

CAREPACT Residential Aged Care Facility (RACF) - Administration of intravenous zoledronic acid infusion

PURPOSE

This work instruction describes the processes for the administration of intravenous zoledronic acid infusion in an RACF by Comprehensive Aged Residents Emergency Partners in Assessment Care (CAREPACT) Mobile Emergency Team (MET).

This work instruction aligns to MSH procedure PR2022-304 Medicines Management.

OUTCOME

- Ensure consistent, appropriate, and safe prescribing of zoledronic acid in the RACF setting.
- Enable safe and effective administration and monitoring of zoledronic acid infusion in the RACF.
- Maintain compliance with PR2022-304 Medicines Management, Osteoporosis Adult Prescribing Guidelines as detailed on [MSH Prescribe](#) and local RACF substance management plans.

SCOPE

This work instruction applies to:

- all CAREPACT clinicians employed within or acting on behalf of Metro South Health (MSH) Residential Aged-Care Support Service (RaSS)
- intravenous (IV) administration of 5mg/100mL and 4mg/5mL all zoledronic acid.
 - Zoledronic acid includes Aclasta, Osteovan, Ostira, Zoledasta, Deztron, Zometa, Zoledronic Acid Actavis.

WORK INSTRUCTION

1. INDICATIONS FOR IV ZOLEDRONIC ACID

- Osteoporosis
 - In postmenopausal women
 - In men
 - In patients >50years who have had a hip fracture or history of low trauma fracture
 - Associated with long term corticosteroid use
 - Osteoporosis proven with bone mineral density (BMD) test.
- Prevention of corticosteroid induced bone mineral density loss

- Paget's disease of bone
- Hypercalcaemia of malignancy
- Prevention of skeletal related events (pathological fractures, spinal cord compression) in patients with malignancy involving bone
- See Pharmaceutical Benefits Scheme (PBS) additional information on patient criteria for PBS prescribing [Pharmaceutical Benefits Scheme \(PBS\)](#).

2. CONTRAINDICATIONS

- Hypersensitivity to bisphosphonates (including oral medication), or any other excipients.
- Hypocalcaemia.
- Severe renal impairment (CrCl<35mL/minute; CrCL< 30mL/minute for patients with malignancy).
- Current or recent uveitis, or a history of bisphosphonate associated uveitis.

3. PRECAUTIONS AND RISKS

- Dehydration: patients must be adequately hydrated before and after administration. For most patients this can be achieved by drinking two glasses of fluid before and after the infusion. For residents unable to tolerate this amount of fluids orally, discuss with CAREPACT Senior Medical Officer (SMO) or Nurse Practitioner (NP) for consideration of intravenous fluid (IVF).
- Renal impairment: (contraindicated CrCl <35mL/minute) ensure creatinine clearance is calculated prior to infusion, also take into consideration any other nephrotoxic medication the patient is taking, this is particularly relevant for elderly using diuretics.
- Pre-existing hypocalcaemia or vitamin D deficiency.
- Osteonecrosis, particularly of the jaw: consider dental assessment prior to use especially those at high risk (cancer or other risk factors, e.g., chemotherapy, radiotherapy, corticosteroid treatment, poor oral hygiene, anaemia, periodontal disease).
- Previous thyroid surgery (risk of hypocalcaemia).

4. DOSING AND PRODUCT SELECTION

- Zoledronic acid 5mg /100mL solution for infusion.
 - The 5mg/100ml solution is used for prevention and yearly infusions for prevention and treatment of Osteoporosis or Paget's disease
- Zoledronic acid 4mg / 5ml solution for infusion.
 - The 4mg/5ml solution is used for hypercalcaemia related to hyperparathyroidism or malignancy. It is also used for prevention of skeletal events in malignancy.
- Doses should be reduced with renal function.

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- Adult, IV infusion 4 mg, repeated every 3–4 weeks.
- CrCl 50–60 mL/minute, 3.5 mg.
- CrCl 40–49 mL/minute, 3.3 mg.
- CrCl 30–39 mL/minute, 3 mg.

5. PRESCRIBING

- Zoledronic acid is to be prescribed by General Practitioner (GP) who is familiar with the patient. The GP is to obtain patient consent for the infusion.
- Prior to prescribing GPs are advised to check renal function, check vitamin D and calcium levels. If levels below normal, consider correcting levels prior to infusion.

6. REFERRAL TO CAREPACT

- The RACF clinician contacts the CAREPACT Emergency Support line to refer the resident.
- The CAREPACT Clinical Nurse Consultant (CNC), or delegate will obtain the required information from the RACF via the telephone triage process.
- Required triage information:
 - Indication for the infusion
 - Medical history to assess for any contraindications
 - Previous zoledronic acid infusions or has been on oral bisphosphonates
 - Current pathology: full blood count, renal function – these measurements must be taken **at the most four (4) weeks prior** to infusion to ensure currency of results
 - Resident’s current weight and vital signs including blood pressure, pulse rate, temperature, respiratory rate, and oxygen saturation
 - Confirmation GP has obtained consent and ensure this is documented in the notes
 - Confirmation zoledronic acid is charted on the residents RACF medication chart
 - Confirmation stock of medication available in RACF
 - Copy of bloods, medication list and zoledronic acid order to be emailed into CAREPACT, bloods may also be obtained via My Health Record where available.
- If the required information and consent is not confirmed at the time of the initial call, the CNC is to advise RACF clinician to call back when this is available. Fax or email a copy of the RACF zoledronic acid infusion checklist to the RACF Clinician – refer to Appendix 1 Zoledronic acid checklist.
- The CAREPACT Consultant or Registrar determines if the infusion is indicated and there are no contraindications as per Sections 3 and 4.
- Triage and documentation are completed as per MSH Procedure Documents:

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- [PR2015-53 Comprehensive Aged Residential Emergency Partners in Assessment, Care & Treatment \(CAREPACT\): Clinical Governance and Referral Pathways for Residents of Aged Care Facilities](#)
- [PR2015-54 Comprehensive Aged Residential Emergency Partners in Assessment, Care & Treatment \(CAREPACT\) Clinical Records & Documentation of Patient Encounters.](#)

7. ADMINISTRATION

CAUTION

Zoledronic acid is available in different strengths that reflect the doses used for different indications. Check product selection carefully.

- Resident assessment by MET as per MSH procedure document [PR2015-54 Comprehensive Aged Residential Emergency Partners in Assessment, Care & Treatment \(CAREPACT\) Clinical Records & Documentation of Patient Encounters](#)
- Verify resident identity for any allergies.
- Confirm Zoledronic acid order charted on RACF medication chart.
- A baseline set of vital including blood pressure, pulse rate, temperature, respiratory rate, and oxygen saturation should be recorded prior to administration of infusion.
- Prior to administration the nurse must ensure patient is adequately hydrated. It is recommended that the patient has two glasses of fluid before and after the infusion.
- Zoledronic acid 5mg/mL in 100mL bag should be given as an intravenous infusion over a minimum of 15 minutes. No dilution is required [1].
 - The 800 microgram/mL (4 mg/5 mL) vial should be diluted with 100 mL sodium chloride 0.9% or glucose 5%, given by IV infusion over >15 minutes.
 - If the dose is reduced for renal function, then draw up the reduced dose and dilute in 100mL of sodium chloride 0.9% or glucose 5% given by IV infusion over >15 minutes.

8. MONITORING

- Monitor vital signs (as outlined in Section 7 Administration) before commencement, five (5) minutes after commencement, and on completion of the infusion. CAREPACT clinician to stay with the patient during this time. RACF clinician to check vitals 30 minutes post infusion.
- The IV cannula site should be checked regularly for signs of extravasation (discolouration or swelling) throughout the infusion and post infusion. If extravasation is suspected advise CAREPACT NP/SMO. Apply a cold compress to affected area for comfort measures.
- If the patient demonstrates signs or symptoms of adverse drug reactions (see section 10) during the infusion, then cease the infusion immediately and contact CAREPACT NP or SMO.

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- Update patient’s health record as per MSH Guideline [GL2017-27 Recording an adverse drug reaction in ieMR.](#)
- Zoledronic acid intravenous infusion can cause hypersensitivity reactions including anaphylaxis, which untreated can be potentially fatal. Symptoms of anaphylaxis include sweating, tachycardia, bronchospasm, dyspnoea, dizziness, hypotension, cardiac arrest). Ensure emergency equipment and drugs for the treatment of anaphylaxis (including adrenaline) are available throughout the procedure. Refer to MSH Procedure [PR2021-250 CAREPACT Anaphylaxis Management.](#)
- Post dose symptoms can occur within the first three (3) days after administration. These include fever, myalgia, flu-like symptoms, muscle pain and headache. These can be reduced by taking paracetamol. Note, non-steroidal anti-inflammatory medications such as ibuprofen are **not recommended**.

9. ADVERSE EFFECTS

Common	Infrequent	Rare/Serious
<ul style="list-style-type: none"> • nausea, anorexia, vomiting • diarrhoea • headache • hypocalcaemia, hypophosphatemia • musculoskeletal pain (may rarely be severe and/or disabling) • fever • flu-like symptoms • injection site reaction • increased creatinine concentration • myalgia • bone pain • hypertension 	<ul style="list-style-type: none"> • hypotension • anaemia 	<ul style="list-style-type: none"> • heart failure • chest pain • renal impairment • ocular inflammation (e.g., iritis, uveitis, scleritis) • osteonecrosis (primarily of the jaw) • atypical femoral fractures • allergic reactions including angioedema • severe skin reactions including Stevens-Johnson syndrome • anaphylactic shock

10. PATIENT AND CLINICAL EDUCATION

- Patients/family and RACF clinicians should be provided with a consumer medicines information leaflet (CMI) from MIMs before their infusion when appropriate.
- Patients should be monitored for nausea, fever, myalgia, flu-like symptoms, muscle pain and headache which are common side effects following the infusion and should be treated with paracetamol (NSAIDs like ibuprofen are not recommended). Symptoms should resolve within 24-48 hours. If symptoms are severe or do not settle the RACF clinician should advise the GPs.

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- Promptly seek medical advice if the patient develops tooth and or jaw pain. Inform their dentist they have had bisphosphonate treatment.

RESPONSIBILITIES

Position	Responsibility	Audit criteria
Quality assurance and process improvement network	<ul style="list-style-type: none"> • Review and endorse document. • Network to action any escalated Morbidity and Mortality (M&M) cases and Riskman Reports 	<ul style="list-style-type: none"> • Monitoring of CAREPACT document list.
Senior leadership team (SMO/Consultants, Nurse Practitioners, Clinical Nurse Consultants.	<ul style="list-style-type: none"> • Ensure work instruction is up to date and that staff are aware of responsibilities contained in document. Ensure staff obtain the appropriate skills and knowledge through education and training and are competent in this document. • Use the organisation wide risk management system (Riskman) to identify, monitor, manage and review risks associated with RACF discharges and minimising patient harm. 	<ul style="list-style-type: none"> • Review of M&M and Riskman reporting for incidents related to administration of zoledronic acid to RACF residents by CAREPACT Clinicians. • Regular auditing of patient files to monitor compliance. • Training and orientation records.
Clinicians	<ul style="list-style-type: none"> • Practice according to this work instruction and participate in learning opportunities. • Work collaboratively with RACF clinicians, patients, their families, and other nominated support persons. • Report any incidents relating to medications using the incident management system (Riskman). 	<ul style="list-style-type: none"> • Review of M&M and Riskman reporting for incidents related to administration of zoledronic acid to RACF residents by CAREPACT Clinicians. • Regular auditing of patient files to monitor compliance.

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RELATED AND SUPPORTING DOCUMENTS

Legislation and other Authority	<ul style="list-style-type: none"> • <i>Medicines and Poisons Act 2019</i> (Qld) • <i>Medicines and Poisons (Medicines) Regulations 2021</i> (Qld)
Standards	<ul style="list-style-type: none"> • National Safety and Quality Health Service (NSQHS) Standards: Standard 4 - Medication Safety
Supporting documents	<ul style="list-style-type: none"> • Queensland Health List of approved medicines (LAM) • PR2021-250 Comprehensive Aged Residential Emergency-Partners in Assessment, Care & Treatment (CARE-PACT) Anaphylaxis Management • PR2015-54 CARE-PACT - Clinical Records & Documentation of Patient Encounters • PR2022-304 Medicines Management • GL2017-27 Recording an adverse drug reaction in ieMR® • SO2021-34 STANDING ORDER – ADULT CARE-PACT Adrenaline (Epinephrine) 1:1000 Ampoule For treatment of anaphylactic allergic reactions • Aclasta product information MIMS Abbreviated PI (mimsonline.com.au) • Zoledronic acid monograph - Australian injectables handguide AIDH - ZOLEDRONIC ACID • Australian Medicines Handbook (AMH): Zoledronic acid

REFERENCES

No.	Reference
1	The Australian Injectable Drugs Handbook 9 th Edition, Zoledronic Acid Monograph

HUMAN RIGHTS ACT 2019

Metro South Hospital and Health Service is committed to respecting, protecting, and promoting human rights. Under the *Human Rights Act 2019*, Metro South Health has an obligation to act and make decisions in a way that is compatible with human rights and, when making a decision, to give proper consideration to human rights. When making a decision about the administration of zoledronic acid to older persons in residential aged care, decision-makers must comply with that obligation. Further information about the *Human Rights Act 2019* is available at: <https://www.forgov.qld.gov.au/humanrights>.

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WORK INSTRUCTION DETAILS

Work Instruction Name	CAREPACT Residential Aged Care Facility (RACF) - Administration of intravenous zoledronic acid infusion
Work Instruction Number	WI2023-285
Current Version	2.0
Keywords	Bisphosphonate, zoledronic acid, osteoporosis, infusion, ADTW, pharmacy, medications, CAREPACT, RACF, Nursing Home, Elderly, work instruction
Aligning MSH or Directorate Procedure Reference	PR2022-304 Medicines Management
Executive Sponsor	Executive Director Medical Services (EDMS)
Document Author	CAREPACT Clinical Nurse and Doctor
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REVIEW HISTORY

Version	Approval date	Effective from	Executive Sponsor	Comment
1.0	10/11/2023	29/11/2023	Executive Director Medical Services	New document
2.0	15/7/2024	24/7/2024	EDMS	Inclusion of 4mg dose.

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APPENDICES

1. APPENDIX 1: ZOLEDRONIC ACID CHECKLIST

Metro South Health | CAREPACT
Comprehensive Aged Residents Emergency
Partners in Assessment Care and Treatment

RACF Zoledronic Acid (Aclasta) Infusion Checklist

CAREPACT is available to administer Zoledronic Acid (Aclasta) in the RACF for residents that are prescribed it by the GP.

Indications for Zoledronic Acid (Aclasta)

Zoledronic Acid (Aclasta) is given as a once-yearly infusion for osteoporosis in patients aged 70 years of age or older with a bone mineral density T-score of -2.5 or less and in established osteoporosis with any fracture due to minimal trauma.

Checklist for RACF

For CAREPACT to administer Zoledronic Acid (Aclasta), all parts of this checklist are to be completed before the CAREPACT Mobile Emergency Team (MET) are deployed to the RACF.

- GP has completed consent for Zoledronic Acid (Aclasta) infusion.
- GP has completed script and prescribed the infusion on resident's medication chart.
- Script has been sent to pharmacy and supply delivered to the RACF.
- Send CAREPACT a copy of recent pathology (within the last 4 weeks) – FBC, Biochemistry, must include Calcium and Creatinine. eGFR < 35 absolute contraindication).
- Send CAREPACT a copy of infusion order, signing sheet and copy of medication list.
- Obtain current weight.
- Current vital signs (vitals need to be taken at time of call to CAREPACT to determine if resident is stable).

Contact CAREPACT CNC via the Emergency Support line once the above steps are completed.

You will be asked to email the resident's medication chart and pathology results.

These will then be reviewed by the CAREPACT Consultant.

Hours of Emergency Support Line

7 days per week

7:30am to 4pm

Phone: 0427 026 319

Email: CAREPACT@health.qld.gov.au

CAREPACT Mobile Emergency Team is available 7 Days per week

CAREPACT: A partnership between aged care facilities, GPs, hospitals, and community service providers to ensure right care is received at the right place, at the right time.

If you have any feedback regarding CAREPACT: email: CAREPACT@health.qld.gov.au

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