



<b>Title</b>	<b>A Systematic Review and Economic Model of Switching From Non-Glycopeptide to Glycopeptide Antibiotic Prophylaxis for Surgery</b>
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<b>Reference</b>	Volume 12.01. ISSN 1366-5278. <a href="http://www.nchta.org/execsumm/summ1201.shtml">www.nchta.org/execsumm/summ1201.shtml</a>

## Aim

To determine whether there is a level of methicillin-resistant *Staphylococcus aureus* (MRSA) prevalence at which a switch from nonglycopeptide to glycopeptide antibiotic prophylaxis is indicated in surgical environments with a high risk of MRSA infection.

## Conclusions and results

*Systematic reviews:* The effectiveness review included 16 randomized controlled trials (RCTs), with a further 3 studies included for adverse events only. There was no evidence that glycopeptides were more effective than nonglycopeptides in preventing surgical site infections (SSIs). Most of the trials did not report either the incidence of MRSA infections during the trial or the MRSA prevalence of the surgical unit. The cost-effectiveness review included 5 economic evaluations of glycopeptide prophylaxis. One study incorporated health-related quality of life and undertook a cost-utility analysis. None of the studies was undertaken in the UK and none explicitly modeled antibiotic resistance.

*Supplementary reviews:* The supplementary reviews provided few insights into how to assess cost-effectiveness in the context of resistance. No studies modeled cost-effectiveness alongside epidemiological models of resistance. In addition, there was little information regarding the impact of surgical infections on post-discharge costs and patient quality of life.

## Recommendations

See Executive Summary link at [www.nchta.org/execsumm/summ1201.shtml](http://www.nchta.org/execsumm/summ1201.shtml).

## Methods

We addressed this issue by undertaking: i) A systematic review of the effectiveness of glycopeptide compared with nonglycopeptide prophylaxis; ii) A systematic review of economic evaluations of the cost effectiveness of glycopeptide prophylaxis compared to appropriate comparators; iii) A series of supplementary reviews

to support the economic modeling; iv) A modeling approach to estimate the cost effectiveness of glycopeptide prophylaxis compared to appropriate comparators, using orthopedic surgery as an example.

## Further research/reviews required

Future research needs to address the complexities of decision making relating to infection control in general and MRSA prevention in particular. Focusing on MRSA alone is too limited, and the prophylactic use of glycopeptides is only one aspect of infection control. Research including evidence synthesis and decision modeling comparing a full range of interventions for infection control, which extends to other infections not just MRSA, is needed. A long-term research program to predict the pattern of drug resistance and its implications for future costs and health is needed. Development of a full model or algorithm that clinicians could use to guide prophylaxis would require collaboration by experts. In practice it would be difficult to use such a model by defining a MRSA threshold for a particular hospital, and emphasis should be given to basing decisions on an individual patient's level of risk.