

## **Supplementary Appendix 1. Classification of cause of death**

Our primary outcome of interest was all-cause mortality. The classification of causes of death was done in a blinded fashion, with no prior knowledge of exposure status, to the extent that this was possible. In other words, adjudication was done without knowledge of whether the patient had a fistula attempt prior to the start of dialysis. In cases where there was disagreement, consensus was reached after discussion and review of the individual cases without the need to involve a third reviewer.

### **Deaths that occurred during an admission to hospital**

For patients who died in hospital, cause of death was classified based on the condition that led to the admission, regardless of the most immediate cause of death. If a patient was admitted with a stroke and subsequently died of a gastrointestinal hemorrhage, the death was coded as cardiovascular because a stroke was the reason for the original admission.

### **Deaths that occurred while an outpatient**

For patients who died as an outpatient, all recent interventions and hospitalizations were reviewed along with notes regarding the cause of death. If the death could be ascribed to a particular etiology, it was coded according to the schema above. In situations where patients died suddenly at home, cause of death was classified as “sudden death”.

All deaths were reviewed by the same two investigators (RQ and KP) independently, and classified into one of 6 categories of cause of death: cardiovascular, infectious, malignancy-related, elective withdrawal from dialysis, sudden death at home, and other.

The conditions that qualified for each of the categories are detailed below:

#### **Cardiovascular**

- Acute coronary syndromes and complications
- Heart failure
- Myocardial disorders
- Pericardial disorders
- Valvular disorders
- Cardiac dysrhythmias
- Complications of congenital heart disease
- Complications of interventional cardiac or vascular procedures, including procedures to create and maintain vascular access
- Complications of cardiac or vascular surgery
- Acute stroke syndromes and complications (ischemic and hemorrhagic)
- Complications of peripheral vascular disease (ischemic gut, ischemia of the extremities, ischemia of other organs)
- Complications of aortic dissection and aortic aneurysm

#### **Infectious**

- Bacteremia/sepsis from any cause, including complications of vascular access.

Sources of sepsis included:

- Pneumonia
- Urosepsis
- Cellulitis
- Intra-abdominal sepsis
- Ischiorectal abscess
- Ulcers
- Clostridium Difficile colitis
- Infective endocarditis
- Intravenous drug user who developed right kidney abscess and sepsis
- Spontaneous bacterial peritonitis complicating liver disease and ascites
- Infected hip prosthesis (leading to acute kidney injury and dialysis)
- Septic knee
- Sacral ulcer

### **Malignancy-related**

- Complications of any malignancy leading to death, including metastatic disease leading to withdrawal of care or palliation

### **Elective withdrawal from dialysis**

- Elective discontinuation of dialysis therapy, without an acute, antecedent precipitant such as an acute medical illness.

### **Sudden death at home**

- Any death occurring at home, without antecedent illness or procedure that could have contributed to the death.

### **Other**

- Included any other condition that did not fall into one of the 5 preceding categories.

Examples included:

- Admission for an acetabular fracture. Sudden death in hospital. No clear precipitant.
- Admission for failure to thrive. Died in hospital. No clear precipitant.
- Admission following a fall at home. Sudden death in hospital.
- Admission for failure to thrive. Developed a gastrointestinal bleed during admission. Died from complications.
- Admitted with bowel perforation. Went to operating room. Died in hospital from complications.
- Admitted following a fall at home. Required operative intervention for musculoskeletal injuries. Died in hospital suddenly.
- Admitted with pancytopenia, esophagitis, esophageal ulcers following treatment with cyclophosphamide and prednisone. Made palliative and died in hospital.
- Lumbar-peritoneal shunt placed and admitted with confusion and query seizure. Developed sinus venous thrombosis and seizures. Died in hospital.

- Admitted with hepatorenal syndrome secondary to cryptogenic cirrhosis. Died in hospital.

### **Access-related deaths**

Once deaths were classified into one of the 6 categories for cause of death, they were also classified according to whether they were access-related or not. Deaths were considered access-related if they resulted from a direct complication of the access or any access-related procedures (e.g. complications of catheter-related bacteremia leading to death). An inclusive definition of access-related death was employed. If a patient was admitted to hospital with an access-related complication and died during that hospitalization, the death was considered access-related. If a patient had undergone an access-related procedure or experienced an access-related complication within a month of the date of death, the death was reviewed in detail to determine if it could possibly be access-related. Access-related deaths in both groups were further sub-classified as catheter-related deaths or fistula-related deaths.

### **Access-related deaths**

The following qualified as access-related deaths during the adjudication process:

- Staphylococcus Aureus line sepsis
- Presumed hemorrhagic pericardial effusion and tamponade following an arteriovenous fistula thrombolysis, leading to ICU admission, continuous renal replacement therapy, and death from complications
- Methicillin Sensitive Staphylococcus Aureus line sepsis and infective endocarditis
- Cardiac perforation following hemodialysis catheter insertion
- Air embolism related to placement of hemodialysis catheter
- Peritonitis post peritoneal dialysis catheter insertion
- Cardiac arrest during placement of a dialysis catheter in radiology suite
- Bacteremia and infective endocarditis of mechanical valve from infectious complication of fistula site
- Intravascular clot and embolism from dialysis catheter