Clinical advice concerning the shortage of benzylpenicillin

BACKGROUND
On the 20th September 2011 CSL Laboratories released a circular to hospitals advising of a delivery delay from overseas suppliers of benzylpenicillin.

CSL will be placing restrictions on supply to hospitals until December 2011. This affects all strengths (600mg, 1.2g, 3g)

Narrow-spectrum penicillins such as benzylpenicillin, procaine penicillin and benzathine penicillin are active against Gram-positive organisms (streptococci, enterococci and beta-lactamase negative Staphylococcus aureus. They are also active against a range of fastidious Gram negative bacteria, including beta-lactamase negative Haemophilus species and Neisseria meningitidis.

Parenteral benzylpenicillin (penicillin-G) is the mainstay for treatment of moderate to severe community-acquired pneumonia, streptococcal infections, neurosyphilis and various other serious infections.

GENERAL COMMENTS
There are appropriate substitute antibiotics for benzyl penicillin in all clinical condition.

In the majority of cases, the use of broad spectrum antibiotics will not be required to treat conditions for which benzyl penicillin is normally prescribed.

The use of the recommended alternate antibiotics means that the shortage of benzyl penicillin will not contribute to the wider spread of multi resistant pathogens.

RECOMMENDATIONS FOR ALTERNATIVE ANTIBIOTIC USE
These recommendations are made by the Australian Commission on Safety and Quality in Health Care following discussion with their HAI Advisory Committee.

1. For most clinical indications, ampicillin or amoxicillin injections can be safely substituted for benzylpenicillin. The general recommended dosage equivalence is:
   a. Adult : 1.2g benzylpenicillin = 1g ampicillin or 1g amoxicillin injection
   b. Children: 60mg/kg benzylpenicillin = 50mg/kg ampicillin or 50mg/kg amoxicillin injection

   Important exceptions and provisos are detailed in the attached table.

2. As there are no anticipated shortages for either procaine penicillin or benzathine penicillin, Central Australian Rural Practitioners Association (CARPA) remote area guidelines can be followed as written.

3. In the treatment presumptive meningococcal infection ampicillin or amoxicillin for IM/IV is recommended for use - see attached chart for dose recommendations.

4. A reserve stock of benzylpenicillin should be maintained for the treatment of congenital syphilis.

CONTACT
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### Specific Clinical Syndromes That Require Additional Consideration

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<th>Syndrome or Diagnosis</th>
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| Acute meningitis, empiric treatment to include coverage of *Listeria monocytogenes* | 1. Dexamethasone 10mg (child: 0.15mg/kg up to 10mg) IV starting before or with the first dose of antibiotic, **PLUS**  
Ampicillin * 2g (child: 50mg/kg up to 2g) IV, every 4 hours **PLUS**  
Ceftriaxone 2g (child: 50mg/kg up to 2g) IV, every 12 hours **OR**  
Cefotaxime* 2g (child: 50mg/kg up to 2g) IV, every 6 hours | For adults and children aged 3 months and more when coverage required for *Listeria monocytogenes*.  
Patients at risk from *Listeria* infection include: immunocompromised, adults more than 50 years of age, patients with a history of alcohol abuse or patients who are pregnant or debilitated. |
| Acute meningitis, directed treatment for: *Listeria monocytogenes* *Haemophilus influenzae* type B (betalactamase negative strains) *Streptococcus pneumoniae* (fully susceptible strains, MIC < 0.125 mg/L) *Streptococcus agalactiae* | 1. Ampicillin* 2g (child: 50mg/kg up to 2g) IV, every 4 hours | For recommended durations of treatment, see TG: Antibiotic, Edition 14. |
| Endocarditis, empiric management | 1. Ampicillin* 2g (child: 50mg/kg up to 2g) IV, every 6 hours **PLUS**  
Flu/dicloxacillin* 2g (child: 50mg/kg up to 2g) IV, every 4 hours **PLUS**  
Gentamicin * 4-6mg/kg IV, daily | See Therapeutic Guidelines for detailed child and other dosing instructions for gentamicin. |
| Endocarditis, Streptococcal (viridans group) | 1. Viridans streptococci fully susceptible to penicillin (MIC 0.12mg/L or less), use: Ceftriaxone 2g (child 50mg/kg up to 2g) IV daily for 4 weeks. | For viridans streptococci with MIC > 0.12mg/L, seek clinical microbiologist or infectious diseases physician advice. |
| Meningococcal infection (presumptive) | 1. Ampicillin* dose recommendations (for IV or IM usage)  
Child less than 1 year: 375mg; Child 1-9 years: 750mg  
Adult or child 10 years or more: 1.5g  
2. Ceftriaxone 2g (Child: 50mg/kg up to 2g) IV, stat in remote areas | |
| Necrotizing fasciitis due to *Streptococcus pyogenes* | 1. Cephazolin* 2g (child: 50mg/kg up to 2g) IV, every 8 hours **PLUS**  
Clindamycin or lincomycin | See TG: Antibiotic, Edition 14 for dosage instructions for clindamycin and lincomycin. |
| Neurosyphilis (adult) | 1. Procaine penicillin 3g IM, daily together with probenecid 500mg, oral every 6 hours given for 10 – 14 days  
2. Ceftriaxone 2g IV, daily for 10 – 14 days | There are no published trial evidence supporting use of ampicillin in neurosyphilis. |

* Reduce dose in renal impairment.  