

OP24 How Does Robotic-Assisted Surgery Real-World Evidence Complement Randomized Controlled Trials Evidence? A Systematic Literature Review And Meta-Analysis

Neera Patel (neera.patel@intusurg.com), Ana Yankovsky, April Hebert and Usha Kreaden

Introduction: The use of real-world evidence (RWE) by health technology assessments to evaluate emerging technologies has increased. Although traditionally recognized as the gold standard of evidence, randomized controlled trials (RCTs) may be challenging to conduct, especially in surgical settings. The aim of this analysis is to synthesize and compare results from RWE with those from RCTs for robotic-assisted surgery (RAS).

Methods: A systematic review was performed according to PRISMA methods. RWE and RCT studies published between 1 January 2010 and 31 December 2022 and comparing RAS, laparoscopic, or open surgery across seven procedures were included. Perioperative outcomes of interest were operative time, length of stay (LOS), conversion to an open procedure, estimated blood loss (EBL), blood transfusions, readmissions, reoperations, postoperative complications, and mortality. A meta-analysis was performed using R software.

Results: Thirty-three RCTs and 121 RWE studies were included. For RAS versus laparoscopy, RCTs and RWE were concordant for conversions (RCT:OR=0.56 [0.42, 0.74], $p<0.01$; RWE:OR = 0.41 [0.36, 0.47], $p<0.01$) and LOS in favor of RAS (RCT:WMD = -0.66 [-1.12, -0.20], $p<0.01$; RWE:WMD = -0.50 [-0.63, -0.36], $p<0.01$), while operative time was longer for RAS (RCT:WMD = 27.89 [12.66, 43.12], $p<0.01$; RWE:WMD = 28.89 [15.56, 42.22], $p<0.01$). RWE complemented RCTs on blood transfusions and mortality, showing RAS favored over laparoscopy. For RAS versus open surgery, RCTs and RWE agreed RAS had significantly lower EBL (RCT:WMD = -260.42 [-515.16, -5.67], $p = 0.05$; RWE: WMD = -328.27 [-474.08, -182.47], $p<0.01$), lower postoperative complications (RCT:OR = 0.70 [0.50, 0.97], $p = 0.03$; RWE:OR = 0.56 [0.50, 0.62], $p<0.01$), shorter LOS (RCT:WMD = -1.88 [-3.12, -0.64], $p<0.01$; RWE:WMD = -1.95 [-2.20, -1.70], $p<0.01$), and longer operative time (RCT:WMD = 35.38 [2.14, 68.61], $p=0.04$; RWE:WMD = 38.80 [24.62, 52.97], $p<0.01$). For the remaining outcomes, RCTs showed no difference, while RWE provided complementary results in favor of RAS.

Conclusions: RWE confirmed many of the results shown in RCTs and complemented findings for perioperative outcomes. Based on these results, RWE can supplement the findings from RCTs in the literature, provide more generalizability, and offer a more comprehensive landscape of the evidence on robotic-assisted surgery.

OP25 Rapid Molecular Tests For Detecting Multidrug-Resistant Microorganisms: An Overview Of Systematic Reviews Within A Living Evidence Project

Valentin Imeshtari (valentin.imeshtari@uniroma1.it), Nora Ibarгойen Roteta, Gaizka Benguria Arrate, Lorea Galnares Cordero, Maria X. Rojas and Iñaki Gutierrez-Ibarluzea

Introduction: Ranked among the top 10 global health threats, antimicrobial resistance (AMR) prompts concern. Embracing a living evidence synthesis (LES), we address this concern by informing health decision-makers about molecular tests for swift detection of multidrug-resistant organisms (MDROs). This updated HTA report for the Spanish National Health System prioritizes decisions based on the most current evidence, adapting to emerging technologies and evidence.

Methods: The LES commenced with a baseline synthesis, shaping the initial HTA report regarding rapid molecular test impact on safety, efficacy, effectiveness, and patient outcomes in suspected infection cases. Based on this, on 12 July 2023, we initiated a 12-month evidence monitoring process. Utilizing the Living Evidence to Inform Health Decisions (LE-IHD) framework and interactive tools, we conducted ongoing baseline synthesis and evidence tracking. Artificial intelligence (AI) and the Living Overview of Evidence (LOVE) platform aided in continual evidence identification. Tri-monthly scans of trial registries unveiled ongoing studies. New eligible studies were rigorously assessed. Updates in HTA conclusions were in line with this synthesis.

Results: The baseline synthesis identified 25 systematic reviews that suggested that the use of rapid molecular test for the identification of pulmonary tuberculosis showed good performance, but less evidence or low-quality evidence was available for other medical conditions or on patient outcomes. During the conference, we will report on 11 months of monitoring and regular updates, including key messages on changes in the evidence synthesis conclusions whenever there are substantial updates of the HTA report.

Conclusions: The living evidence approach enables timely updates of conclusions for HTA reports relying on low- and very low-quality evidence, enhancing their significance in decision-making. The LE-IHD framework streamlines tasks for HTA developers in planning and executing LES to inform health decisions.