

DAPTOMYCIN PRESCRIBING AND MONITORING GUIDELINE (ADULTS)



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BACKGROUND

Daptomycin is a cyclic lipopeptide antibiotic with potent bactericidal activity against Gram positive organisms including streptococci, coagulase negative staphylococci and *Staphylococcus aureus*, including methicillin resistant *Staphylococcus aureus* (MRSA) and glycopeptide intermediate *Staphylococcus aureus* (GISA).

INDICATIONS

Daptomycin is a restricted antimicrobial and may only be prescribed on the advice of a consultant microbiologist. Daptomycin should be prescribed on the antimicrobial section of the All Wales Medicines Administration Chart.

BASELINE BLOODS

- Urea and electrolytes
- Creatine kinase (CK) Please see chart below for reference ranges:

Age	Gender	Range
All	Male	40-320
All	Female	25-200
Unknown	Unknown	25-320

DOSING

The licensed dose of daptomycin is 4-6 mg/kg ONCE DAILY. However, there is evidence to suggest that this is insufficient for treating some infections. Higher doses of **8-12mg/kg ONCE DAILY** (off-label use) may therefore be recommended by a microbiologist.

Dose using actual body weight if BMI is less than 35 kg/m², but use adjusted body weight (see calculation below) if the BMI is over 35 kg/m². BMI may be calculated using the BNF calculator or equation below:

<https://www.medicinescomplete.com/mc/bnflegacy/current/>

$$\text{BMI (kg/m}^2\text{)} = \text{weight (kg)} / (\text{height(m)}^2)$$

Ideal body weight (IBW):

Male: IBW (kg) = [(height (cm*) – 152.4) x 0.9] + 50

Female: IBW (kg) = [(height (cm*) – 152.4) x 0.9] + 45.5

* Height in inches x 2.54 = Height in cm

Adjusted body weight (ABW):

Adjusted body weight (ABW) (kg) = IBW + 0.4 (actual weight (kg) – IBW)

Daptomycin vials are available in 350mg and 500mg strengths. The dose should be rounded up or down to minimise wastage. If advice is required, please contact pharmacy or microbiology.

ADMINISTRATION

Daptomycin (standard doses of 4-6mg/kg) can be administered by IV injection (over 2 minutes) or IV infusion over 30 minutes. Higher doses (8-12mg/kg) should be administered by IV infusion over 1 hour.

For *intravenous infusion*, manufacturer advises give intermittently in Sodium Chloride 0.9%; reconstitute with Sodium Chloride 0.9% (350 mg in 7 mL, 500 mg in 10 mL); gently rotate vial without shaking; allow to stand for at least 10 minutes then rotate gently to dissolve; dilute requisite dose in 50 mL infusion fluid.

Please see Injectable Medicines Guide for further information.

RENAL IMPAIRMENT

eGFR (mL/min /1.73m ²)	Dose
31-50	Dose as in normal renal function
< 30	Give normal dose (4-6mg/kg OR 8-12mg/kg) every 48 hours
Renal replacement therapies	Seek advice from Pharmacy

HEPATIC IMPAIRMENT

No dose adjustment is necessary in patients with mild or moderate hepatic impairment. Use with caution in severe hepatic impairment as no data available.

ADDITIONAL MONITORING AND OTHER CONSIDERATIONS

- Weekly CK, unless any of the following apply, in which case CK should be monitored every 2-3 days:
 - eGFR < 80 mL/min
 - Baseline CK > 5× upper limit of normal
 - concomitant use of a drug which can cause myopathy which cannot be stopped
- Withhold statins and restart when daptomycin course is complete. If it is not possible to withhold statins, monitor CK every 2-3 days.
- Consider stopping daptomycin if an increasing trend in CK is seen or if CK rises to greater than 5 x upper limit of normal. Discuss alternative antibiotic choice with microbiologist.
- Monitor for myopathy, rhabdomyolysis and neuropathy *i.e.* advise patients to report unexplained muscle pain, tenderness, weakness and cramps, numbness, tingling, pins and needles. Myopathy is seen in approximately 2% of patients receiving daptomycin, although the majority of these patients do not necessarily require treatment to be stopped.
- Eosinophilic pneumonia has been reported in patients receiving daptomycin.
- Monitor renal function regularly – three times a week if stable, otherwise daily.
- Daptomycin should be refrigerated.
- Daptomycin is usually well tolerated. Common adverse effects include gastrointestinal disturbance, injection site reactions and headache.
- For information on the use of daptomycin in pregnant or breastfeeding patients please contact the Medicines Information Department (Pharmacy).

DAPTOMYCIN LEVELS

- Levels are not usually necessary, however consider in patients with the following (please liaise with pharmacy and microbiology):
 - Infections requiring treatment for more than 2 weeks, especially if receiving higher than standard licensed doses
 - Impaired renal function
 - Baseline Creatine Kinase (CK) > 5× upper limit of normal.
 - Extremes of body weight
- A pre-dose sample is required.
- Take the first level on day 4 or 5 of treatment.

Do NOT omit doses while awaiting results from Bristol laboratory as can take up to 7 days

- Reference range: Pre-dose: 5-20 mg/L (10-20 mg/L in sepsis).
- Repeat levels weekly.
- Discuss any levels that are out of range with Microbiologist or Pharmacist.

REFERENCES

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