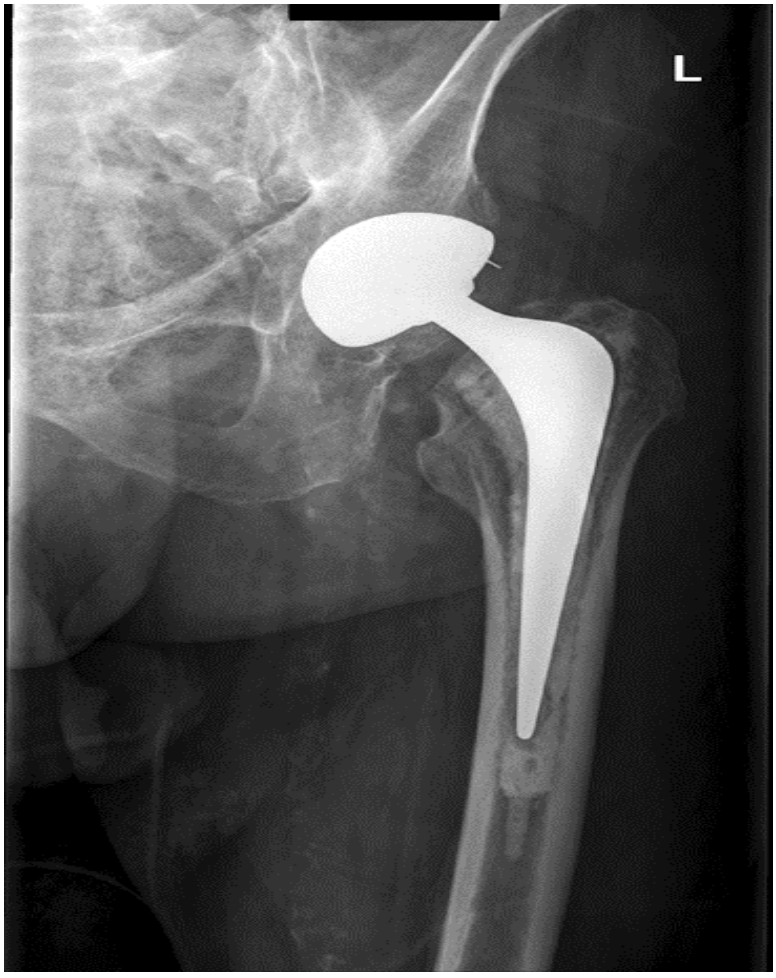
HUTT VALLEY DHB

Student Nurses

Orthopaedic Unit



Student Contact Details for Orthopaedic Ward

Contact details

The staff on the ward/department care about your well-being as well as your education. They will notice and be concerned if you don't arrive for a planned shift, if there is illness on the ward or in the case of an emergency. They may need to contact you to check you're ok and to let you know if there needs to be a change to your shifts.

Please could you provide the ward with your contact details and an emergency contact using the form below? **This information will be kept by a senior staff member for the length of this placement and then will be destroyed. It will not be shared with anyone else without your permission unless there is an emergency.**

Your Name	
Your Home Phone number	
Your mobile phone number	
Name of emergency contact	
Phone number of emergency contact	

Contacting your Tutor/CTA

From time to time the staff on the ward may need to contact your tutor regarding your progress, for support or in the case of problems.

Please could you supply the contact details for the tutor/CTA that will be supporting you during this placement, in the form below?

Name of Tutor/CTA	
Phone number for Tutor/CTA	

Please complete a new form before each new placement and give it to the senior staff at the beginning of your placement.

Thank you

The Orthopaedic Unit

The Orthopaedic Unit provides secondary surgical services to a population of approximately 130,000 people living mainly in the Hutt Valley region. The 22-bed unit provides acute and elective medical and nursing assessment, diagnosis and treatment to patients requiring a broad spectrum of surgical or health maintenance interventions. The unit operates 24 hours a day, 7 days a week at an approximately 90% occupancy rate.

Patients are admitted to the service for a variety of conditions and surgical interventions, which include:

Surgery (Acute and Elective)

- Hip Joint Replacement
- Knee Joint Replacement
- Spinal Surgery
- Hand Surgery
- Shoulders
- Elbows
- Ankles

Trauma

- Motor Vehicle Accidents
- Work & Home Accidents
- Sports Injuries

Various Other Conditions

- Infection or Abscess
- Cellulitis

Patients may be admitted to the service from:

- Waiting List
- Emergency department
- Outpatients department
- Transfer from another institution
- Transfer from another ward or department

Welcome!!
We are looking forward to working with you!

UNIT STRUCTURE

CLINICAL NURSE MANAGER ORTHO
Anne Taylor

ORTHOPAEDIC CONSULTANTS

- Mr. Rob Kusel
- Mrs. Helen Tobin(HOD)
- Mr. Andrew Oakley
- Mr. Hamish Leslie
- Mr. Chris Lowden
- Mr. Brett Krause
- Mr. Roy Craig

REGISTRARS

- 4 Registrars on 6 month rotation to cover ward admissions

HOUSE SURGEONS

- 3 Junior Doctors on 3 month rotation to cover the Orthopaedic Unit and pre-assessment

WARD CLERKS

- 0.8 FTE (Mon – Fri AM)
- 0.4 FTE (Wed + Sat AM+ Mon + Thurs pm)

NURSING STAFF

- 1 Full-time ACNM- Irene Puran
- 1 Part Time Nurse Educator- Cherie Golding
- 26 Registered Nurses.
- 1 Enrolled Nurse

HEALTH CARE ASSISTANTS

- 3 roster and rotation
- 1 permanent Wed - Fri
- All AM and PM shifts will have a health care assistant rostered

PHYSIOTHERAPIST

- 2 part-time (1 FTE)

OCCUPATIONAL THERAPIST

- 1 part-time for Elective joints
- 1 Full time on six month rotation

PHARMACIST

DIETICIAN

SOCIAL WORKERS

CLEANING SERVICES

CHAPLAINS

MAORI HEALTH UNIT

PACIFIC HEALTH UNIT

Contacts

Orthopaedic Unit	Orthopaedic Unit	570 9042
Clinical Nurse Educator **(Works Monday- Weds)**	Cherie Golding	570 9437 or 5666 999 pager 774
Clinical Nurse Manager	Annie Taylor	570 2635 or 5666 999 pager 336
Associate Clinical Nurse Manager	Irene Puran	570 9042 or 5666 999 pager 715

Cherie Golding is overall responsible for your placement in the Unit. Your preceptors will feedback your progress to CNE. Cherie will book you into relevant clinics and also roster your shifts while in the unit.

Your Preceptor

You will be allocated one main preceptor; this preceptor will be responsible for completing your evaluations. We will endeavor to ensure that you mainly work with this preceptor. However, due to shift work this is not always possible. It is **your** responsibility to ensure the nurse you are working with is aware of your objectives for the day/week. You must provide evaluations and/or other paperwork to your preceptor in a timely fashion **(i.e. not on the due date!!).** You preceptor will not complete any evaluations if you give it to them on your last days in the unit.

If you have any concerns or questions do not hesitate to contact Cherie, Anne or Irene.

Main Preceptor: _____

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Week One							
Week Two							
Week Three							
Week Four							
Week Five							
Week Six							
Week Seven							
Week Eight							
Week Nine							
Week Ten							

(The nurses listed may change slightly due to sickness or acuity)

Expectations of the Student Nurse while in Ortho

The shifts in the Orthopaedic Unit are:

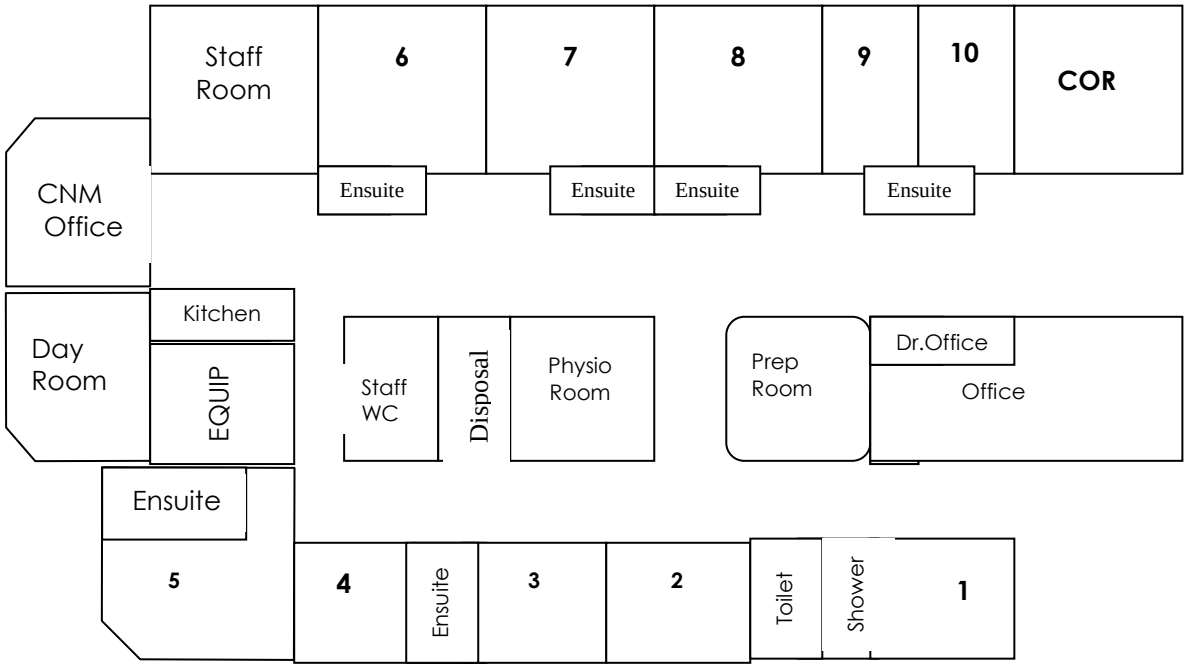
Morning	:	0700hrs to 1530hrs
Afternoon	:	1445hrs to 2315hrs
Night	:	2245hrs to 0715hrs

We have a few expectations of student nurses working in the unit:

- It is expected that you arrive on time for your shift and if you are going to be late or you are unwell and can not come to call the unit on **570 9042**
- You must complete the full shift that you are allocated to work – if you are unable to do so please discuss this with your nurse, preceptor or nurse educator. A lot of learning occurs at quiet times in the unit!!
- It is important for your preceptor or the nurse you are working with that he/she is aware of your objectives
- Due to infection control a clean uniform must be worn, long hair must be tied back and cardigans must not be worn when working in the floor
- If you are not achieving your objectives please see Cherie or your preceptor (before the last week in the unit)
- Please ensure all documentation you need to complete for the polytechnic/university is accomplished before the last days in the unit – your preceptor will **not** complete any paper that is given to him or her if it is given in the last days of your placement

OPERATIONAL DETAILS

Unit Layout



The unit has four single bed cubicles with shared ensuites, two single bed cubicles with separate ensuite toilets and shared shower, and one larger single bed/single ensuite room suitable for isolation and other special needs. Single bed cubicles are allocated according to greatest need E.g.:

- Isolation
- High Dependency
- Terminally ill
- Conditions that could be offensive to others (wounds/incontinence)
- Mothers with breast fed babies

We also have several four bedded cubicles, one of which is our close observation room (COR) located directly opposite the office. Another bathroom is located in the corridor outside the office and large bathroom is available for required special needs/treatments.

Wherever possible we endeavour to maintain male and female only cubicles. More unstable, higher acuity patients requiring close monitoring are generally

nursed in the COR room which accommodates both male and female patients, or in single rooms 10 and 11, also opposite the office.

Treasure Hunt

This list is designed to help you become familiar with the environment, but is by no means exhaustive of all the things you will be required to locate.

- ☐ IV fluid store
- ☐ Dangerous Drug cupboard
- ☐ Resus trolley
- ☐ Linen supplies
- ☐ Clinical Nurse Manager Office
- ☐ NE Office
- ☐ IV Syringes
- ☐ Patients kitchenette
- ☐ Staff tea room
- ☐ Lamson Tube System
- ☐ X-ray facilities
- ☐ Clean utility room
- ☐ Dressing Materials
- ☐ Oxygen isolation "shut off" valve
- ☐ Dressing Supplies
- ☐ Alcohol Swabs
- ☐ District Nurse Referral
- ☐ Plain Gauze
- ☐ Clinical policies & procedures
- ☐ "Notes on Injectable Drugs"
- ☐ Roster
- ☐ Manual BP machine
- ☐ Suction Equipment
- ☐ Bio-hazard bags
- ☐ Tympanic thermometer covers
- ☐ Stationery supplies
- ☐ Photocopier
- ☐ Patient charts
- ☐ Laboratory forms
- ☐ Alginate linen bags
- ☐ Incident Forms
- ☐ Infection control equipment
- ☐ Sterile Gloves

Patient Allocation

Nurses are allocated a patient workload on a shift-by-shift basis.

The morning (AM) shift co-ordinator allocates patients for the afternoon (PM) shift and tentatively for the following morning shift.

The night shift (NOCTE) allocate cubicles among themselves according to workload and skill mix. The night shift co-ordinator is responsible for adjusting the morning allocation as required.

Considerations for patient allocation include:

- Specific patient needs
- Skill and experience of the staff
- Continuity of care
- Individual and accumulated patient acuity
- Geographical area

The budgeted and rostered shift allocation of staff is as follows:

- **Weekday AM** – 5-6 Nurses, 1 Health Assistant + Clinical Co-ordinator
- **Weekday PM** – 4 Nurses inclusive of shift co-ordinator, 1 Health Assistant
- **Weekday Nocte** – 2 Nurses inclusive of shift co-ordinator
- **Weekend AM** – 4-5 Nurses, 1 Health Assistant + Allocated shift co-ordinator
- **Weekend PM** – 4 Nurses inclusive of shift co-ordinator, 1 Health Assistant
- **Weekend Nocte** - 2 Nurses inclusive of shift co-ordinator.

Staffing is adjusted according to requirement and based on patient acuity. Extra nursing staff are sourced from the casual nursing pool, and occasionally, from within our own part time unit staff who make themselves available for extra shifts.

General Shift Routines

Morning Shift – 0700 – 1530

07.00: Handover (verbal and bedside if required)

07.30: Check patients – sight patients, pain relief; toileting; call bell

Prioritise workload

Check drug charts

Check all infusions

Prepare patients first on the theatre list. Pre-op patients require a surgi-sponge shower. Patient may require body hair to be removed prior to showering. Check with Clinical Co-ordinator if unsure

Read patients notes

08.00: **Fluid balance charts tallied for last 24 hours**, results transferred to fluid balance summary

Do blood sugars that are required before breakfast

Daily weighs

It is the nurse's responsibility to check through the patient's menu choices. Breakfast is usually given out by HCA's, assist when able. Please ensure your patient is ready, sitting up ready and their hands are washed.

08.30-11.30: Give out patient medication, washes/showers done, beds made, Doctors rounds, physio, OT, S/W visits, education to patients, blood tests done, patients may be going for tests. Things to remember:

- Bowel cares
- Mouth cares
- Fluid balance charts
- Patients do not usually require a shower every day
- Dressings and wound chart
- Sign drug charts
- Observation charts (review the frequency)
- Daily weighs

• PAC's

• TED stockings and Clexane (consultant preference)

• Prepare cubicles for waiting list admissions

• Check notes post ward round for stat medications and adjust care as required

0945-10.30: Check patients – sight patients, pain relief; toileting; call bell etc.

Morning tea (flexible to fit around workload)

11.30: Check patients – pain relief; toileting; blood sugars, call bell

First lunch for staff

Patient lunchtime medications to be administered

HCA's give out lunch, and help feed pts that require it. Please ensure your patients are sitting up ready with their hands washed.

12.30: Patient Lunch

Second lunch for staff

12.30–14.30: Patients rest period. Visitors are discouraged at this time, but arrangements can be made prior to rest period.

Afternoon: Check patients – sight patients, pain relief; toileting; call bell. Q4H observations on patients to be completed, reports written, (when writing report there is a documentation framework to follow)

Check nursing assessment forms are complete and that the admission forms are signed.

Finish off any patient cares that were not completed in the morning. Complete any referrals that need to be sent

14.45–15.15: PM Handover

Staff are required to be on the floor to answer bells at this time as most falls occur during the handover period.

Afternoon Shift – 1445 – 2315

Fluid Balance Charts-must be maintained each duty.

There is one HCA for the floor, the ward clerk works till 9pm only 2 nights a week.

14.45: Handover

15.15: Liaise with the morning shift and discuss any questions regarding the patients' care

Take bedside handover, check patients – sight patients, pain relief; toileting; call bell. Check infusions, read notes.

16.00–17.00: **Medication charts** are kept at the end of the patient's bed. Check for any new chartings from late ward rounds and flag new drugs on the pharmacy flagging sheet.

17.00-18.00 Check patient – pain relief; toileting; call bells. Medications

17.30-18.00: Patient mealtime HCA will assist to give out meals and feed suitable patients if required. Please ensure patients sitting up ready with their hands washed.

17.30: Patient dinner

First dinner break for staff

18.30: **Second dinner break for staff**

18.00-19.00: Check patients – Pain relief; toileting; call bells. Start washes if required.

19.00-19.30: HCA will assist with supper/feeds if required.

19.30-22.00: settling of patients, Q4H obs done, check IV fluids, check all cannulas', empty IDC's, give patients urinals or set up commodes, toilet patients, brush teeth, mouth cares, offer face and hands wash, check bowel, PAC, and turn pts if required

21.00: Medications, night sedation

22.00- 22.45: 10 minute tea break

Write notes, answer bells

22.45- 23.15: handover – bedside handover complex patients at the bedside

Night shift – 2245 – 0715

The night co-ordinator is responsible for ensuring that the patient acuity is completed by the nurses caring for the patient.

The night co-ordinator main role is to ensure the smooth running of the ward, allocate to staff jobs that need to be completed during the shift, liaise with

emergency department and after hours and identify where patients are to be admitted to.

After Hours Management are referred to for advice and support. It is important that the night co-ordinator is informed at the beginning of the shift by the PM co-ordinator of any potential problems that may occur during the shift. This enables them to plan their workload to assist and support as required.

The night co-ordinator has their own workload. There is no expectation that they will have an in-depth knowledge of each patient's condition and management plan, only an overview.

Each nurse is responsible for the care of the patients allocated to them. At the start of the shift you will be allocated your patients. There is no set acuity but your patient load is expected to be between 8-9. You should negotiate to make sure that your loads are as even as possible.

An EN must be buddied with a Registered Nurse. Admissions should be shared between the nurses on.

You can do rounds and turns together but you are responsible for the patients that you have been allocated.

22.45: Handover – bedside handover from PM staff-night jobs are allocated by the nurse co-ordinating the duty.

Read patient notes

All Patients must be sighted by a nurse between rounds

Patients should be checked every ½ -1hour

23.15 – 23.30 A check of all patients is done by all staff:

• IV fluids – if patients are on blood, check records are done and when next due.

• Where identified as appropriate patients who are a falls risk or confused should have cot sides up and the bed in a low position. Make sure the patient can easily reach their bell. These patients should be checked more frequently if there are any concerns in regards to their safety.

• Check when recordings are due, and who needs BSL done over night

23.45 Medication charts – all charts must be checked for medications due, regular or non-regular. Count to make sure all charts are there, dates on charts.

24.00–00.30 WARD ROUND

- Check IV medications requires 2 x IV certified nurses
- Checks each patient individually
- All medications/obs/BSL/neuro obs/IV fluids are checked
- Patients that require toileting or turning are attended to by 2 staff
- Catheters checked
- N/G flushes
- Fluid balance chart are maintained
- Patients that may be incontinent need to be checked
- Notify Doctor of any abnormalities or concerns

02.00 - supper

02.30

- Update patient list
- Complete acuity list
- Check IV fluids/drains/NG/PEG feeds and IV additives hourly
- Check patients condition
- Maintain 2 hourly turns
- Give out medications
- Write report

0600 Observation recordings on all patients that are required.

07.00 Report

Home when handover complete

Weekly Focus

These are examples only and are no way exhaustive of skills/ conditions/ competencies that you can develop in your place with us.

Week One

- Running of the unit – day to day routines
- Completing personal objective and presenting to your preceptor (these need to be presented by day two of your placement – (please see Cherie if you are having any problems)
- Aware of the main surgical procedures e.g. THJR and TKJR
- Pressure Ulcer Care and Management
- Early warning score (EWS) protocol
- Fluid Balance Management
- Neurovascular assessment

Week Two

- Admissions- acute and elective
- General pre/post-operative care
- Falls prevention
- CAM assessment

Week Three

- Discharge Planning
- Infection control
- Cast cares

Week Four

- Wound Management
- Removal of sutures, staples and haemovacs

Week Five - Ten

- Discuss with Cherie or your preceptor

APPENDIX

Orthopaedic Complications

Orthopaedic Complications: Quick Reference Guide

Complication	Signs and Symptoms/ Diagnostic Test Findings	Prevention/Orthopaedic and Nursing Implications
Fat embolism (FE) Fat and marrow contents or metabolic lipid release = embolization to heart and lungs causing ↓ perfusion/hypoxia	• Occurs within 12–48 hrs posttrauma or intramedullary rodding (IMR)/open reduction internal fixation (ORIF)—long bones or pelvis—from disruption of bone marrow • Anxiety, tachypnea, tachycardia, chest discomfort, PO_2 < 60 mmHg, SOB, cyanosis, ↓ BP, ↑ temperature, petechiae—axilla, chest, conjunctiva • CXR snowstorm, + serum lipase, + fat in urine	• Prevent motion at fracture site/maintain alignment/early fixation, notify medical doctor (MD) • Diagnostics: pulse Ox, ABG's, EKG, CXR, lung scan, serum • Lipase, renal function tests, urine for fat • Hemodynamic and O_2 support: mask, IPPB, ventilator, PEEP • Treat shock: neuro checks q1h, VS q1h, iv hydration • Meds: corticosteroids
Pulmonary embolism (PE) Virchow's triad = venous stasis, a hypercoaguable state, and endothelial injury resulting in a thromboembolic condition = clot travels and lodges in the pulmonary vessels = obstruction of pulmonary circulation = ↓ oxygenation/ hypoxia	• Occurs within 10–14 days posttrauma or immobility, resulting from deep vein thrombosis, venous thromboembolism • Anxiety, fear, dyspnea, tachypnea, tachycardia, pleuritic chest pain, pallor, diaphoresis, SOB, cyanosis, PO_2 < 60 mmHg, ↓ BP, ↑ temperature, + Homan's sign • CXR normal, PCO_2 normal or decreased, EKG: Sinus Tach • VP/lung scan: ventilation normal, perfusion shows defect/clot blocking distal flow • Pulmonary Angiogram positive for thrombus • Impedance Plethysmogram—shows impairment	• Prevent immobility/early mobilization/ambulation • Sequential compression or alternating sleeves or foot wraps • Dorsi/plantar flexion of ankles q1–2h, isotonic/isometric exercises of lower extremities, no rolls/pillows under knees • Ongoing assessment for + Homan's, pulmonary changes • Prophylactic anticoagulation—antiplatelet agents, /low molecular weight heparin (Lovenox, Fragmin), selective factor Xa inhibitor (Arixtra), heparin, Warfarin (Coumadin) • Diagnostics: pulse ox, ABG's, CXR, VP/lung scan • Meds: heparin-bolus dose iv push then continuous drip dosage based on daily PTT (1.5–2.5 times normal) Lovenox/Fragmin: monitor platelets, INR Arixtra: monitor platelets, serum creatinine, stool for occult blood Coumadin: monitor PT or INR (prophylaxis = 2–3 × normal) • Restrict activity initially—conserve O_2 consumption • Medicate for chest pain—narcotic analgesics
Acute compartment syndrome (ACS) Accumulating fluid within a closed fascial space and/or external compression that increases pressure and reduces perfusion leading to tissue necrosis—an edema–ischemia cycle—more incidence with long bone fractures	• Risk if high velocity trauma/crush injury, blunt trauma, burns • The six P's: *Progressive pain* on passive stretch—unrelenting that is disproportionate/ nonresponsive to meds *Paresthesias*—numbness or tingling *Pressure*—tense or tight compartment/edema/shiny skin *Pallor*—sluggish or absent capillary refill/pale skin tone *Paralysis*—inability to dorsiflex/plantarflex *Pulselessness*—weak or absent peripheral pulses Note: Sometimes the neurovascular status is not altered • Use compartment pressure (*Stryker*) monitor/ wick catheter to monitor tissue pressures—normal is less than 10 mmHg, ACS > 30 mmHg	• Monitor CSM q2h × 24 hr posttrauma, postop, postcast, and so on • Elevate the extremity to control edema—if s/s of ACS develop—do not elevate. Do not apply elastic wraps or casts too tightly—check circumference measurements of extremity • Pressure monitor/catheter used to measure intracompartmental tissue pressure—danger if greater than 30 mmHg • Bi-valve cast—spread open, cut cotton webril padding, secure cast to maintain reduction with bias or ace wrap • May need fasciotomy (within 4–6 hr) of onset of ACS to relieve pressure—will be excessive drainage from open wounds, monitor for s/s of infection—iv antibiotics, moist dressing changes. Monitor neurovascular status. Will require secondary closure/possible skin grafting. Maintain splint/immobilization.
Infection Requires pathogen, susceptible host, mode of transmission, portal of entry—concern is osteomyelitis or infection of total joint arthroplasty	• Evaluate risk factors versus host defenses: mobility, pulmonary clearance, immune system, skin integrity, neurovascular function, gi tract, gu tract, chronic disease—diabetes, peripheral vascular disease	• Prevent wound contamination—hand washing, sterile/ clean technique—gloves/instruments • Keep dressing/wound dry, adequate cleansing/ irrigation/debridement—sterile technique for pin care

(continues)

Orthopaedic Complications: Quick Reference Guide *(Continued)*

Complication	Signs and Symptoms/ Diagnostic Test Findings	Prevention/Orthopaedic and Nursing Implications
Infection cont..	• Temperature > 100°F • Assess wound: erythema, drainage—purulent, foul smelling, induration, pain • Wound/tissue culture and sensitivity—obtain after rinsing area with only saline (not with antimicrobial)—notify MD as soon as results available—results guide antibiotic selection	• Culture and sensitivity of wound, appropriate antibiotics—prophylactic or therapeutic—narrowest spectrum, adequate peak/trough levels of antibiotics = appropriate dosage/timing • Appropriate wound/tissue care based on characteristics—more debridement as needed adequate protection/hydration • Isolation as needed-appropriate management of dressings
Hemorrhage/anemia Excessive blood loss from traumatic injury, or from surgical wound—concern is shock or weakness and inability to perform PT/OT or ADLS	• Excessive bleeding from wound or under tissues • Ecchymosis, decreased hemoglobin/hematocrit • Dizziness, weakness, pallor, s/s of shock: ↓ BP, ↑ P, ↑ RR, ↓ hemoglobin and hematocrit	• Anticipate blood loss with elective cases—arrange for autologous blood donation or donor directed blood—may use hypotensive anesthesia, or hemodilution • Consider Epoetin Alfa (Procrit/Epogen) to stimulate erythropoiesis = ↑ red blood cell production • Blood salvage techniques—cell savor in OR, postop blood conservation devices (ConstaVac, Gish)—reinfuse in 6 hr • Prevent bleeding by appropriate pressure dressing • Monitor CSM, tissue perfusion/monitor for s/s of hypoxia, VS, wound for bleeding, CBC, H&H, PT, PTT, INR • Vitamin K, iron supplements, prevent fluid volume deficit
Malunion/nonunion of fracture Bone that does not heal in anatomic position—no evidence of bone bridging after 6 months	• Assess for deformity of the extremity, motion at the fracture site 6 months or longer after treatment of fracture, pain at fracture site • Check nutrition, calcium levels/intake, presence of infection • X-ray shows deformity or no solid callus at fracture site	• Prevent by adequate anatomic reduction of fracture/immobilization of fracture, appropriate positioning, activity restrictions, weight-bearing restriction maintained • Periodic monitoring by X-ray • Stimulate healing by electrical bone stimulation using direct current, magnetic, pulsed ultrasound • May need surgical refracture/manipulation/fixation
Pain—acute and chronic Emotional, sensory, motor, autonomic experience associated with potential or actual tissue damage—can cause physical disability and psychosocial impairment if not relieved or controlled	• Pain is #1 complication from patient's perspective • Monitor pain on 0–10 scale, monitor anxiety, diaphoresis, grimacing, ↑ P, ↑ BP, ↑ RR • Acute pain—sudden injury, illness, or surgery—physical signs • Chronic pain—long lasting, episodic exacerbations, intolerable, disabling, alienating—may lead to depression	• Monitor pain frequently using 0–10 pain scale: numerical, verbal, or visual scale—"pain is what the patient says it is" • Assess characteristics of pain: aggravating, modifying, alleviating factors, assess verbal, and behavioral expressions • Encourage expression of pain and patient participation • Core measures: ice, elevation, analgesics • Provide nonpharmacologic pain relief measures—positioning, relaxation techniques, imagery, thermal applications, massage, psychologic support—consult with pain service/clinics • Pharmacologic measures: med/dose/route based on individual needs: IVP, PCA, epidural, PO, IM, SC, transdermal • May need nerve block

↑, increasing; ↓, decreasing; ABG, arterial blood gas; EKG, electrocardiogram; VP, Ventilation perfusion; CXR, chest x-ray; SOB, shortness of breath; PO_2, partial pressure of oxygen; O_2, oxygen; IPPB, intermittent positive pressure breathing; PEEP, positive end-expiratory pressure; q, every; h, hour; VS, vital signs; BP, blood pressure; PCO_2, partial pressure of carbon dioxide; PTT, partial thromboplastin time; PT, prothrombin time; INR, international normalized ratio; CSM, circulation, sensation, motion; mmHg, millimeters of mercury pressure; PT/OT, physical therapy/occupational therapy; ADLS, activities of daily living; P, pulse; RR, respiratory rate; OR, operating room; CBC, complete blood count; H&H, hematocrit & hemoglobin; IVP, intravenous push; PCA, patient controlled analgesia; IM, intramuscular; PO, by mouth; SC, subcutaneous

Compartment Syndrome- The six P's

Prevent Compartment Syndrome

Be on the Look out for the '*Six P's*'

Pain: -Out of proportion with the injury
- Deep, throbbing, unrelenting
- On passive stretch of the toes
- Most sensitive early indicator of compromise.

Pressure: -Tense or tight compartment/ oedema/shiny skin.

Paresthesia: -Numbness or tingling

Pallor: -Sluggish or absent capillary refill/pale Skin tone.

Paralysis: -inability to dorsi flex/plantar flex

Pulselessness: -weak or absent peripheral pulses
-A dead give-away, but a late sign

Remember ***be vigilant with those Neurovascular checks and attend to all pain. If unsure, get a senior colleague to check too.*** **Pain disproportionate to the injury and unrelieved by reasonable analgesia is an early sign**
Early identification prevents limb loss!!

If a patient can feel pressure, but not discriminate between sharp and dull, this is a sign of decreasing neurovascular function: pale, dusky extremities that are cool to touch are a sign of decreased arterial flow because of compression in the compartment.
Pulselessness is a late sign.
Compartment syndrome is a possible complication for every patient with a fracture, sprain or orthopaedic surgery, but can be caused by factors which put pressure on the body's compartments in the lower leg, forearm, upper arm, shoulder, thigh and lumbar Para spinal, extraocular, gluteal muscles and in the foot. Internal and external pressures or a combination of both can cause Compartment Syndrome.

References

Altzier, L. (2004) Compartment Syndrome, *Orthopaedic Nursing,* 23,6,p391
Harvey, C (2006) Complications, *Orthopaedic Nursing*, 25,6, p410
Miller, N & Askew, A (2007) Tibia fractures: An overview of evaluation and treatment, *Orthopaedic Nursing*, 26 4,p216

Diane Fuller, RN, 2008

General Orthopaedic Terms

Abduction - the withdrawal of a part away from the midline

Adduction - the act of drawing a part toward the midline

Ankylosis - abnormal immobility and consolidation of a joint

Aplasia - incomplete development of tissue or a structure

Arthritis - inflammation of a joint

Arthrodesis - the surgical fixation of a joint by fusion of the joint surfaces

Arthoplasty - reconstructive surgery of a joint; formation of a movable joint

Arthrotomy - surgical incision of a joint

Articulation - a joint; the place of union or junction between two or more bones

Atrophy - wasting away or diminution in the size of a part

Baker's Cyst (Popiteal cyst) - A swelling behind the knee, caused by the escape of synovial fluid, which has become enclosed in a sac

Chrondroma – a hyperplastic growth of the cartilage tissue

Closed Fracture – loss of continuity of a bone; not in contact with the outside environment

Congenital – existing at or before birth

Coxa – hip or hip joint

Crepitus – bony crepitus – the crackling sound produced by the rubbing together of fragment of fractured bone. False crepitus or joint crepitus the grating sensation caused by the rubbing together of the dry surfaces of joints.

Dislocation – the displacement of a part of a joint

Dorsi-flexion – flexion or bending of the foot toward the leg

Dysplasia – abnormality of development

Enchondroma – a hyperplastic growth of cartilage tissue remaining in the interior or substance of a cartilage or bone

Ephysis– a piece of bone separated from a long bone in early life by cartilage, but later becoming a part of the bone. It is this cartilaginous centre that growth in length of the bone occurs.

Eversion – a turning outward

Exostosis – a bony growth projecting outward from the surface

Extension– a movement, which brings the limb into or towards straight condition

Fibroma – a tumour composed of fibrous or fully developed connective tissue.

Flexion – the act of bending or condition of being bent

Fracture – a break in the bone – loss of continuity of a bone

Fusion – the operative formation of ankylosis

Genu – the knee

Hallux – great toe

Implant – to insert or graft

Inversion – a turning inward

Malunion – union of the fragment of a fractured bone in faulty position

Non-union– failure of the ends of a fractured bone to unite; false union; pseudo-arthrosis

Open Fracture– loss of continuity of bone with exposure to the outside environment

Ostectomy– the excision of a bone or a portion of a bone

Osteochondritis dissecans– Osteochondritis resulting in the splitting of pieces of cartilage into the joint, particularly the knee joint or shoulder joint.

Osteogenic Sarcoma- a primary malignant tumour of the bone, which grows rapidly, metastasises early and carries a grave prognosis

Osteoma– a tumour composed of bone tissue and usually developing on a bone

Osteomyelitis– inflammation of a bone caused by a pyogenic organism; may remain localised or it may spread through the bone.

Osteotomy – the surgical cutting of a bone

Periosteum – the tough fibrous membrane surface of a bone

Plantar Flexion – the sole of the foot in a condition of being bent; extension of the foot

Polydactylism – more than the usual number of fingers or toes

Pronation– the act of turning the palm of the hand downward or toward posterior surface of the body

Pseudoarthrosis – a false joint as that sometimes seen following a fracture or in a failure of an arthrodesis or fusion

Scoliosis – abnormal curvature of the vertebral column

Sequestrum– a piece of dead bone that has become separated during the process of necrosis from the sound bone

Slipped Upper Femoral Epiphysis (SUFE) – separation of the epiphysis from the femoral head

Syndactylism – webbing between adjacent digits

Talipes – congenital deformity of the foot

Tenodisis– tendon fixation; suturing of the proximal end of a tendon to the bone

Tenorrhaply – the union of a divided tendon by suture

Transplant – to transfer tissue from one part to another

Valgus– bent outward; away from the midline of the body distal to joint or point described

Varus – bent inward; toward the midline of the body distal to joint or point described.

Volar – anterior or palmar surface

Volkmann Contracture– degenerative, contracture and atrophy of a muscle resulting from long continued interference with normal circulation

Abbreviations used in the Unit

#	Fracture	LA	Local Anaesthesia
ACL	Anterior Cruciate Ligament	Lat.	Lateral
ADL	Activity of daily living	MUA	Manipulation under anaesthesia
AFO	Ankle Foot Arthrodesis	MVA	Motor vehicle accident
AKA	Above Knee Amputation	NAD	No abnormality detected

BKA	Below Knee Amputation	NOF	Neck of Femur
BP	Blood Pressure	NPO/NPM	Nil per mouth (nothing to eat or drink)
C1-7	Cervical 1-7	NSAID's	Non-steroidal anti Inflammatory drugs
Ca	Calcium, Carcinoma	NV	Neurovascular
Chr.	Chronic	NWB	Non weight bearing
CNS	Central nervous system	OA	Osteoarthritis
C-SPINE	Cervical Spine	ORIF	Open reduction internal fixation
CT	Computed Axial Tomography (Scan)	ORTHO	Orthopaedics
CVP	Central venous pressure	OT	Occupational Therapy/Operating Theatre
CXR	Chest X-Ray	PCA	Patient controlled analgesia
DHS	Dynamic Hip Screw	PE	Pulmonary Embolism
DM	Diabetes Mellitus	PHYSIO	Physiotherapy
DVT	Deep Vein Thrombosis	POP	Plaster of Paris
Dx	Diagnosis	PRN	As required
ECG	Electrocardiogram	PWB	Partial weight bearing
U/S	Ultrasound	QID	Four times a day
Ext. Fix	External Fixator	R/O	Removal Of
FB	Foreign body	ROM	Range of motion/movement
FBC	Full Blood Count	ROP	Removal of plaster
Fib.	Fibula	ROS	Removal of suture
FWB	Full weight bearing	S1-5	Sacral 1-5
GA	General Anaesthesia	SSG	Split Skin Graft
GCS	Glasgow Coma Scale	STAT	Immediately
Hb	Haemoglobin	T1-12	Thoracic 1-12
I&D	Incision and drainage	TCI	To come in
ICU	Intensive Care Unit	THR	Total Hip Replacement
IM	Intramuscular	Tib.	Tibia
IVI	Intravenous infusion	TDS	Three times a day
L1-5	Lumbar 1-5	TKR	Total Knee Replacement

Evaluation of your Clinical Preceptor

Please return your evaluation to Cherie (Nurse Educator)

Name of Preceptor_____ Date_____

E = Excellent	**VG** = Very Good	**S** = Satisfactory	**NI** = Needs Improvement

Please read the following statements then tick the box that best indicates your experience

My Preceptor:	**E**	**VG**	**S**	**NI**
Was welcoming and expecting me on the first day				
Was a good role model and demonstrated safe and competent clinical practice				
Was approachable and supportive				
Acknowledged my previous life skills and knowledge				
Provided me with feedback in relation to my clinical development				
Provided me with formal and informal learning opportunities				
Applied adult teaching principals when teaching in the clinical environment				

Cut long line

Describe what your preceptor did well

_____

_____

_____

Describe anything you would like done differently

_____

_____

_____

Signed: _____ Name: _____