

# The South African Surgical Outcomes Study: a seven-day prospective observational cohort study: preliminary results

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## Abstract

**Background:** Non-cardiac surgical morbidity and mortality is a major global public health burden. Data from sub-Saharan African countries on perioperative outcomes are sparse. South Africa presents a unique public health problem simultaneously engulfed by four epidemics of poverty-related diseases, noncommunicable diseases, human immunodeficiency virus and related diseases, and injury and violence. Understanding the effects of these epidemics on perioperative outcomes may provide an important perspective on both South African and surgical global health.

**Objectives:** The objective was to understand the associations with perioperative mortality and critical care admission in South Africa.

**Method:** A seven-day national, multicentre, prospective, observational cohort study was conducted in 50 government-funded hospitals in South Africa. This study is known as the South African Surgical Outcomes Study (SASOS). Participants included patients ≥ 16 years of age undergoing inpatient, non-cardiac surgery between 19 May and 26 May 2014.

**Outcomes:** The primary outcome was in-hospital mortality. Secondary outcomes included duration of hospital stay, admission to the critical care unit after surgery and the duration of the critical care stay. The proportional contribution of noncommunicable diseases, communicable diseases and injuries to perioperative mortality and critical care admission were calculated using population attributable risk statistics.

**Results:** Data on nearly 98% of all eligible patients were submitted from recruiting hospitals. Crude in-hospital mortality was 3.1%, with a postoperative admission to critical care figure of 6.5%. Over 40% of critical care admissions were unplanned. Over half the surgeries in South Africa were classified as urgent or emergent surgery. Urgent or emergent surgery has a population attributable risk for mortality of 26%, and for admission to critical care of 24%.

**Conclusion:** Most patients in South Africa undergo urgent and emergent surgery, which has a strong association with mortality, unplanned critical care admissions and longer critical care stay. Noncommunicable diseases have a larger proportional contribution to morbidity and mortality than infections and injuries. This study was registered on ClinicalTrials.gov (NCT02141867).

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**Keywords:** The South African Surgical Outcomes Study, SASOS, preliminary results.

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