

# Mapping Perioperative Care Randomised-Controlled Trials in sub-Saharan Africa: A Scoping Review

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## BACKGROUND

Surgical and anesthesia care is an integral component of universal healthcare coverage. In sub-Saharan Africa (SSA), 93% of the population lacks access to essential surgical services. Post-surgery mortality in Africa is double the global average. The involvement of anesthesia providers is crucial for improved outcomes. Perioperative research can produce context-specific solutions to challenges faced in the perioperative period. SSA conducts fewer randomized controlled trials (RCTs) than high-income countries, limiting its contribution to global evidence. Our primary objectives were to document the geographical distribution of included RCTs, describe their characteristics, and evaluate the reporting quality using the Consolidated Standards of Reporting Trials (CONSORT)-2010-checklist.

## RESULTS

Of 3319 records, 169 eligible RCTs were identified (Fig 1), randomizing 45376 participants, with a mean sample size of 98. Between the years 2000 and 2022, there was an exponential trend towards an increasing number of RCTs in SSA ( $y = 1,5619e0,1051x$ ) (Fig 2). The RCTs were from 16 countries in SSA. Most studies were single-country, single-center, led by authors from Nigeria (63/169, 37.3%) and South Africa (41/169, 24.3%) (Fig 3). Most interventions were conducted intraoperatively ( $n = 125/169, 74%$ ). Pharmacotherapy interventions were most investigated ( $n = 64/169, 37.9%$ ), followed by analgesic interventions ( $n = 42/169, 24.9%$ ). The surgical discipline most investigated was obstetrics ( $n = 51/169, 30.2%$ ) (Fig 4). The reporting quality was generally poor, with most RCTs not adhering to CONSORT guidelines and failing to register on a trial registry (Fig 5).

## METHODS

We followed the PRISMA Scoping Reviews (PRISMA ScR) Checklist. We searched MEDLINE, the Cochrane Library, and Scopus. We identified perioperative care RCTs within SSA published from 2000 to 2022. Two independent reviewers screened potential studies, and extracted data in duplicate, with disagreements resolved through consensus or a third reviewer. Quantitative analysis was done with STATA 16, and data were summarized narratively. We compared RCT quality pre- CONSORT-2010 to post-CONSORT-2010, using Pearson's chi-squared test or Fisher's exact test (as applicable), considering  $p < 0.05$  as statistically significant.

## CONCLUSIONS

This scoping review provides a comprehensive overview of perioperative care RCTs in SSA. Key findings from this review where the small sample sizes used, under-representation of high surgical burden disciplines, and poor reporting of study outcomes. The clinical trial capacity is limited to a few countries and institutions, and the methodological quality remains poor despite reporting guidelines. There is an opportunity to enhance context-appropriate RCTs in SSA by prioritizing high-quality research through collaborative efforts (Fig 6.). Our findings serve as a resource for researchers, funders, and policymakers in perioperative care research in Africa to improve future RCT designs and reporting.

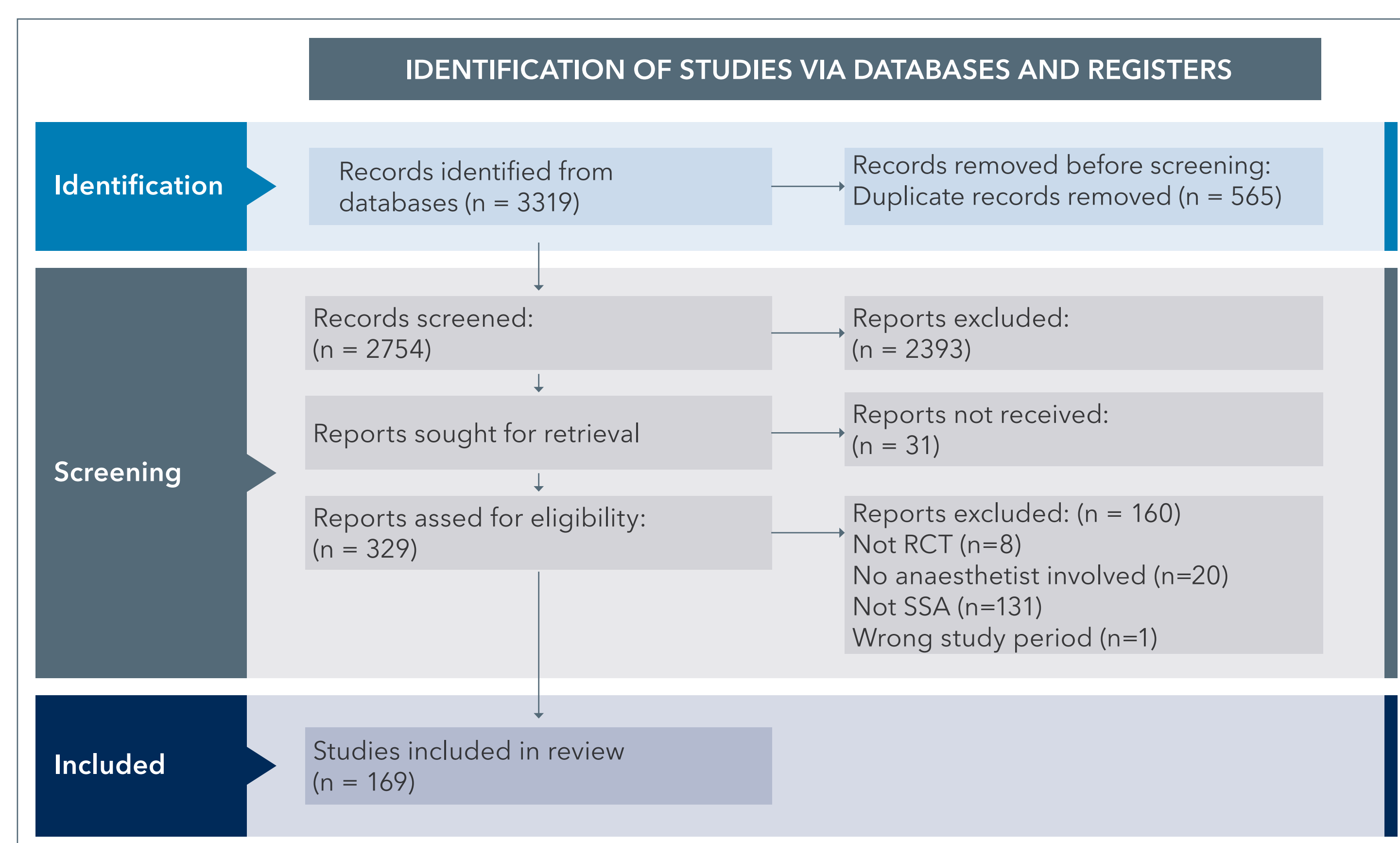


Figure 1. Flow diagram from screening trial registrations

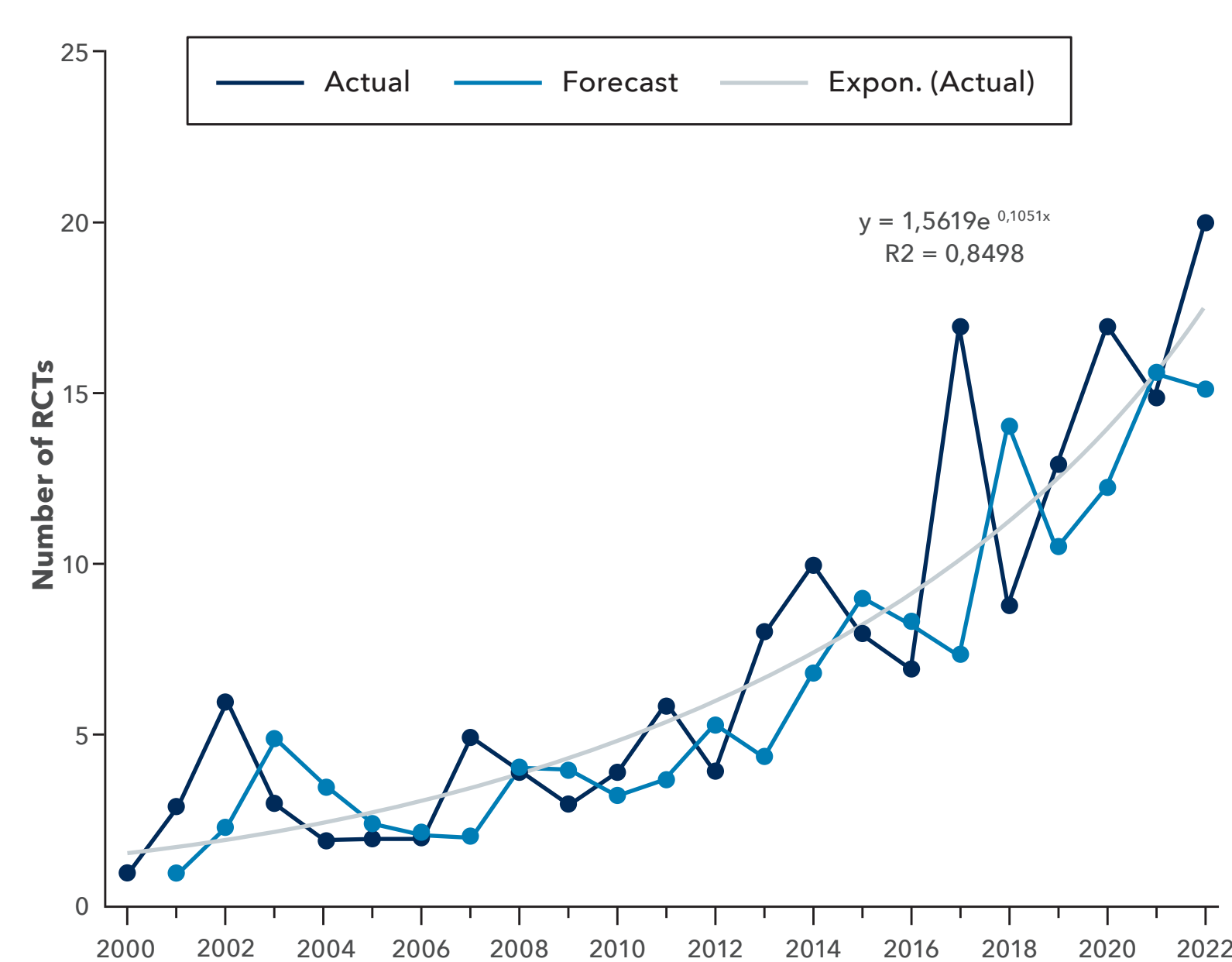


Figure 2. Publications per year from 2000 to 2022

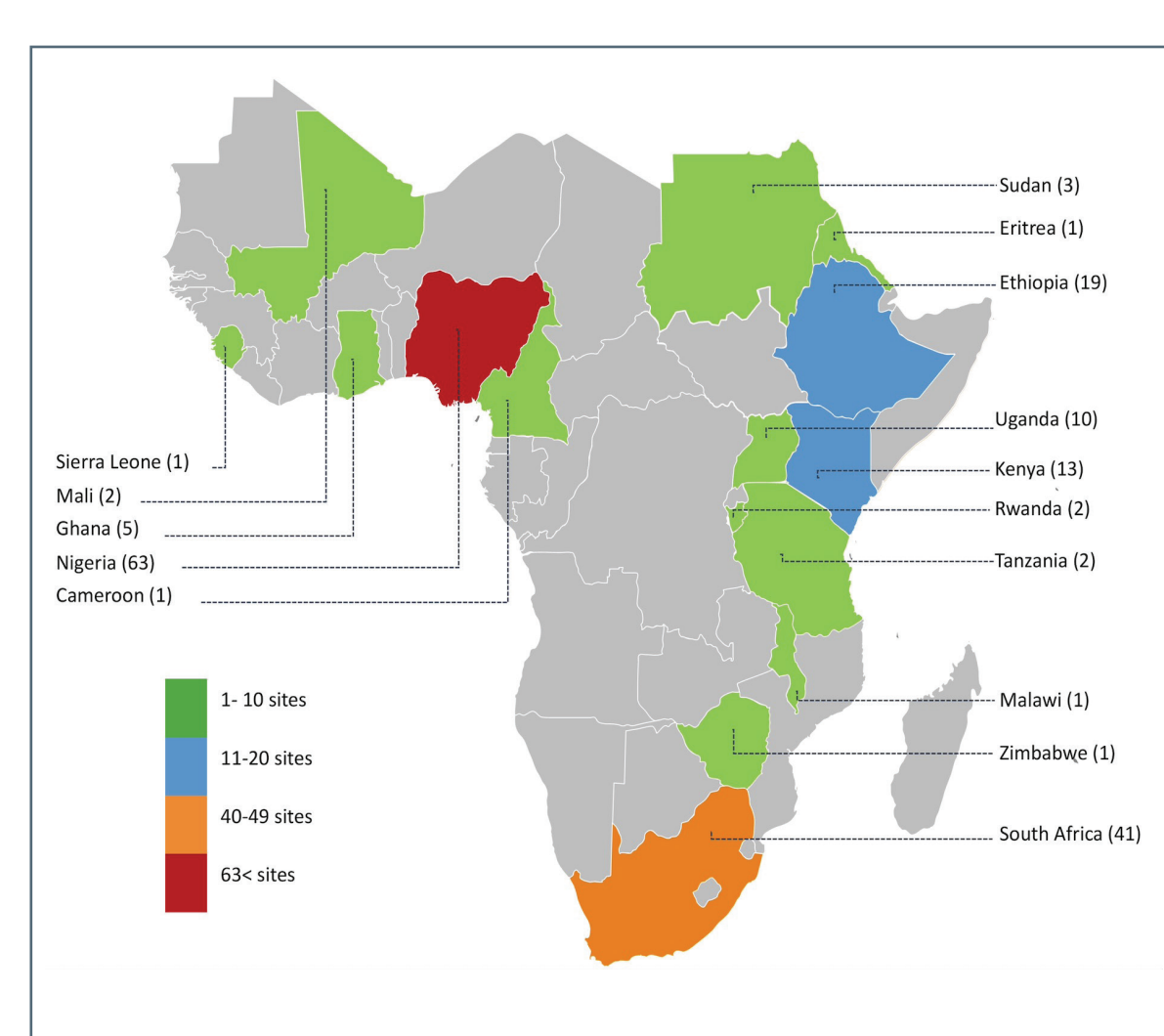


Figure 3. Sub-Saharan Africa Randomized Controlled Trial by first author country from 2000 to 2022

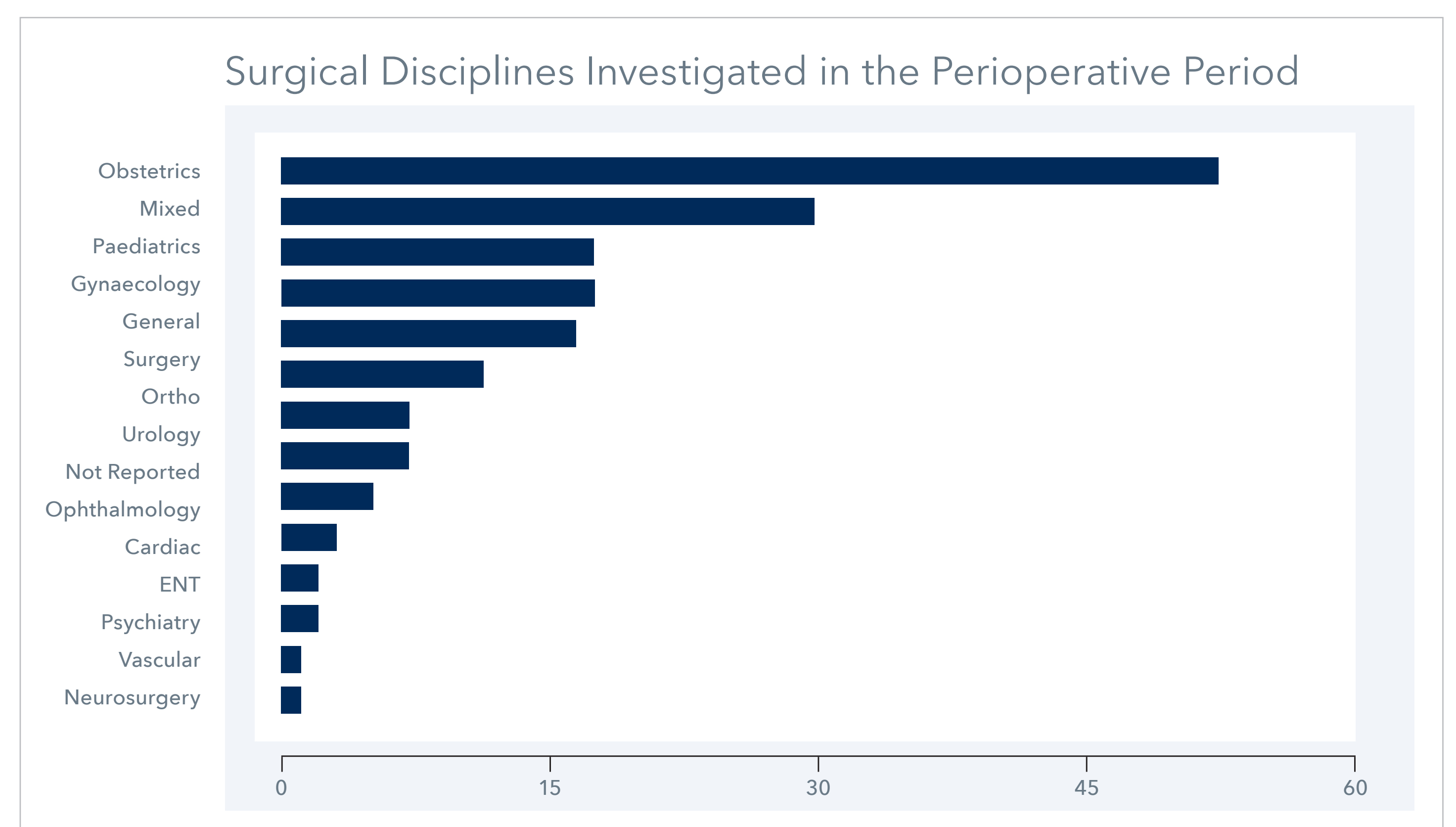


Figure 4. Surgical Disciplines investigated in the Perioperative period

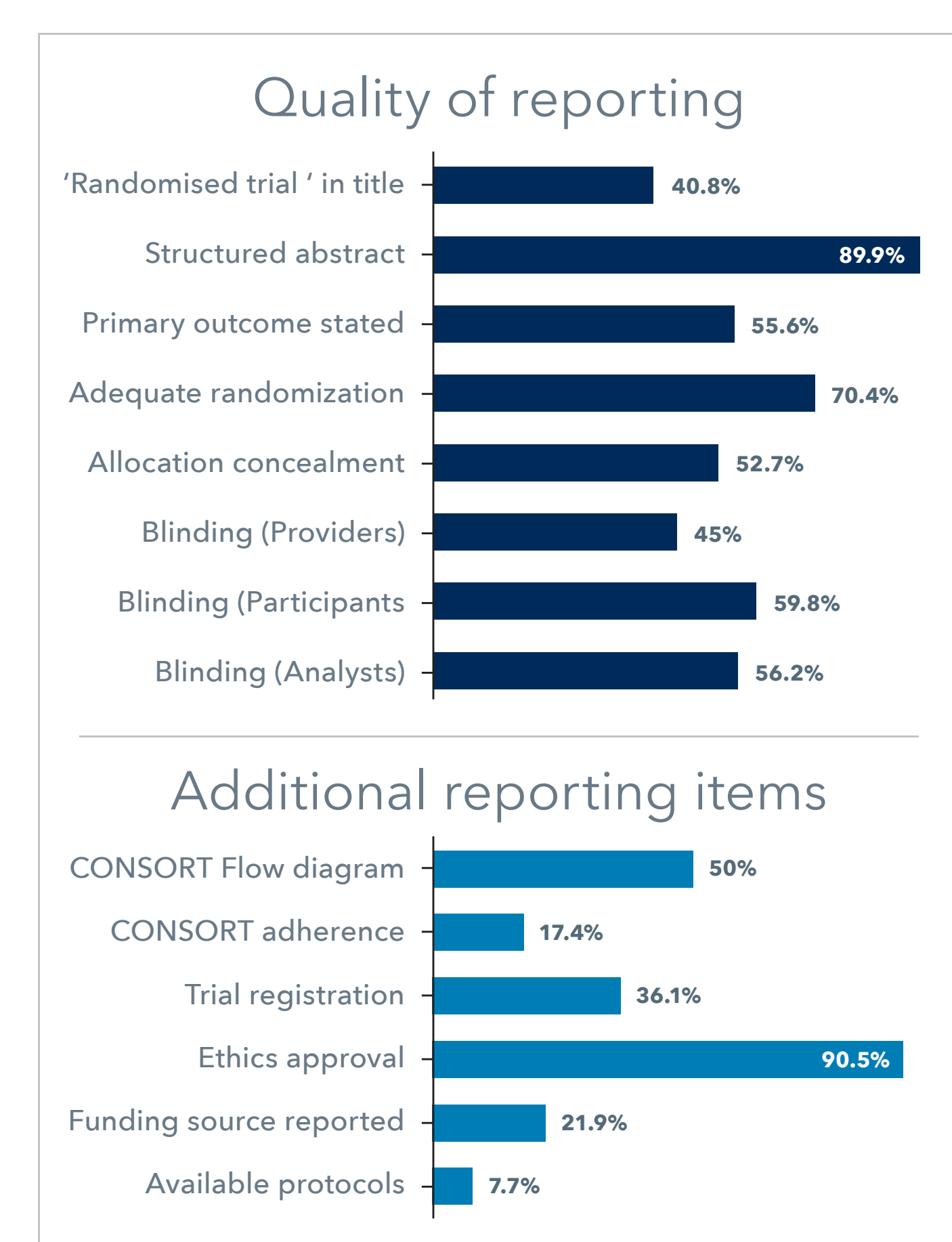


Figure 5. Reporting Adherence

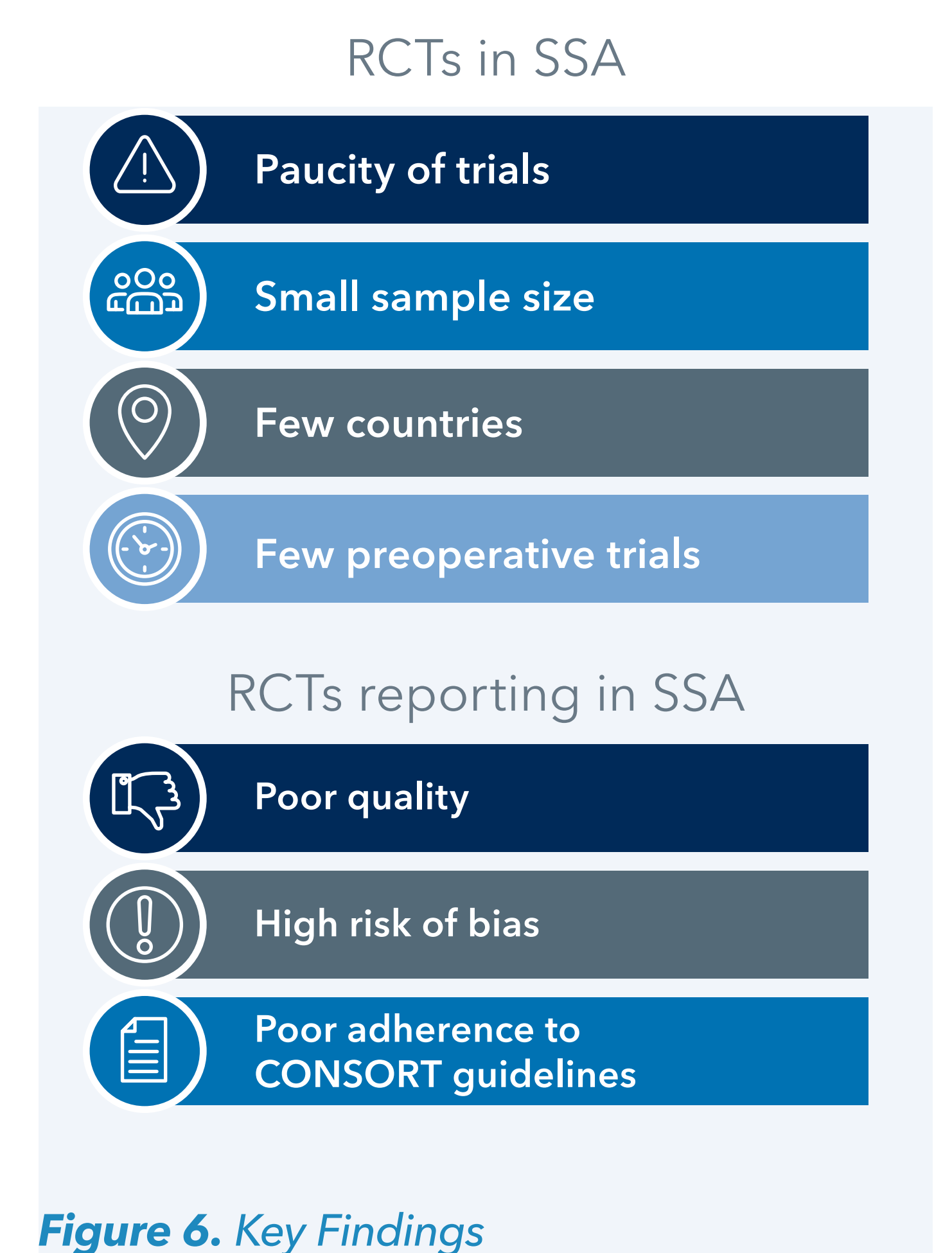


Figure 6. Key Findings