

BENCHMARKING CONTEMPORARY SURGICAL OUTCOMES USING PUBLISHED LITERATURE: A SYSTEMATIC REVIEW AND META-ANALYSIS, USING THE EXAMPLE OF GASTROSCHISIS

Anna-May Long¹, Katie Hurst², Michael Lynch⁴, Chun Sui Kwok², Simon Kenny^{3,4}, Jenny Kurinczuk¹, Marian Knight¹

¹National Perinatal Epidemiology Unit, University of Oxford, Oxford, UK, ²Oxford University Hospitals NHS Foundation Trust, Oxford, UK, ³Department of Paediatric Surgery and Urology, Alder Hey Children's Hospital, Liverpool, UK, ⁴University of Liverpool, Liverpool, UK

Aim of the Study: To use contemporary literature to provide a benchmark of outcomes in infants born with gastroschisis; to establish population outcomes for patients with simple and complex gastroschisis; to assess the quality of outcome reporting in the published literature.

Methods: The outcomes assessed were: mortality in the first 30 days and first year after birth, median length of hospital stay and reoperation within 30 days. A systematic review was undertaken including studies published from World Bank classified high-income countries after the year 2000. Meta-analysis was undertaken to generate population outcome estimates.

Main Results: The study identification process is illustrated within the PRISMA flow diagram (Fig 1). Two percent (95% CI 1-4%, 192/3938) of all infants died within the first month after birth. No significant difference in this outcome was identified between patients with simple (2%, 95% CI 0-3%, 15/766) and complex (3%, 95% CI 0-9%, 6/138) gastroschisis, ($p=0.08$). Seven percent (95% CI 5-10%, 279/2938) of all infants born with gastroschisis died before one-year of age. At one year there was a statistically significant difference in the proportion of deaths between infants with simple (2%, 95% CI 1-4%, 9/321) and complex (19%, 95% CI 3-42%, 6/50) gastroschisis ($p=0.02$). Overall median length of stay was 33 days ($n=2394$); 43 and 84 days for patients with simple and complex gastroschisis respectively. Studies contributing to the assessment of frequency of reoperation within 30 days were heterogeneous and few. The pooled estimate for the number of infants with this outcome was 11% (95% CI 3-20%, 24/171).

Conclusion: The published literature may be used as a means to benchmark outcomes in surgery. Heterogeneity in outcome reporting hinders the generation of robust evidence to guide practice. These pooled data may be used to counsel parents and inform assessment of hospital or surgeon outcomes.

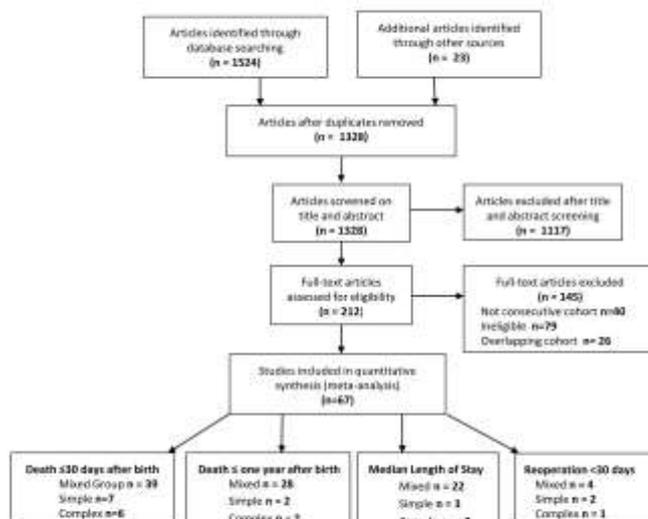


Fig 1. The PRISMA Flow Diagram for Study Identification

'n' refers to number of studies