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Research

The Educational Effectiveness of Simulation Used in Open Surgery. A Systematic Review.

Leonie Heskin, FRCSI, MSc.; Rose Galvin; and Ciaran Simms.

RCSI, Dublin, Ireland; UL, Limerick, Ireland; TCD, Dublin, Ireland

Introduction: The role of simulation to teach and access open surgical skills has become more prevalent in recent years. This shift to training outside the hospital setting is largely due to the decrease training hours secondary to the European working time directive (EWTD) and patient expectations. A number of primary research studies have explored the educational impact of these simulators. This systematic review synthesizes the totality of evidence with respect to the educational effectiveness of simulators used in open surgical training.

Methods: A systematic literature search was conducted in PubMed, Embase, Cinahl, Scopus and Web of science. Only randomized controlled trials (RTCs) were included that explored the educational efficacy of simulators used in open surgical skills teaching. The methodological quality of the included studies was assessed using the Cochrane risk of bias tool.

Results: Six RCTs were included from the 9,934 studies found. The methodological quality of the included studies was variable. Overall, the use of the simulators was more educationally effective compared with standard teaching of the skill without a simulator ($p<0.05$). Two studies showed that the simulator was as good as an animal model of much higher fidelity.

Conclusions: The methodological and clinical heterogeneity across the studies limited our ability to meta-analyze these findings. Further studies are needed to secure higher evidence for the educational value, validity and transferability of the skills to the hospital setting for all simulators in use in surgical training. In the interim, this systematic review adds positive encouragement to their use.