Please edit this handbook to suit your local hip fracture service and then delete this box

**The Hip Fracture Unit Handbook**

**20XX**

Hospital Name

Version 1.X (20XX) AUTHORS

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# Welcome

## The Hip Fracture Unit (HFU)

The HFU comprises a multidisciplinary team including XXX consultant orthogeriatricians, a team of orthopaedic surgeons, specialist trauma nursing staff, medical nurse practitioners (MNPs), physiotherapists, occupational therapists (OT), and discharge coordinators. The care of patients with hip fractures is complex, and a multidisciplinary approach, with good communication within the team, is essential.

**Together we aim to:**

1. Provide comprehensive medical care during the perioperative period for all patients aged 60 years or older, admitted with a hip fracture or shaft of femur fracture.
2. Ensure the prompt mobilisation of all patients – within 24 hours post surgery unless there are clinical contraindications – with regular physiotherapy input, thereafter, aiming to optimise physical function.
3. Assess the skeletal cause of hip fracture (commonly osteoporosis, but metastatic disease, for example, can present with a fracture) and plan appropriate investigations and management.
4. Provide a Falls Risk Assessment for all patients with a hip fracture and consider strategies to reduce future falls risk.
5. Facilitate the rehabilitation and safe discharge of patients through a multi-disciplinary approach.
6. Maintain regular communication with patients (and families where applicable) throughout the admission, to ensure care is patient-centred, and progress and management is understood by all.
7. Ensure data for all patients with a hip fracture are entered onto the National Hip Fracture Database (NHFD) to help maintain our commitment to delivering high quality care. (The NHFD is a national clinical audit of best hip fracture practice run by the Royal College of Physicians Falls and Fragility Fracture Audit Programme RCP-FFFAP).

## Supporting you in your transition to this new job

It’s important to acknowledge that this can be a busy and demanding job. At first you may even feel overwhelmed by the complexity of the patients. These are geriatric patients with added acute surgical problems, so lots to consider! There are several proformas and protocols that help structure holistic care to ensure that we maintain high quality patient care and achieve our goals. Hopefully, this guideline will give you some key information to put you on the right footing, but it’s perfectly okay (and positively encouraged) to have questions and ask for help when needed. Finally, we aim to make this a rewarding job where you can gain a good understanding of geriatric medicine whilst achieving your specialty curriculum objectives.

# Introduction to the ward

## The ward environment

We look after XXX main wards

* XXX
* XXX
* In times of higher pressure, we may have hip fracture outliers on: XXX, XXX, XXX, etc.

In the morning we meet in XXX just before 08:00. Ward rounds start at 08:00. It may be necessary to take turns to arrive a little earlier to make sure the ward list is updated with all new patients for the day.

There is an additional room on XXX which can be used for family discussions/tea breaks if vacant. There is also a quiet room on XXX for family discussions.

The orthopaedic team conducts its trauma meeting each morning in XXX.

There are staff toilets on XXX and a kitchen on XXX.

## Key staff

* **Ward clerks:** <insert name for each ward>
* **Ward manager:** <insert name for each ward>
* **Discharge coordinators:** <insert name for each ward>. You will see them every morning at board round and they will liaise with you and various people/agencies to facilitate discharges. They will talk to families about discharge plans and are a great source of knowledge when it comes to the many local discharge pathways.
* **Consultants:** <insert names>
* **Medical Nurse Practitioner:** <insert name, and prescriber status>
* **Physician Associate:** <insert name, and prescriber status>
* **IM3:** rotational post
* **Therapists**: The physiotherapy and occupational therapy teams look after XXX patients.
* **Orthopaedic team:** <explain structure of orthopaedic team, ward doctors, Advanced Orthopaedic Nurse Practitioner (or similar), the consultant on-call system, e.g. weekly rotation, comment on registrars (e.g. they are rarely on the ward due to their theatre/clinic duties), trauma coordinators (e.g. who are senior trauma nurses on bleep XXX or mobile XXX).>

## Working patterns

**Consultant timetable**

* Dr XXX works <insert days of the week>
* Dr XXX works <insert days of the week>
* Etc.

**Registrar timetable**

* Variable with on calls and clinic commitments.

**Ward rounds**

* Mon 08:00 <insert details of ward round lead>
* Tues 08:00 <insert details of ward round lead>
* Wed 08:00 <insert details of ward round lead>
* Thurs 08:00 <insert details of ward round lead>
* Fri 08:00 <insert details of ward round lead>

The patient list needs to updated by a ward team member with new overnight cases added before 08:00.

## Communication systems

### WhatsApp & Siilo <insert other system if used>

The HFU uses XXX as a preferred messaging service. You will be added to the group on arrival. This is the standard way to contact each other regarding patients & consultant queries throughout the day. Images of e.g. VBGs and patient details can be sent via Siilo but **not** via WhatsApp which does not have sufficient security.

You may wish to set up your own WhatsApp group for non-patient related communication e.g. lunch plans, requests to help out.

<insert details of bleeps, e.g. There is one baton bleep for admissions XXX. **Someone needs to hold this bleep daily**.>

Usually the more senior trainees (GPSTs) are happy to field straightforward issues from more junior trainees, with queries via the junior Siilo. Senior support is always accessible via Siilo too.

**Important apps** to have are: Siilo, Induction (contact numbers & extensions), MedCal or Calculate, BNF <insert other hospital specific apps if available>.

### White board rounds

These occur every morning at XXX. This involves the doctors, discharge coordinator, physiotherapist and OT. It is a brief run through of each patient and their planned discharge destination and timeframe.

## Annual and study leave

Minimum ward staffing levels are XXX prescribers (excluding the IM3 doctor). The leave rota can be found at XXX. The best way to arrange leave is to XXX. Prior to starting the post, leave requests should be made to XXX. Lieu days can also be arranged through ward leave, bearing in mind the need for patient safety.

Study leave is possible for courses, compulsory training days, and private study under certain circumstances. <insert details of study leave arrangements>

## Case-mix on the ward

The ward houses hip fracture patients, as well as orthopaedic patients and medical outliers. <insert details of how outliers etc. are managed>

## National Hip Fracture Database (NHFD)

There is continuous collection of data on all our hip fracture patients. This is entered into a database, mostly by XXX, although you may need to get involved if XXX is on leave. Data are stored on XXX in the file named ‘XXX’. This is very important. If information is missing then the hospital may not get paid for the admission! To be paid for the admission we need to ensure:

1. an Orthogeriatrician (ST3+) sees the patient
2. the patient has an AMTS pre op
3. a 4AT is completed post op within 7 days – usually day 1 post op.

## Outpatient clinics

Orthopaedics will follow up all total hip replacements and a few other specific cases only <add further detail if available>.

<Explain clinics for:

 Falls

 Parenteral anti-osteoporosis treatment, e.g. iv Zoledronate.>

# Teaching and other learning opportunities

## Teaching

* **Grand round** <insert day, time, location>
* **Departmental teaching** <insert day, time, location>
* **Other teaching** <insert day, time, location>

## Other learning opportunities

### Clinics

* **List clinics available and dates, consultant etc:** <insert day, time, location>
* **e.g. Falls clinic**. <insert day, time, location>
* **Bone health clinic:** <insert day, time, location>
* **Online learning opportunities such as Royal Osteoporosis Society resources:**[**www.theros.org.uk/healthcare-professionals/courses-and-cpd**](https://theros.org.uk/healthcare-professionals/courses-and-cpd/)

### Audit/QIP

There are plenty of opportunities for audit or quality improvement projects – talk to your clinical supervisor if you have ideas or want some suggestions.

### Clinical governance

Clinical governance is essentially the process of maintaining high quality care and promoting patient safety. This might be through reviewing serious untoward incidents, complaints or patient feedback, or presenting audit or research. There are regular clinical governance meetings and Morbidity and Mortality (M&M) meetings. Although we would not expect routine attendance, it would benefit you to observe this process, as it is something you will be expected to be involved in as you progress through your career.

# New patients - the referral process for hip fractures

Most new patients come via ED. Rarely, they are inpatients who have fallen and sustained a fracture.

Referrals should come via XXX

<explain process of referral>

For daytime admissions, we usually find out from the trauma coordinator if there is theatre list space, to determine how quickly we see them. If they could go to theatre ‘today’, then they need seeing directly.

New admissions will also be seen by the Orthopaedic team, who then discuss them at the trauma meeting the next day (starts at 08:00 on XXX). The theatre lists for that day are revised at this point. Names of new admissions can be found at XXX.

## Admission criteria

* **Confirmed fracture of the hip** (within 5cm of lesser trochanter) or fracture of native femur
* **>60 years**

<Comment on periprosthetic femur fractures and femoral shaft fracture patients>

## Clerking a new admission

* The **hip fracture clerking booklet** is used for all new patients presenting with a hip fracture.There are sections for ED staff, Ortho doctors, HFU doctors, Orthogeriatric consultant and Orthopaedic consultant entries. It can be found in ED, on the ward and on the intranet.
* If the patient is already referred before the start of the day, the senior doctors will see them as a priority (as they may go to theatre that day). If they are referred later in the day, ideally you would clerk them first, then they can be reviewed by a senior (SpR or Consultant) that same day.

## History taking

* **Falls history**: Consider circumstances, postural change, preceding symptoms, LOC, long lie, previous falls, balance impairment (furniture walking), recent medication changes, acute illness precipitant, peripheral neuropathy, visual impairment.
* **Surgical risk**: Consider heart failure symptoms, angina, lung disease, exercise capacity (stairs, exercise tolerance, housework, etc.), history of VTE, current anticoagulation/clopidogrel, sepsis.
* **Bone health:** Risk factors for osteoporosis/increased fracture risk (steroids, rheumatoid arthritis, early menopause, alcohol, smoking, malabsorption, prior fracture, etc.). Symptoms associated with malignancy, past/present osteoporosis medications. Indigestion that might preclude use of oral bisphosphonate.
* **Next of Kin (NoK) details**: Who are they (note name, relationship)? Do they have Lasting Power of Attorney (LPA)/ Power of Attorney (PoA)? Do we have their phone number(s) (we like to speak to NoK pre-op for all patients with cognitive impairment).
* **CGA** (comprehensive geriatric assessment): memory, mood, weight loss, bowel habits, continence, vision, dependence, mobility, functional abilities (washing/dressing/cooking/cleaning/bills), cognition.

## Examination

* **General:** CV, resp (as able without sitting forward due to fracture pain), cardio, abdo.
* **Neuro:** At least power, tone, tremor and peripheral sensation
* **Breast exam in all women:** To exclude malignancy
* **Feet:** Check for deformities/nail problems that can hinder walking
* **Eyesight:** Brief screen, are they wearing bifocals? (assoc. with falls)

## Initial investigations

* **ECG** (all)
* **CXR** (all)
* **FBC, U&Es, LFTs, Calc group, Vit D, CRP** (all)
* **G&S** (all)
* **Clotting if on warfarin**
* **Screening for secondary osteoporosis**: this can include myeloma screen, TTG, TSH, PSA & PR, PTH if calcium raised. It is dependent on planned treatment for the individual patient.
* Check to see if they’ve had an echocardiogram previously. A new/repeat is rarely needed pre-op, even if undiagnosed murmur.
* If the history is suggestive of malignancy, consider requesting bone reamings/ histology to be collected intra-operatively and sent to histopathology (need to request by XXX <insert process>)

## Medication reviews

* Hold **anticoagulation** pre-op (unless metallic heart valve – discuss this with senior as priority)
* **Antiplatelets**: omit on day of surgery, except aspirin 75mg which can continue
* Consider holding **anti-hypertensives** (unless BP is high); we tend to **continue B-blockers**, but pause ACE-I and diuretics which can cause renal injury
* Ensure medication list is correct (check System One or contact GP)
* Steroids: consider increase if steroid dependent on ≤10mg daily

## Routine prescriptions

* VTE prophylaxis with dalteparin (or as per formulary) (continues for 28 days post op – even if discharged, may need district nurse to administer)
* Paracetamol (prescribe for all, reduce dose if <50kg, max 3g in 24 hrs IV))
* PRN opiates:
	+ Prn Codeine prn/qds 30mg (or 15mg for low BMI patients, moderate renal impairment or if at high risk of delirium) or 30mg Dihydrocodeine and Oramorph 2.5 - 5mg (perhaps 10mg).
	+ Avoid NSAIDS in patients over 70 years, cover with PPI if used in younger patients.
	+ Tramadol may be prescribed if intolerant of codeine/dihydrocodeine, but not with an SSRI.
	+ Consider oxycodone liquid 1.5 - 2.5 mg BD only, if CKD4 or 5 or on dialysis.
* Laxatives (Senna 2 tabs 6pm and Sodium Docusate 100mg BD - all, 200mg BD in PD)
* Foot pumps (intermittent compression devices): omit if peripheral vascular disease

## Nutritional supplements

* Fortisip Compact Protein bd (with caution if diabetic) (protein supplements reduce post-op infections and risk of death in trials)
* Pre-op carbohydrate loading with Ensure ‘Clear Juice’ pre-op 100mls at 06:00. Repeat at 11:00 if on the afternoon theatre list.
* NBM and IVI from 0200.

## Femoral nerve blocks (FNB)

* + A regional nerve block using local anaesthetic is injected into groin. This lasts around 12 hours. A femoral nerve infusion catheter (FNIC) is a continuous infusion of local anaesthetic.
	+ FNBs will usually be done by the ED team. If not, you can organise an anaesthetist to do this via the <insert system> if pain is considerable or there is a contraindication to opiates.

## The risks discussion

* The surgeons will discuss the direct risks of the surgery when they gain consent. We always talk to patients about the medical complications/ interventions. These include:
	+ Urinary catheter insertion, usually in theatre if not before, always needed in spinal anaesthesia but not always with GA
	+ Constipation and hence need for laxatives (almost all)
	+ Infection (common – usually HAP)
	+ Delirium (common in any patient, more likely if dementia, previous delirium, polypharmacy or PD)
	+ AKI
	+ Functional decline (can take months to recover, and many never get back to previous level of function – physiotherapy is key, so set expectation of getting out of bed from the next day after surgery)
* Regarding mortality, there is a Nottingham hip fracture 30-day mortality calculator on the proforma. Use your judgement as to whether the patient or relative will be receptive to this information. It is useful to know the average national **30-day mortality for hip fracture is around 6.5%; the average 1 year mortality is 28%.**
* Patients or relatives may ask why we have to operate. Surgery is performed to (a) control pain and (b) restore mobility. Patients who do not have surgery and are unable to mobilise will have an extremely poor prognosis; most die within days to weeks, bedbound, often of pneumonia. Only 2% of patients are not managed surgically.
* Most patients are in hospital for at least 1 week (median length of stay [LOS] 12 days) but there is a range from 3 days to longer. Some may move to a community hospital or a rehabilitation bed for ongoing physiotherapy, but be careful not to commit to this pre-op as other pathways may be more appropriate, and patients/relatives can focus too much on this idea.
* For a patient with capacity to make decisions, this discussion should be had both with the patient and relatives, provided the patient consents to this. In patients who lack capacity to consent to surgery, it is essential to talk to NoK before theatre.

## Escalation/CPR

Discuss this if you feel confident enough to do so. If not, observe how the consultants approach it first. Be aware the anaesthetists will suspend a CPR decision intra-operatively in all but the frailest of patients, as the medications they use are high risk for inducing arrhythmias and they are in the best place to act quickly and successfully.

# Pre-operative management

|  |  |
| --- | --- |
| ACS, MI or angina at rest  | Check for attributable history of chest pain, other causes, and ECG changes. In mild definite ischaemia, consider β-blocker and aspirin, and liaise with anaesthetist; otherwise delay and involve cardiology. See remarks regarding raised troponins below.  |
| AKI | Only delay surgery if needing significant fluid resuscitation or K+ management. Ensure not in urinary retention. Review nephrotoxic medication.  |
| Anaemia – pre op  | If Hb <90 g/l (or 100g/l if cardiac disease) transfuse pre op and send haematinics if MCV ↑ or ↓. Anaesthetist may be happy to transfuse intra op if otherwise stable and has been discussed. Expect mean peri-operative Hb↓ of 20g/l in intertrochanteric fractures & 40g/l in subtrochanteric fractures.  |
| Arrhythmia:  | HR must be <100bpm and >50bpm for anaesthesia. See intranet guidelines for fast AF. If complete heart block, refer to Cardiology for PPM pre op. |
| Heart failure  | Only decompensated heart failure need delay surgery; echo not usually needed pre op. |
| Hypercalcaemia  | Give fluid resuscitation pre op. See intranet guidelines thereafter.  |
| Hyponatraemia  | Check chronicity, ≥122 mmol/L usually acceptable for urgent surgery. Determine fluid status. Check TSH. Plan Ix. Stop/change likely culprit drugs. Needs post op U&E.  |
| Palliation  | If patient not expected to live more than a few days.  |
| Severe chest infection  | Only delay surgery if overtly septic (low BP, very high fever, or needing respiratory support), otherwise proceed with surgery. |
| Uncontrolled diabetes  | If DKA or HHS, delay surgery until stabilised; otherwise proceed with sliding scale for insulin, continue long-acting insulin whilst on sliding scale.  |
| Valvular disorder  | Check for previous echo reports. If clinical aortic stenosis is likely, echo may not be required pre op if no syncope and senior anaesthetist is happy to proceed. They can be managed as for AS. Surgery should **NOT** be delayed for echo.  |
| Warfarin: INR >1.5 | INR must be ≤1.5 (esp. for spinal anaesthesia). Review indication for warfarin, VTE risk stratification, and restarting anticoagulation guidance available on intranet under Haematology, warfarin reversal pre op. For simple AF, reverse with 5mg Vitamin K (iv) and recheck at 6hrs, if still high give further 5mg & recheck at 6hrs. Thereafter liaise with haematology re benefits of FFP or Beriplex cover for surgery.  |
| DOACs | Check timing of last dose and eGFR, refer to perioperative anticoagulation guidelines on intranet. Can have GA after minimum 12 hours post last dose. Digabatran can be reversed. |
| Thrombocytopenia | Surgery should not be delayed if platelets >80. Platelet count 50-80 may require platelet cover for surgery and should be discussed with surgeon. If <50, discuss with Haematologist and omit dalteparin until platelets >75. W*orth repeating sample as clumping may cause spurious result.* |

# Post-operative management

## Post-op reviews – for all hip fracture operations

There is a specific post-op review form available at XXX.

HFU team will review any same-day theatre returns before 5pm. If there are particular concerns about specific patients, they may need handover for OOH review but this would be exceptional. Review the operation (check anaesthetic chart and surgical dictated/typed note), and any major events during theatre or in recovery and examination of patient. Look for Haemacue result (near-patient Hb testing in recovery) in anaesthetic records.

* Assessment should include cardiovascular and respiratory exam, fluid balance assessment, neurovascular status, and a review of their wound.
* Check surgical operation note for specific post-op requirements from the Orthopaedic Consultant, including anticoagulant plan.
* Request routine blood tests for next day. If you are concerned the patient is anaemic, check FBC immediately. If their anaesthetic/fluid balance charts suggest that they might have an AKI, check bloods immediately and prescribe fluid bolus in case SBP drops.
* On Fridays please put out request for weekend blood tests for post-op patients, and ensure there is a plan to review these.

<describe orthopaedic role post-operatively e.g. The orthopaedic team are not routinely involved post-op unless there are wound concerns or complications of the surgery (dislocation, infections, etc.) or post-op X-rays to review.>

## Discharge summaries

Hip fracture patients require a specific hip fracture discharge summary <insert details of where to be found>

Patients with hip fracture require extended VTE prophylaxis – 28 days of LMWH from date of surgery. This needs a separate discharge administration prescription chart (a P1 form) if district nurses need to give LMWH.

Ensure that osteoporosis investigations (such as myeloma screens) have been reviewed.

## Other important aspects of management

### Bone health

* Every patient needs to have a bone health plan to minimise his or her risk of further fractures. This usually includes vitamin D replacement, a combination calcium/Vit D maintenance tablet, and an anti-resorptive (i.e. weekly oral Alendronate or annual IV Zolendronate). There will be plenty of time to learn more about these decisions on the consultant ward round.
* Where indicated, **DXA scans** are booked <insert details>. These are always carried out as an outpatient.
* Referrals to Outpatient bone clinic for **IV Zolendronate or Subcutaneous Denosumab** are made by <insert details>
* There is more information within the <insert details>.
* There are also guidelines for Osteoporosis, Alendronate patient information, and IV Zolendronate on the intranet. The Royal Osteoporosis Society patient leaflets and the NOGG (National Osteoporosis Guideline Group) UK guidelines are very useful resources.
* Liaison with metabolic bone clinic or Fracture Liaison Service as appropriate

### Types of fracture of neck of femur

#### Intracapsular

The capsule envelops the femoral head and neck. Fractures may be subcapital, transcervical or basicervical. As the fracture occurs at the neck, the blood supply to the femoral head is likely to be disrupted – the more displaced the fracture, the more likely this will be the case.

#### Extracapsular

These can be intertrochanteric or subtrochanteric. Significant bleeding (and therefore swelling) is more common with subtrochanteric fractures.

### IV iron

Intravenous iron is given to patients when they lose a significant amount of blood or if they have pre-existing iron deficiency anemia. There is an IV iron guideline on the intranet.

### Frailty

There is an important requirement to identify and manage frailty. We need to assess all over 75s using the Rockwood frailty scale and ensure this score appears on the discharge summary.

### Dementia

#### Dementia coordinators

The dementia coordinators provide support to staff caring for patients with dementia. They are particularly helpful when family situations are complex and/or there are best interest decisions to be made about future care.

#### ‘This is me’

‘This is me’ is a document for all patients with dementia (or delirium) that can be completed by their NoK. It can help us find out who that patient is and individualise their care. Remember to ask the patient’s relatives to complete this form.

### Additional local information: