NHS
Greater Glasgow and Clyde

Guideline for IV Zoledronic Acid after Fragility Hip Fracture

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Using this Guidance

This Guidance is for use in Secondary Care by healthcare professionals managing patients following a fragility hip fracture. It aims to support prescribers in decision making around when to use IV zoledronic acid for secondary fracture prevention. This guideline replaces the previous NHS GGC guidance "Secondary fracture prevention after a hip fracture'.

This guidance only applies to patients with a fragility hip fracture (ie. low impact mechanism) aged 50 years and over. Separate guidance for starting bisphosphonates for longer term treatment of osteoporosis under other circumstances is available within GGC Clinical Guidelines.

The guidance does not apply to patients who have been taking oral bisphosphonates for over 2 years or who have had previous courses of IV zoledronic acid. These patients will be reviewed by the local Fracture Liaison Service.

The guidance includes a flowchart aiding the prescriber to assess the risk of Medication Related Osteonecrosis of the Jaw (MRONJ).

Prescribers should calculate creatinine clearance using the CrCl calculator available via the GGC Medicines App.

Primary care colleagues must be advised by letter if IV zoledronic acid has been administered.

Arrangements for subsequent annual doses should be arranged prior to discharge as per local protocols, which are signposted in the appendix section.

Background

Hip fractures are amongst the most common osteoporosis associated fractures seen in clinical practice and are associated with significant morbidity and mortality. Patients who present with hip fracture are at high risk for further osteoporosis associated fractures, including second hip fractures.

The Scottish Hip Fracture Standards recommend intravenous Zoledronic acid as the first line bisphosphonate for secondary prevention following a hip fracture. Zoledronic acid is a Bisphosphonate with potent inhibitory effects on osteoclastic bone resorption and a high binding affinity for bone mineral. It has a long duration of action and is the most potent Bisphosphonate available for the management of osteoporotic fracture risk. It is well recognised that risk of further fracture is highest closest to the incident fracture. Oral Bisphosphonate therapies do not exhibit clinical efficacy until after 6 months of therapy. Zoledronic acid has its clinical benefit within 1 month. Adhering to oral Bisphosphonates is difficult, particularly in elderly patients, while Zoledronic acid is given by infusion.

Giving Zoledronic acid during the index hospital admission is an opportunity to prevent further fractures. It is usually given annually for a total of 3 doses (1 year apart). In frail patients with limited life expectancy we recommend consideration of a single inpatient dose. Ultimately, this requires clinical judgement alongside discussion with the patient and/or next of kin.

In recent years, adverse effects have been described in association with the long-term use of bisphosphonates. These adverse effects are extremely rare and include osteonecrosis of the jaw and atypical (usually femoral shaft) fractures. For each patient, this potential for harm must be considered. As with all therapies, the benefit of treatment must be balanced against the possibility of harm. In this situation, the proven benefit of treatment is reduction in further fracture risk.

IV Zoledronic Acid after Hip Fracture

Scottish Hip Fracture Audit target: Administer IV zoledronic acid to all eligible patients within 30 days of admission

NHS Greater Glasgow and Clyde

Age ≥ 50

Within 24 hour of admission prescribe and administer a single dose of colecalciferol 150 000 IU orally

AND EITHER

Commence or continue calcium 1000-1200 mg plus colecalciferol 800-1000 IU daily **OR**

If hypercalcaemic prescribe colecalciferol 800-1000 IU daily

Is patient eligible to receive zoledronic acid?

No prior osteoporosis therapy[1] or ≤ 2 years of oral bisphosphonate therapy

AND

adjusted calcium ≥ 2.20 mmol/L

AND

Creatinine Clearance ≥ 35 ml/min

AND

≥ 48hours since loading dose of colecalciferol

NO

Do not prescribe zoledronic acid, document reason on Clinical Portal [5]

QEUH / GRI: await advice from Fracture Liaison Service (FLS). Filed under Endocrinology on Clinical Portal.

RAH /IRH/ VoL: ≥ 65 years- await orthogeriatric team advice (documented in notes). <65years- contact FLS at RAH.

YES

Assess risk of medication related osteonecrosis of the jaw (MRONJ) [2]

MRONJ risk assessment satisfactory to proceed to IV zoledronic acid?

NO

YES

- Proceed to IV zoledronic acid prior to discharge (as soon as possible ≥ 48hours after loading colecalciferol dose)
- Discuss risks and benefits of zoledronic acid with patient/next of kin (NOK)/legal guardian
- Provide patient information leaflet [3]

Administer IV Zoledronic acid 5mg over 15-30 minutes

- Document in Clinical Portal[4], Patient notes and IDL
- If follow up doses are required for patients ≥ 75 years complete onward referral (see yellow box)

Follow up Doses

- Consider not for routine further dosing of IV zoledronic acid if: Rockwood Clinical Frailty Score ≥ 6, life expectancy <24 months, difficulty accessing outpatient services or patient/ NOK preference
- **GGC**
  50-74 years= FLS will follow up routinely
  ≥ 75 years = Refer to Older Peoples Services (see local referral protocol[6])
- **Out with GGC Healthboard:** Request patient's GP to refer to local osteoporosis service on IDL.

Notes

1. Osteoporosis medications: alendronic acid, risedronate, ibandronate, zoledronic acid, denosumab, teriparatide, romosozumab
2. See Appendix 1: "Assessment of oral health prior to initiating intravenous bisphosphonate treatment following hip fracture"
3. Zoledronic acid leaflet can be ordered from Medical Illustration (Code 277921)
4. On Clinical Portal- add patient note " IV zoledronic acid administered DD/MM/YYYY as part of hip fracture protocol"
5. On Clinical Portal- add patient note: "IV zoledronic acid not administered" and reason for this
6. See Appendix 4: Local Referral Protocols

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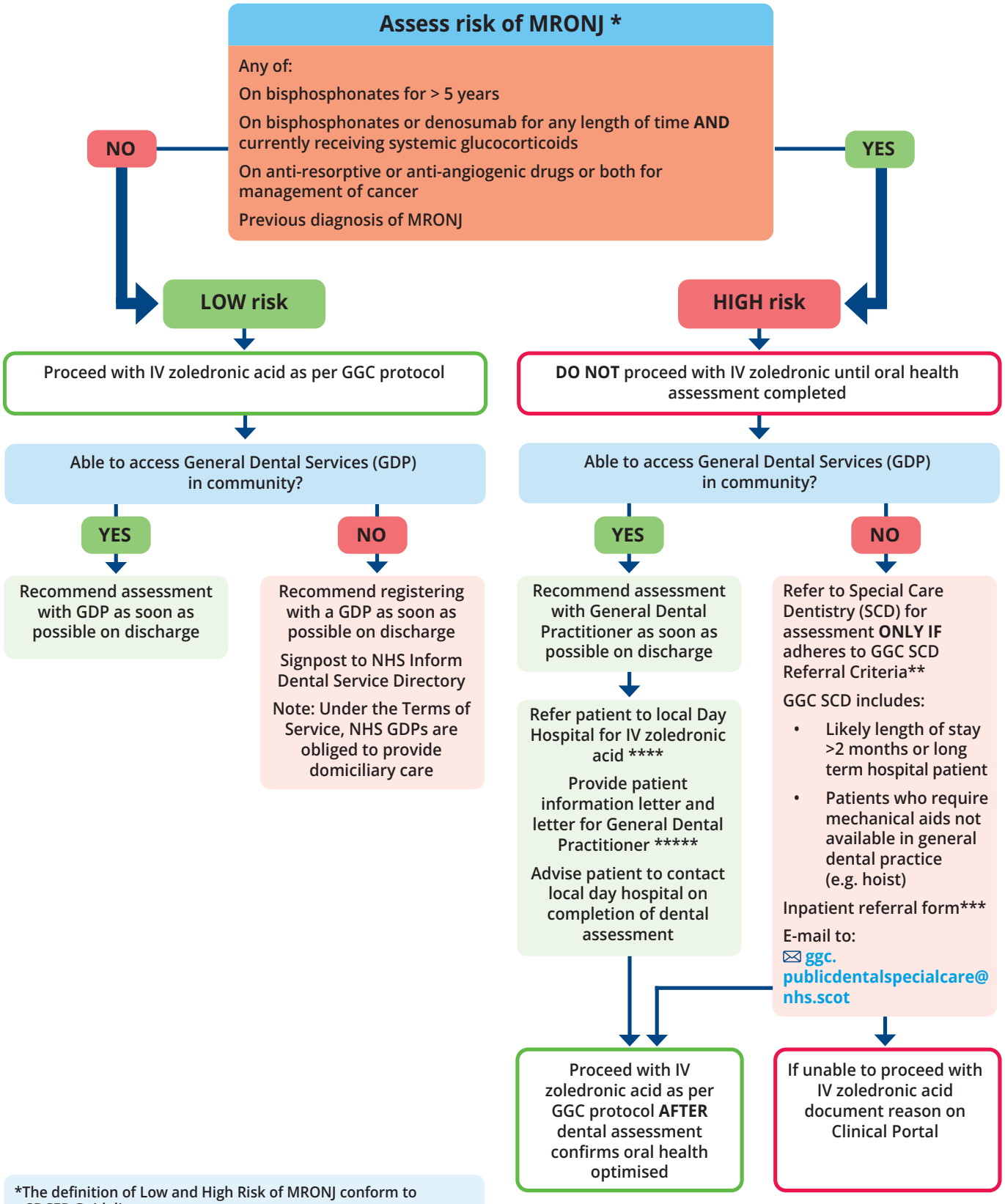
Appendix 1.

Assessment of Oral Health Prior to Initiating Intravenous Bisphosphonate Treatment Following Hip Fracture

NHS Greater Glasgow and Clyde



*The definition of Low and High Risk of MRONJ conform to SDCEP Guidelines

** Appendix 2: NHS GGC SCD Referral Criteria

*** Appendix 3: NHS GGC SCD inpatient referral form

**** Appendix 4: Day Hospital Referral protocol and form

***** Appendix 5: Letters for Dental Practitioner

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Appendix 2.

NHS GG&C Oral Health Directorate Special Care Dentistry Referral Criteria

NHS Greater Glasgow and Clyde

The service	Special Care Dentistry is concerned with: "The improvement of oral health of individuals and groups in society who have a physical, sensory, intellectual, mental, medical, emotional or social impairment or disability or, more often, a combination of a number of these factors." (Joint Advisory Committee for Special Care Dentistry, 2003) The special care dental service provides oral healthcare for those patients who, for a variety of reasons require specialist management either exclusively, in conjunction with their general dental practitioner or on an occasional basis Some patients may have a diagnosis that does not impact directly on their dental health or care unless their condition progresses. As long as they continue to be well, they may continue to be managed in general dental practice. Where no special precautions are required to manage a patient, they should be managed in a general dental practice For some patients it is appropriate that their care is exclusively provided by a special care dental service. For others it may be possible to share care with their general dental practitioner. We also provide advice to general dental practitioners, general medical practitioners and hospital doctors and nursing staff Patients may require Special Care Dentistry to provide: • advice • a one-off treatment or course of treatment • some of their care on an ongoing basis, sharing care with their GDP • all of their dental care
Who to refer	**Access** Patients requiring routine treatment whose weight exceeds the maximum weight of the practice's dental chairs. Please provide an up to date patient weight, height and BMI **Physical disability** Disability creates barrier to care e.g. • Movement disorder • Significant physical deformity Patients who require mechanical aids not available in general dental practice (e.g. Hoist) **Learning disability** Significant communication difficulties Co-operation compromised Sedation or general anaesthesia required for examination or any intervention Routine care if admitted for >2 months Routine care if this forms part of their rehabilitation **Mental health problems** Long term in-patient Current admission requiring urgent/emergency care Significant mental health problems impacting on daily living which preclude attendance at a general dental practice

Who to refer	**Significant medical compromise** Current hospital in-patient requiring urgent/emergency care such as management of continuous pain which is not relieved with analgesia, facial swelling or infection Treatment required in a hospital setting Medical intervention that can only be provided in a hospital required before dental treatment Dental assessment required prior to medical intervention as per prior arrangements with the Special Care department **Long stay Hospital Patients** Those admitted to Hospital care units All urgent/emergency care **Anxiety/ behavioural management** Patients with moderate/severe systemic disease who cannot tolerate treatment with local anaesthetic and are not suitable for sedation in general dental practice settings (the majority of patients who are ASA I and II will be suitable for sedation in a general practice setting) Advanced sedation technique required beyond which is available in general dental practice
Who not to refer	Patients with mild/moderate systemic disease who are suitable for treatment within general dental practice setting Patients with mild or moderate special care needs whose care can reasonably be delivered in a GDS setting. This includes patients requiring domiciliary care. Patients who cannot access their registered practice due to stairs – these patients should be sign posted to a ground floor practice or one with a lift. Patients taking anti-coagulants or anti-platelet drugs whose INR is maintained below 4 who have no other relevant medical complications. See guidance: **http://www.sdcep.org.uk/published-guidance/anticoagulants-and-antiplatelets/** Patients that may require antibiotic prophylaxis prior to dental treatment. See guidance: **https://www.sdcep.org.uk/published-guidance/antibiotic-prophylaxis/** Patients who require dental assessment prior to starting anti-resorptive medications or those requiring assessment prior to cardiac surgery. Patients taking anti-resorptive drugs who have no other relevant medical complications. See guidance: **http://www.sdcep.org.uk/published-guidance/medication-related-osteonecrosis-of-the-jaw/**
Treatment offered	Routine dental care as per the SDR – Determination 1 Shared care arrangements where specialist intervention is required for particular procedures Patients referred for treatment under sedation will be offered one course of treatment. We are unable to provide molar endodontics (exceptional circumstances considered), regular hygiene phase therapy or advanced restorative care under sedation
How to refer	GDP and GMP referrals: SCI Gateway Other outpatients: NHSGG&C outpatient referral form Inpatients: SCI gateway or NHSGG&C inpatient referral form
Discharge criteria	Patients whose care can be reasonably managed in a general dental practice will be discharged.

Appendix 3.

NHS GG&C Oral Health Directorate Special Care Dentistry Referral Form

NHS Greater Glasgow and Clyde

For urgent referrals please contact the department ☎ **0141 314 6669**

Name:	
CHI:	
Address:	
Phone Number:	

Date:	
Consultant:	
Hospital / Ward:	
Expected discharge date:	

Reason for referral. Please tick relevant box(es)

Facial swelling	☐	Bleeding gums	☐	Pre-procedure assessment	☐
Painful natural teeth	☐	Denture problems	☐	Procedure:	
Non healing ulcer	☐	Please specify:			
Decayed, broken teeth	☐			Date:	
Details:					

Current medical problems	
Past medical history	
Current medication	
Allergies	
Any other relevant information e.g. Mobility	

Referrer's name: _____ Signature: _____

Referrer's designation: _____ Phone/bleep no: _____

☎ **0141 314 6669** ✉ **ggc.publicdentalspecialcare@nhs.scot**

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Appendix 4.

Iv Zoledronic Acid Day Clinic / Older Peoples' Services Referral and Administration Checklist

NHS Greater Glasgow and Clyde

South Sector: Email this form to ✉ **ggc.day.hospital@nhs.scot** OR SCI gateway referral to Geriatric Day Hospital. ☎ **0141 2012440/ 0141 3019870/ 0141 3478144**

North Sector: Email this form to ✉ **ggc.arcnorth.infusions@nhs.scot** ☎ **0141 211 1567** and **0141 211 1569**

Clyde: SCI gateway referral to IV Zoledronate clinic (Geriatric Day Hospital) to appropriate hospital (RAH / IRH/ Vale of Leven Hospital)

Patient Name: _____

Address: _____

_____

DOB: _____

CHI No: _____

NOK/POA Contact Number: _____

Patient Contact Number: _____

Consultant: _____

Referring ward/clinic: _____

Referrer email: _____

NB: Patients <75 years should be followed up by mineral metabolism/rheumatology services

Reason for IV Zoledronic Acid _____

Treatment required:

First dose IV Zoledronic acid ☐ Follow up dose(s) IV zoledronic acid ☐

Date of first dose IV zoledronic acid _____

Total number of doses IV zoledronic acid planned?* Single ☐ Three ☐

Does patient require dental assessment prior to commencing treatment?** No ☐ Yes ☐

If yes:

- Recommend assessment with General Dental Practitioner (GDP) on discharge
- Provide patient information letter and letter for General Dental Practitioner
- Advise patient to contact local day hospital on completion of dental assessment

Does patient have capacity to consent? No ☐ Yes ☐ Under Review ☐

** Refer to "IV zolendronic acid after a hip fracture GGC guidance" or discuss with Geriatrician

** Refer to "Assessment of oral health prior to initiating intravenous bisphosphonate treatment" flowchart.

Patient Name: _____

Address:_____

_____

DOB: _____

CHI No:_____

1st Dose of IV Zoledronate:

Does the patient fulfil the eligibility criteria?	Creatinine Clearance ≥35 ml/min	☐ No	☐ Yes
	Medication related osteonecrosis of jaw (MRONJ) risk assessment completed +_ dental review if required **	☐ No	☐ Yes
	Calcium ≥ 2.20 mmol/L	☐ No	☐ Yes
	Age ≥ 75 (note: patients under 75 should be followed up by mineral metabolism / rheum services)	☐ No	☐ Yes
Vit D	Colecalciferol (150,000iu), date given: Adequate calcium and vitamin D replacement (>4/52 vit D 800iu daily)	_____ ☐ No	_____ ☐ Yes
Patient	Counselled re side effects Patient information leaflet given	☐ No ☐ No	☐ Yes ☐ Yes
Administration IV Zoledronate	Date administered _____ Administered by_____ Location administered_____ Side effects_____		

Subsequent Doses of IV Zoledronate:

2nd Dose	Is patient still eligible for IV zoledronate? Adequate vit D replacement? Date administered _____ Administered by_____ Location administered_____ Side effects_____	☐ No ☐ No	☐ Yes ☐ Yes
3rd Dose	Is patient still eligible for IV zoledronate? Adequate vit D replacement? Date administered _____ Administered by_____ Location administered_____ Side effects_____	☐ No ☐ No	☐ Yes ☐ Yes

Appendix 5.

Please attach patient label

NHS
Greater Glasgow and Clyde

Date: _____

Dear Patient

Following your recent assessment at hospital you are being considered for a bone protection treatment called Zoledronic acid. This belongs to a family of medicines called bisphosphonates. This medication is to reduce your future risk of fractured (broken) bones.

As part of the preparation for this you must attend your dentist for a check-up. Please note that even if you have dentures, the health of your mouth still needs to be assessed by a dentist.

Please hand the attached letter to your dentist and ask them to complete the form on page 12.

At the end of your appointment with your dentist, they will give you the completed form.

After this, please contact your local Day Hospital which is _____ to arrange an appointment to receive the Zoledronic acid medication

Contact details for your local Day Hospital

New Victoria Hospital:	☎ **0141 301 9870**
Queen Elizabeth University Hospital:	☎ **0141 201 2440**
Lightburn/Stobhill Day Hospital:	☎ **0141 211 1567** and **0141 211 1569**
Royal Alexandra Day Hospital:	☎ **0141 314 6934**
Inverclyde Royal Day Hospital:	☎ **01475 505045**
Vale of Leven Day Hospital:	☎ **01389 817586**, (Mondays there is an answerphone service which any messages will be picked up the next day)

Please attach patient label

NHS
Greater Glasgow and Clyde

Date: _____

Dear Dental Colleague

The above patient is being considered for treatment of a once-yearly dose of intravenous bisphosphonate infusion (IV zoledronic acid 5mg) for osteoporosis.

The patient has been assessed as being at higher risk of medication-related osteonecrosis of the jaw (MRONJ). Given the increased risk, it is important that their oral health be optimised, and where possible, treatment completed prior to proceeding with bisphosphonate treatment.

Following your assessment, please complete and detach the section below and return it to the patient.

If you require any further advice please contact the NHS Greater Glasgow and Clyde Special Care Dentistry team either by telephone on ☎ 0141 314 6669 or by e-mail at ✉ ggc.publicdentalspecialcare@nhs.scot

Many thanks for your support with this.

Older Peoples' Services, Greater Glasgow and Clyde

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Patient Name: _____ **Date of Birth:** _____

CHI:_____

Address: _____

_____

_____

To the best of my knowledge, oral health is optimised and the patient is dentally fit to proceed with intravenous bisphosphonates on, or after, the following date _____

Dentist Signature:_____

Dental Practice Stamp: