Fatal vascular outcomes following major orthopedic surgery.

Major orthopedic surgery is known to be associated with potentially serious arterial and venous vascular complications, although uncertainty exists about current event rates. Using electronic databases and investigator contact, we identified randomized and cohort studies reporting overall mortality and fatal vascular events. Where possible, studies reporting high autopsy rates (>60%) were examined. Pooled incidences were calculated from eligible studies. For Autopsy studies: Pooled overall mortality and fatal pulmonary embolism for patients undergoing elective hip and knee replacement without prophylaxis could not be calculated, while with prophylaxis they were 0.44% (95% confidence interval 0.02 to 0.87%) and 0.43% (0.01 to 0.85%). For patients undergoing hip fracture surgery, the corresponding rates without prophylaxis were 15.9% (14.5 to 17.3%) and 1.9% (1.4 to 2.4%). With prophylaxis, mortality and fatal pulmonary embolism rates were 8.5% (7.3 to 9.7%) and 1.0% (0.6 to 1.5%). Among Cohort studies: Pooled overall mortality and fatal pulmonary embolism for patients undergoing elective hip and knee replacement without prophylaxis were 0.93% (0.57 to 1.29%) and 0.36% (0.14 to 0.59%). For patients receiving prophylaxis (7 to 14 days), mortality and fatal pulmonary embolism were 0.57% (0.51 to 0.62%) and 0.18% (0.14 to 0.21%). Patients undergoing hip fracture surgery receiving prophylaxis had mortality and fatal pulmonary
embolism rates of 3.2% (2.8 to 3.6%) and 0.30% (0 to 0.61%). Vascular events contributed towards approximately 50% of all deaths with similar proportions due to ischemic heart disease, cardiac failure and pulmonary embolism. In conclusion, although prophylaxis results in a reduction in overall mortality and fatal pulmonary embolism, vascular events continue to be a common cause of mortality.