Antibiotic Resistance

Is there a way out of the woods?

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One of the major advances in medicine has been the development of effective antibiotics.
Antibiotic resistance is a consequence of antibiotic use and misuse.

- MRSA, CA(MRSA), VRE, multi resistant Strep. Pneumoniae,

- G (-): multi drug resistant eg *multi resistant E. coli*.
Comparison of Australian and European antibiotic use in the community in 2009

Australia is one of the highest users of antibiotics in the developed world.

~ 22 million Rx written every year in primary care.

The defined daily dose in Australia is nearly 23/10000 population/day compared with less than 15 for Denmark, the Netherlands and Sweden.
The Future of Antibiotics?

In 2002, out of 89 new medicines emerging on the market, no new antibacterial drugs were approved. Since 1998, only seven new antibacterials have been approved. Current annual reports for leading pharmaceutical companies (Merck, Pfizer, GlaxoSmithKline, Bristol-Myers Squibb, Aventis, Abbot, AstraZeneca, Lilly, Hoffmann-LaRoche, Johnson & Johnson, and Novartis) list only 4 new antibacterials in the drug pipeline out of 290 agents listed (or 1.38% of the products in development).

New antibacterial agents approved in the United States per 5-year period from 1983 to 2002.

(Source: ASM News 2004, 70, 275)
Return to the pre-antibiotic era

- Bacterial meningitis (fatal)
- Endocarditis (fatal)
- *Staph aureus* bacteraemia (mortality 80%)
Bacterial mechanisms to avert antibiotics
Prudent antibiotic use – evidence based, avoid when benefit is minimal.

- Antibiotic Stewardship.
- Infection control.
War between us and them