

# LOS ANGELES GENERAL MEDICAL CENTER POLICY

Subject: <b>ZOLEDRONIC ACID DOSING BY PHARMACY</b>	Original Issue Date: 7/19/19	Policy # <b>951</b>
	Supersedes: 7/19/19	Effective Date: 2/5/24
Policy Owner(s): Director of Pharmacy Services Executive Sponsor(s): Chief Medical Officer		
Departments Consulted: Pharmacy & Therapeutics Committee Endocrinology Hematology Medical Oncology	Reviewed & approved by: Attending Staff Association Executive Committee Senior Executive Officer	Approved by:  Chief Medical Officer  Chief Executive Officer

## PURPOSE

- A. Zoledronic acid dosing is driven by indication and renal function.
- B. This policy establishes procedures for determination and ordering of zoledronic acid dose by pharmacists.

## DEFINITIONS

- CrCl: creatinine clearance
- EHR: electronic health record
- IBW: ideal body weight calculated as:
  - IBW in kg (male) =  $50 + (2.3 \times \text{height in inches above } 60)$
  - IBW in kg (female) =  $45.5 + (2.3 \times \text{height in inches above } 60)$

## POLICY

- A. The pharmacist may pursue zoledronic acid dosing by pharmacy for all zoledronic acid orders. The zoledronic acid order is not required to include a pre-specified dose by the ordering physician. When entered the Orchid EHR, the zoledronic acid order must state the name of the original ordering physician whether dosed by physician or by pharmacist.
- B. Upon receipt of a zoledronic acid order without a pre-specified dose by the ordering physician, the pharmacist will calculate an appropriate dose according to the established principles below. The pharmacist will enter this dose into the Orchid EHR with an Order Comment stating, "Dosed by Pharmacy per P+T pharmacy protocol." The pharmacist will document the zoledronic acid dosing by pharmacy by entering a Pharmacy Progress Note into the Orchid EHR.

- C. Upon receipt of a zoledronic acid order with a pre-specified dose by the ordering physician, the pharmacist will calculate an appropriate dose according to the established principles below. If the calculated dose differs from the pre-specified dose, then the pharmacist will enter the calculated dose into the Orchid EHR with an Order Comment stating, “Dosed by Pharmacy per P+T pharmacy protocol.” The pharmacist will document the zoledronic acid dosing by pharmacy by entering a Pharmacy Progress Note into the Orchid EHR. Otherwise, the pharmacist will enter the pre-specified dose into the Orchid EHR.
- D. For zoledronic acid orders scheduled to be given on a recurring frequency, the pharmacist may calculate an appropriate dose prior to each administration due.

**E. Established Principles of Zoledronic Acid Dosing**

1. Zoledronic acid at a dose of 5 mg is indicated for osteoporosis in postmenopausal women, osteoporosis in men, glucocorticoid-induced osteoporosis, and Paget’s disease of bone. Renal dose adjustment is not recommended for these situations. Administration is considered contraindicated at CrCl less than 35 mL/min for these situations.
2. Zoledronic acid at a dose of 4 mg is indicated for hypercalcemia of malignancy, multiple myeloma, and bone metastases of solid tumors. A dose of 4 mg is also considered standard when zoledronic acid is being given more frequently than once per year. Renal dose adjustment is recommended for these situations based on the table below. Unless serum creatinine is greater than or equal to 4.5 mg/dL, renal dose adjustment is considered unnecessary for initial administration when treating hypercalcemia of malignancy.

CrCl (mL/min)	Zoledronic acid dose (mg)
Greater than 60	4
50 to 60	3.5
40 to 49	3.3
30 to 39	3

a. The Cockcroft-Gault formula is used to calculate CrCl:

$$\text{CrCl in mL/min (male)} = [(140 - \text{age}) \times (\text{weight})] / (72 \times \text{serum creatinine})$$

$$\text{CrCl in mL/min (female)} = [0.85 \times (140 - \text{age}) \times (\text{weight})] / (72 \times \text{serum creatinine})$$

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*(Age in years, weight in kg, serum creatinine in mg/dL)*

- b. When actual body weight is greater than 130% of ideal body weight, an adjusted body weight may be used in the Cockcroft-Gault formula. This adjusted body weight is calculated as:

$$\text{Adjusted body weight in kg} = \text{IBW} + [0.4 \times (\text{actual body weight} - \text{IBW})]$$

*(IBW in kg, actual body weight in kg)*

**RESPONSIBILITY**

Pharmacy Department

**REFERENCES**

- Zoledronic acid (Reclast) prescribing information. Novartis Pharmaceuticals Corporation. November 8, 2018.
- Zoledronic acid (Zometa) prescribing information. Novartis Pharmaceuticals Corporation. December 14, 2018.

**REVISION DATES**

July 19, 2019; February 5, 2024