Summary of research proposal LROI

Title:

Advantages and disadvantages of survival cumulative sum charts in monitoring the quality of orthopaedic care

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Abstract:

It is important to monitor the quality of orthopaedic implant surgery care over time so that potential complications can be identified early and solved as soon as possible. Currently clinicians can evaluate their data real-time or wait for the annual arthroplasty report or outlier analysis of their arthroplasty performance.

We will evaluate a risk-adjusted CUSUM (cumulative sum) chart for revision of implant in a continuous time designed method specifically for implant survival outcomes as an alternative to the current quality control measures, such as CUSUMs for binary data and use of funnel plots of revision surgeries of different clinics. As the outcome, we will study revision after total joint replacement. The comparison between methods will be based on their ability to quickly and reliably detect a decrease (or increase) in quality of implant surgery, as well as to minimise false alarms to the clinicians. Our goal is to formulate an advice to the LROI on the advantages and disadvantages of using this type of CUSUM to assess the quality of total joint replacement.

Approval date: February 2020