Should vascular surgery patients be screened preoperatively for methicillin-resistant Staphylococcus aureus?

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study aimed to compare the cost-effectiveness and economic value of a strategy to test for and decolonise methicillin-resistant Staphylococcus aureus (MRSA) before vascular surgery. The authors concluded that preoperative testing for MRSA in these patients was likely to be cost-effective across a range of situations. Due to limited reporting of the methods and of the quality of the data inputs, the reliability of the results and the validity of the conclusion cannot be assessed.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
This study aimed to determine the cost-effectiveness and economic value of a strategy to test for and decolonise methicillin-resistant Staphylococcus aureus (MRSA) before vascular surgery.

Interventions
The interventions were MRSA testing with decolonisation after a positive test compared with no testing and no decolonisation.

Location/setting
USA/secondary care.

Methods
Analytical approach:
The study used a decision-tree model to estimate the clinical and economic outcomes of the two strategies, by combining data from a range of sources. The time horizon was lifetime and the authors did not state the perspective.

Effectiveness data:
The effectiveness evidence was from studies identified by a systematic review of published literature. The main clinical parameters were the probabilities of successful screening, successful decolonisation, and survival.

Monetary benefit and utility valuations:
The utility estimates were derived from a combination of four published studies and expert opinion.

Measure of benefit:
The measure of benefit was the number of quality-adjusted life-years (QALYs).

Cost data:
The direct costs included the cost of surveillance, decolonisation, drugs, surgical procedures, and hospitalisation. These were derived from a combination of expert opinion, published literature, and the Healthcare Cost and Utilization Project Nationwide Inpatient Sample. The currency was US dollars ($).

Analysis of uncertainty:
Univariate and probabilistic sensitivity analyses were performed to test the impact of parameter uncertainty on the results.
Results
MRSA infection was associated with a mean increase in the length of stay of 5.9 days at a revenue loss of $2,079 per day.

Testing and decolonisation was found to be cheaper and more effective than (dominant over) no testing when the MRSA prevalence was 0.025 and the success of decolonisation was 0.5.

At a cost-effectiveness threshold of $50,000 per QALY, testing and decolonisation was cost-effective, with a MRSA prevalence rate of 0.01 or 0.025, and with a decolonisation success rate of 0.25.

Authors' conclusions
The authors concluded that preoperative testing for MRSA in patients undergoing vascular surgery was likely to be cost-effective across a range of situations.

CRD commentary
Interventions:
The surveillance and decolonisation strategy was adequately described and the comparator appears to have reflected the usual practice in the study setting.

Effectiveness/benefits:
The effectiveness data were identified by a systematic review of published studies and it appears that the best available evidence was used. The authors reported these data, with their relevant references. It was stated that case reports and case series were excluded, but there was no discussion of the quality of the clinical studies that were included. There was no statement about whether or not this clinical evidence was synthesised and how it was done, if it was. The time horizon was sufficient to fully capture the differences in the health outcome. The source for the utility estimates was not described, which makes it difficult to assess the method used to calculate the QALYs.

Costs:
The authors did not state the perspective, but it appears that the costs relevant to the health care provider were included. These costs were provided as category totals, which limits the reproducibility of the analysis for other settings. The cost estimates were relevant to the study population and setting and were fully referenced, but the source for the expert opinion for some costs was not described. The authors reported neither the price year nor any discounting.

Analysis and results:
The analytic approach was mainly reported sufficiently, but there were some limitations. The model structure was reported in full, with a diagram. The results were reported clearly, but separate cost and effectiveness data would have aided interpretation. Appropriate sensitivity analyses were performed and the authors discussed some limitations to their study.

Concluding remarks:
Due to limited reporting of the methods and of the quality of the data inputs, the reliability of the results and the validity of the conclusion cannot be assessed.

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Bibliographic details

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