


Name of Policy: <u>Daptomycin Dose-Adjustment and Batch Printing</u> Policy Number: 3364-133-136 Department: Pharmacy Approving Officer: Senior Hospital Administrator Responsible Agent: Director of Pharmacy Scope: University of Toledo Medical Center	 Effective Date: 4/25/2022 Initial Effective Date: 5/1/2019
<input type="checkbox"/> New policy proposal <input type="checkbox"/> Major revision of existing policy	<input type="checkbox"/> Minor/technical revision of existing policy <input checked="" type="checkbox"/> Reaffirmation of existing policy

(A) Policy Statement

Dosing:

All doses for daptomycin will be automatically rounded according to hospital-approved dose calculations and dose-rounding (Appendix I).

Batch Printing:

When a medication order is received for daptomycin initiation, the first dose will be prepared and sent immediately. All subsequent doses will be scheduled to be administered at 2000. If a dose change occurs before the dose is prepared for the day, the new dose will begin at 2000 that day. If a dose change occurs after the dose is prepared, the new dose will begin at 2000 the following day.

(C) Purpose of Policy

To limit antimicrobial compounding waste by implementing batch printing and compounding, and a standard dosing and administration time for maintenance doses of daptomycin.

(C) Procedure

Dosing:

1. Upon receipt of a medication order for daptomycin, a pharmacist will round the prescribed dose to the nearest 50mg-increment dose according to the dose-rounding table and calculations located in Appendix I
 - a. Exclusions:
 - i. Provider instructions for “Do Not Adjust” in the comments section of the order

Batch Printing:

1. Upon receipt of a medication order for daptomycin before 1200, the pharmacist will input the first dose immediately and have it sent up stat
 - a. The pharmacist will then time subsequent maintenance doses to start at 2000 the same day for patients receiving daptomycin every 24 hours; subsequent maintenance doses will start at 2000 the following day for patients receiving daptomycin every 48 hours
2. Upon receipt of a medication order for daptomycin after 1200, the pharmacist will input the first dose immediately and have it sent up stat
 - a. The pharmacist will then time subsequent maintenance doses to start at 2000 the following day for patients receiving daptomycin every 24 hours; subsequent maintenance doses will start at 2000 two days after the initial dose for patients receiving daptomycin every 48 hours

(D) Background

Daptomycin is an intravenous cyclic lipopeptide antibiotic with activity against a broad-spectrum of aerobic, Gram-positive bacteria, including *Enterococcus faecalis* (vancomycin-susceptible and vancomycin-resistant isolates), *Enterococcus faecium* (vancomycin-susceptible and vancomycin-resistant isolates), and *Staphylococcus aureus* (including methicillin-resistant isolates)¹. FDA-approved dosing recommendations for daptomycin are 4 mg/kg once every 24 hours when treating complicated skin and skin structure infections (cSSSI) and 6 mg/kg once every 24 hours when treating *S. aureus* bacteremia, however recent literature recommends doses as high as 8 – 12 mg/kg depending on the pathogen and site of infection¹⁻³. In morbidly obese patients, this may lead to significantly higher doses and increased risk for adverse effects (ie; elevated creatinine phosphokinase) and thus the use of adjusted body weight (AdjBW) or a fixed, non-weight-based dose could be considered^{4,5}.

References:

1. Daptomycin (Cubicin®) [package insert]. Whitehouse Station, NJ: Merck & Co, Inc. Revised December 2018.
2. Liu C, Bayer A, Cosgrove SE, et al. Clinical practice guidelines by the Infectious Diseases Society of America for the treatment of methicillin-resistant *Staphylococcus aureus* infections in adults and children. *Clin Infect Dis* 2011;52:e18-55.
3. Baddour LM, Wilson WR, Bayer AS, et al. Infective endocarditis in adults: diagnosis, antimicrobial therapy, and management of complications: a scientific statement for healthcare professionals from the American Heart Association. *Circulation* 2015;132(15):1435-86.
4. Polso AK, Lassiter JL, Nagel JL. Impact of hospital guideline for weight-based antimicrobial dosing in morbidly obese adults and comprehensive literature review. *J Clin Pharm and Ther* 2014;39:584-608.
5. Butterfield-Cowper JM, Lodise TP, Pai MP. A fixed versus weight-based dosing strategy of daptomycin may improve safety in obese adults. *Pharmacotherapy* 2018;38(9):981-5.
6. Memoli D, Shepardson A, Joshi M, et al. Reducing daptomycin expenditures by standardizing doses. *Am J Health Syst Pharm* 2014;71:12-14.

APPENDIX I:

Table 1. Daptomycin Dose Calculation

Pathogen	Weight-based Dose [§]	Dosing Weight	Frequency of Administration		
			CrCl ≥ 30 mL/min	CrCl < 30 mL/min or CRRT	3x/week HD
MRSA <ul style="list-style-type: none"> Standard/vancomycin intolerance Vancomycin failure[†] or MIC = 2 	6 mg/kg 8 mg/kg	ABW < 130% of IBW: ABW ABW ≥ 130% of IBW: AdjBW	Q24 hours	Q48 hours	6-, 6-, 8 mg/kg OR 8-, 8-, 10 mg/kg Post HD
VRE Bacteremia <ul style="list-style-type: none"> Daptomycin MIC ≤ 1 Daptomycin MIC 2 – 4 	6 mg/kg 8 – 12 mg/kg				

[§]Dose to be selected during the order entry process

[†]Vancomycin failure defined as as greater than 5 days of bacteremia after source control is achieved

ABW = actual body weight; AdjBW = adjusted body weight; IBW = ideal body weight

IBW (men) = 50 + (2.3) x (Ht in inches > 60)

IBW (women) = 45.5 + (2.3) x (Ht in inches > 60)

AdjBW = IBW + 0.4(TBW-IBW)

Table 2. Daptomycin Dose-Rounding

Prescribed Dose	Rounded Dose	Prescribed Dose	Rounded Dose	Prescribed Dose	Rounded Dose
< 250 mg	250 mg	551 – 600 mg	600 mg	901 – 950 mg	950 mg
251 – 300 mg	300 mg	601 – 650 mg	650 mg	951 – 1000 mg	1000 mg
301 – 350 mg	350 mg	651 – 700 mg	700 mg	1001 – 1050 mg	1000 mg
351 – 400 mg	400 mg	701 – 750 mg	750 mg	1051 – 1100 mg	1100 mg
401 – 450 mg	450 mg	751 – 800 mg	800 mg	1101 – 1150 mg	1150 mg
451 – 500 mg	500 mg	801 – 850 mg	850 mg	1151 – 1200 mg	1200 mg
501 – 550 mg	500 mg	851 – 900 mg	900 mg	> 1200 mg	Consult ID

<p>Approved by:</p> <p><u>/s/</u> Lindsey Eitnrear, PharmD, BCPS, AAHIVP Director of Pharmacy</p> <p style="text-align: right;"><u>04/25/2022</u> Date</p> <p><u>/s/</u> Russell Smith, PharmD, MBA, BCPS Senior Hospital Administrator</p> <p style="text-align: right;"><u>04/25/2022</u> Date</p> <p><i>Review/Revision Completed By:</i> Pharmacy</p>	<p>Review/Revision Date: 4/22</p> <p>Next Review Date: 4/1/2025</p>
<p>Policies Superseded by This Policy:</p>	