

RGH Pharmacy E-Bulletin

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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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Antimicrobials for Vancomycin Resistant Enterococci

Vancomycin Resistant Enterococci (VRE) is a continually increasing problem in Australia, with further outbreaks occurring at major public hospitals over the last six months. The incidence of VRE colonization in Australia is approximately 0.2% of the general population and infections with VRE are rare (incidence of approximately 0.001% of the general population) but these numbers are likely to increase. The most common strain of VRE found in Australia is *vanB Enterococcus faecium* making up approximately 70% of VRE isolates, while *vanB Enterococcus faecalis* is the next most common accounting for approximately 20% of isolates. Infections caused by these organisms are difficult to treat as they are resistant to most conventional antibiotics and mortality is high. Risk factors for VRE infection include renal failure, organ transplant, malignancy, extended hospital or ICU stay, catheterisation and previous gastrointestinal tract colonization. The first steps in treating a VRE infection should be the removal of infected devices and drainage of closed area infections if appropriate. However, antibiotic treatment may be required in most cases.

A number of older antimicrobials have been previously used to treat VRE infections including high dose ampicillin, teicoplanin, chloramphenicol, tetracyclines and nitrofurantoin (for UTIs only). Two newer agents currently available on the market are quinupristin 30%/dalfopristin 70% (Synercid[®]) and linezolid (Zyvox[®]). These two antimicrobials were approved by the FDA for use in 1999 and 2001 respectively and have shown improved clinical efficacy against a high number of strains of VRE. Both products are bacteriostatic and work by inhibiting bacterial protein synthesis. Comparisons between the two agents are shown in the following table:

	Quinupristin/Dalfopristin	Linezolid	
Antibiotic Class	streptogramin	oxalidinone	
Formulation	IV	IV and Oral	
Major Adverse Effects	arthralgia, myalgia thrombophlebitis	myelosuppression, interaction with serotonergic drugs	
Clinical success rates in trials	non-cancer patients	Approx. 70-80%	Approx. 80%
	cancer patients	43%	58%
VRE Susceptibility	<i>E. Faecium</i> only	<i>E. Faecium</i> , <i>E. Faecalis</i>	
Approximate Cost	\$A250 per vial	\$A130 per tablet/vial	

Resistance to these antimicrobials is currently rare but it is of utmost importance they are reserved for use against multi-resistant pathogens. Continued monitoring for resistance in patients undergoing therapy is also important as linezolid resistance has been reported after prolonged treatment. The role of the newer antibiotics daptomycin and tigecycline in VRE infections is still being determined but both agents have shown good in vitro activity against this organism.

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FOR FURTHER INFORMATION – CONTACT THE PHARMACY DEPARTMENT ON 82751763 or email: chris.alderman@rgh.sa.gov.au
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