; K27.2; K27.4; K27.6; K28.0; K28.2; K28.4; K28.6; K29.0; K63.80; K31.80; | Bleeding |
| 1.JQ.80 | Jugular vein repair                           |
| 1.JT.80 | Subclavian vein repair                        |
| 1.JU.80 | Veins of arm NEC repair                      |
| 1.JW.80 | Intracranial vessel repair                   |
| 1.JX.80 | Other vessels of head, neck, or spine NEC, repair |
| 1.JY.80 | Thoracic vessels NEC, repair                  |
| 1.KG.80 | Arteries of the leg NEC, repair               |
| 1.KR.80 | Vein of leg NEC, repair                       |
| 1.KT.80 | Vessels of the pelvis, perineum and gluteal region repair |
| 1.KV.80 | Artery NEC, repair                            |
| 1.KX.80 | Vein NEC, repair                              |
| 1.KY.80 | Artery with vein, repair                      |
| Vascular complications involving the lower extremities | Code | Description |
|------------------------------------------------------|------|-------------|
|                                                      | S75.909S | Unspecified injury of unspecified blood vessel at hip and thigh level, unspecified leg, sequela |
|                                                      | S85.909S | Unspecified injury of unspecified blood vessel at lower leg level, unspecified leg, sequela |
|                                                      | S95.909S | Unspecified injury of unspecified blood vessel at ankle and foot level, unspecified leg, sequela |
|                                                      | S75.009A | Unspecified injury of femoral artery, unspecified leg, initial encounter |
|                                                      | S75.209A | Unspecified injury of greater saphenous vein at hip and thigh level, unspecified leg, initial encounter |
|                                                      | S85.309A | Unspecified injury of greater saphenous vein at lower leg level, unspecified leg, initial encounter |
|                                                      | S85.409A | Unspecified injury of lesser saphenous vein at lower leg level, unspecified leg, initial encounter |
|                                                      | S85.009A | Unspecified injury of popliteal artery, unspecified leg, initial encounter |
| Code     | Description                                                                 |
|----------|-----------------------------------------------------------------------------|
| S85.509A | Unspecified injury of popliteal vein, unspecified leg, initial encounter     |
| S85.009A | Unspecified injury of popliteal artery, unspecified leg, initial encounter   |
| S85.509A | Unspecified injury of popliteal vein, unspecified leg, initial encounter     |
| S85.109A | Unspecified injury of unspecified tibial artery, unspecified leg, initial encounter |
| S85.139A | Unspecified injury of anterior tibial artery, unspecified leg, initial encounter |
| S85.809A | Unspecified injury of other blood vessels at lower leg level, unspecified leg, initial encounter |
| S85.169A | Unspecified injury of posterior tibial artery, unspecified leg, initial encounter |
| S95.109A | Unspecified injury of plantar artery of unspecified foot, initial encounter  |
| S75.809A | Unspecified injury of other blood vessels at hip and thigh level, unspecified leg, initial encounter |
| S95.809A | Unspecified injury of other blood vessels at ankle and foot level, unspecified leg, initial encounter |
| J95.851  | Ventilator associated pneumonia                                             |
| J95.89   | Other postprocedural complications and disorders of respiratory system, not elsewhere classified |
| J95.859  | Other complication of respirator [ventilator]                               |
| J95.88   | Other intraoperative complications of respiratory system, not elsewhere classified |
| J95.89   | Other postprocedural complications and disorders of respiratory system, not elsewhere classified |
| J95.811  | Postprocedural pneumothorax                                                 |
| J90      | Pleural effusion, not elsewhere classified                                   |
| J94.2    | Hemothorax                                                                  |
| J94.8    | Other specified pleural conditions                                          |
| 1.GV.52.^^ | Chest tube insertion                                                        |
| I97.710  | Intraoperative cardiac arrest during cardiac surgery                         |
| I97.790  | Other intraoperative cardiac functional disturbances during cardiac surgery   |
| I97.88   | Other intraoperative complications of the circulatory system, not elsewhere classified |
| I97.89   | Other postprocedural complications and disorders of the circulatory system, not elsewhere classified |
| Code     | Description                                                                 |
|----------|------------------------------------------------------------------------------|
| I31.2    | Hemopericardium, not elsewhere classified                                     |
| I31.4    | Cardiac tamponade                                                            |
| T82.519A | Breakdown (mechanical) of unspecified cardiac and vascular devices and implants, initial encounter |
| T82.529A | Displacement of unspecified cardiac and vascular devices and implants, initial encounter |
| T82.539A | Leakage of unspecified cardiac and vascular devices and implants, initial encounter |
| T82.599A | Other mechanical complication of unspecified cardiac and vascular devices and implants, initial encounter |
| T82.528A | Displacement of other cardiac and vascular devices and implants, initial encounter |
| T82.538A | Leakage of other cardiac and vascular devices and implants, initial encounter |
| T82.598A | Other mechanical complication of other cardiac and vascular devices and implants, initial encounter |
| 1.HA.52  | Drainage of the pericardium                                                   |
| 1.HM.80;1.HM.78 | Repair of atrium                                                               |
| 1.HP.80;1.HP.78 | Repair of ventricle                                                          |
| 1.HZ.80  | Repair of heart NEC                                                           |
| I21.x; I22.x; I25.2 | Myocardial infarction                                                     |
| I50.x    | Heart failure                                                                 |
| Genitourinary complications | Other postprocedural complications and disorders of genitourinary system | |
| N99.89   | Intraoperative cerebrovascular infarction during other surgery                 |
| Neurologic complications | Postoperative cerebrovascular infarction during other surgery | |
| I97.811  | Postoperative cerebrovascular infarction during other surgery                 |
| I97.821  | Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating other procedure |
| G97.32   | Postprocedural hemorrhage of a nervous system organ or structure following other procedure |
| G97.52   | Accidental puncture and laceration of other nervous system organ or structure during other procedure |
| I60.0; I60.1; | Stroke, TIA, or intracranial bleeding                                           |
| Code          | Description                                                                 |
|--------------|-----------------------------------------------------------------------------|
| I60.2; I60.3; I60.4; I60.5; I60.6; I60.7; I60.9; I61.x; I63.0; I63.1; I63.2; I63.4; I63.5; I63.8; I63.9; I64.x; H34.1; G45.0; G45.1; G45.2; G45.3; G45.8; G45.9; I63; I65; I66 | Non-CNS thromboembolic complications                                           |
| I74; K55.0; N28.0; G95.1; I23.6; I51.3 | Non-CNS thromboembolic events                                                |
| Z341         | Closed drainage effusion or pneumothorax                                    |
| E650; E682   | Cardiac pump bypass                                                        |
| M134; M137   | Thoracotomy                                                                 |
| Z401         | Aspiration of pericardium                                                   |
| R790         | Suture of lacerated major artery                                            |
| R795         | Repair of lacerated major artery or microscopic repair of digital artery     |
| R862         | Repair of lacerated major artery or microscopic repair of digital artery by bypass or interposition graft |
| R781         | Ligation of artery                                                          |
| R708         | Ligation of internal iliac artery                                           |
| R783; R784; R785 | Aorto-iliac repair                                                        |
| R855         | Common femoral/profunda femoris repair - as sole procedure                  |
| Code   | Procedure                                                      |
|--------|----------------------------------------------------------------|
| R856   | Extended profundoplasty                                        |
| R808   | Femoral aneurysm - reconstruction or excision with graft      |
| R873   | Thrombin injection of femoral artery pseudoaneurysm            |
| R864   | Repair of false aneurysm at groin anastomosis                 |
| R825   | Resection of AV aneurysm or fistula with major graft           |
| R826   | Resection of AV aneurysm or fistula with minor graft           |
| R818;  | Repair of a lacerated major vein                               |
| R819;  |                                                               |
| R820   |                                                               |
| Z226   | Soft tissue incision and drainage (surgical)                   |
| 1.VZ.70| Leg incision, Not other specified                               |
| 1.IA.80| Ascending aorta repair                                        |
| 1.IB.80| Aortic arch repair                                             |
| 1.IC.80| Descending aorta repair                                       |
| 1.ID.80| Aortic NEC repair                                             |
| 1.IJ.80| Coronary artery repair                                        |
| 1.IK.80| Coronary vein repair                                          |
| 1.IM.80| Pulmonary artery repair                                       |
| 1.IN.80| Pulmonary vein repair                                         |
| 1.IS.80| Vena caval repair                                             |
| 1.JE.80| Carotid artery repair                                         |
| 1.JJ.80| Brachiocephalic artery repair                                  |
| 1.JK.80| Subclavian artery repair                                      |
| 1.JL.80| Internal mammary artery repair                                 |
| 1.JM.80| Arteries of arm NEC repair                                     |
| 1.JQ.80| Jugular vein repair                                           |
| 1.JT.80| Subclavian vein repair                                        |
| 1.JU.80| Veins of arm NEC repair                                       |
| 1.JW.80| Intracranial vessel repair                                    |
| 1.JX.80| Other vessels of head, neck, or spine NEC, repair              |
| 1.JY.80| Thoracic vessels NEC, repair                                   |
| Code   | Description                                           |
|--------|-------------------------------------------------------|
| 1.KG.80| Arteries of the leg NEC, repair                       |
| 1.KR.80| Vein of leg NEC, repair                               |
| 1.KT.80| Vessels of the pelvis, perineum and gluteal region repair |
| 1.KV.80| Artery NEC, repair                                    |
| 1.KX.80| Vein NEC, repair                                      |
| 1.KY.80| Artery with vein, repair                              |
| 1.KZ.80| Blood vessels NEC, repair                             |
| 1.HA.52| Drainage of the pericardium                           |
| 1.HM.80; 1.HM.78 | Repair of atrium                                   |
| 1.HP.80; 1.HP.78 | Repair of ventricle                               |
| 1.HZ.80| Repair of heart NEC                                  |
| 1.GV.52.^ ^ | Chest tube insertion                              |

CCI indicated Canadian Classification of Health Interventions; OHIP, Ontario Health Insurance Plan; ICD-10 = International Statistical Classification of Diseases and Related Health Problems, 10th revision.

Codes to define peri-procedural complications were derived from a compendium of diagnostic codes from ICD-10, procedure codes from CCI, and physician billing codes from OHIP.

Canadian Classification of Health Interventions, 4th edition, Canadian Institute of Health Information (2015). https://www.cihi.ca/sites/default/files/cihi_volume_four_2015_en_0.pdf. Accessed April 25 2018.

Schedule of benefits. Physician services under the Health Insurance Act. Ministry of health and Long Term Care, Ontario (2015). http://www.health.gov.on.ca/en/pro/programs/ohip/sob/physserv/sob_master11062015.pdf. Accessed April 25 2018.
Table S3. Oral anticoagulation use after AF ablation for Ontario patients who were >65 years old (2012-16).

| Oral Anticoagulant | Percentage of patients who filled a prescription for the same oral anticoagulant at 300-365 days after discharge from ablation (%) |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|
| Apixaban           | 78.3%                                                                                                                     |
| Dabigatran         | 66.4%                                                                                                                     |
| Rivaroxaban        | 69.7%                                                                                                                     |
| Warfarin           | 66.1%                                                                                                                     |
Table S4. Multivariable Analysis of Factors Associated with All-Cause Mortality after AF Ablation.

| Covariate                                           | Hazard ratio | 95% Confidence interval | P-value |
|-----------------------------------------------------|--------------|--------------------------|---------|
| Persistent AF (vs. paroxysmal AF)                   | 1.74         | 1.15-2.63                | 0.01    |
| Age (per year increase)                             | 1.03         | 1.00-1.06                | 0.046   |
| Charlson score (per point increase)                 | 1.40         | 1.20-1.64                | <0.001  |
| CHA2DS2-VaSc score (per point increase)             | 1.12         | 0.87-1.46                | 0.38    |
| Income quintile                                     |              |                          |         |
| 1 (lowest)                                          | Referent     | -                        | -       |
| 2                                                   | 0.50         | 0.24-1.05                | 0.07    |
| 3                                                   | 0.84         | 0.44-1.60                | 0.60    |
| 4                                                   | 0.85         | 0.45-1.61                | 0.62    |
| 5 (highest)                                         | 0.51         | 0.27-0.98                | 0.04    |
| Female                                              | 0.69         | 0.41-1.17                | 0.17    |
| Rural residence                                     | 1.19         | 0.73-1.95                | 0.49    |
| Diabetes                                            | 1.45         | 0.85-2.48                | 0.17    |
| Hypertension                                        | 1.21         | 0.65-2.23                | 0.55    |
| COPD                                                | 1.72         | 1.08-2.74                | 0.02    |
| Stroke/TIA/Non-CNS thromboembolism                  | 1.08         | 0.40-2.93                | 0.87    |
| MI                                                  | 1.40         | 0.60-3.27                | 0.44    |
| PCI or CABG                                          | 0.86         | 0.36-2.06                | 0.73    |
| LVEF                                                |              |                          |         |
| ≥50%                                                | Referent     | -                        | -       |
| 35-49%                                              | 1.42         | 0.68-2.93                | 0.35    |
| <35%                                                | 0.60         | 0.18-2.05                | 0.42    |
| Not reported                                        | 0.94         | 0.60-1.48                | 0.80    |
**Table S5. Multivariable Analysis of Factors Associated with AF-Related Hospitalization or ER Visit.**

| Covariate                                      | Hazard ratio | 95% Confidence interval | P-value |
|------------------------------------------------|--------------|--------------------------|---------|
| Persistent AF (vs. paroxysmal AF)              | 1.21         | 1.09-1.34                | <0.001  |
| Age (per year increase)                        | 1.00         | 0.99-1.01                | 0.67    |
| Charlson score (per point increase)            | 1.03         | 0.96-1.10                | 0.48    |
| CHA2DS2-VaSc score (per point increase)        | 1.08         | 1.01-1.16                | 0.02    |
| **Income quintile**                            |              |                          |         |
| 1 (lowest)                                     | Referent     |                          |         |
| 2                                              | 0.92         | 0.77-1.01                | 0.36    |
| 3                                              | 0.91         | 0.76-1.08                | 0.26    |
| 4                                              | 0.88         | 0.74-1.04                | 0.14    |
| 5 (highest)                                    | 1.00         | 0.85-1.17                | 0.96    |
| Female                                         | 1.03         | 0.91-1.16                | 0.68    |
| Rural residence                                | 1.00         | 0.88-1.14                | 0.97    |
| Diabetes                                       | 0.81         | 0.70-0.95                | 0.007   |
| Hypertension                                   | 0.98         | 0.86-1.11                | 0.75    |
| COPD                                           | 1.09         | 0.96-1.25                | 0.20    |
| Stroke/TIA/Non-CNS thromboembolism             | 0.71         | 0.50-1.01                | 0.06    |
| MI                                             | 0.99         | 0.74-1.34                | 0.96    |
| PCI or CABG                                     | 0.78         | 0.56-1.05                | 0.11    |
| LVEF                                           |              |                          |         |
| ≥50%                                           | Referent     |                          |         |
| 35-49%                                         | 1.00         | 0.81-1.23                | 0.99    |
| <35%                                           | 0.78         | 0.56-1.09                | 0.15    |
| Not reported                                   | 1.03         | 0.93-1.14                | 0.53    |
| Covariate                                                                 | Odds ratio | 95% Confidence interval | P-value |
|---------------------------------------------------------------------------|------------|-------------------------|---------|
| Persistent AF (vs. paroxysmal AF)                                         | 1.34       | 1.02-1.75               | 0.04    |
| Age (per year increase)                                                   | 1.00       | 0.98-1.02               | 0.99    |
| Charlson score (per point increase)                                       | 1.05       | 0.96-1.24               | 0.53    |
| CHA2DS2-VaSc score (per point increase)                                   | 1.31       | 1.05-1.63               | 0.02    |
| Income quintile                                                           |            |                         |         |
| 1 (lowest)                                                               | 1.66       | 1.11-2.48               | 0.03    |
| 2                                                                         | 1.35       | 0.92-1.98               | 0.42    |
| 3                                                                         | 1.06       | 0.73-1.54               | 0.31    |
| 4                                                                         | 1.10       | 0.77-1.57               | 0.44    |
| 5 (highest)                                                               | Referent   | -                       | -       |
| Female                                                                    | 1.18       | 0.84-1.67               | 0.34    |
| Rural residence                                                           | 0.80       | 0.56-1.14               | 0.22    |
| Diabetes                                                                  | 1.67       | 0.45-1.00               | 0.05    |
| Hypertension                                                              | 1.08       | 0.74-1.58               | 0.68    |
| COPD                                                                      | 0.90       | 0.63-1.28               | 0.55    |
| Stroke/TIA/Non-CNS thromboembolism                                         | 0.63       | 0.33-1.20               | 0.16    |
| MI                                                                        | 1.36       | 0.68-2.70               | 0.38    |
| PCI or CABG                                                                | 1.59       | 0.72-3.52               | 0.25    |
| LVEF                                                                      |            |                         |         |
| ≥50%                                                                      | 1.05       | 0.80-1.38               | 0.35    |
| 35-49%                                                                    | 1.35       | 0.82-2.22               | 0.49    |
| <35%                                                                      | 1.37       | 0.68-2.77               | 0.56    |
| Not reported                                                               | Referent   | -                       | -       |
Figure S1. Flow Diagram of Patients Included in the Study.

4,513 consecutive patients who underwent catheter-based AF ablation in Ontario, Canada from April 1 2012 to March 31 2016

4,498 patients

15 patients excluded due to age <18 years or missing data on age/sex/income quintile

687 patients excluded as they had previous catheter-based AF ablation

3,811 patients

43 patients excluded due to missing data on AF type

Final cohort: 3,768 patients