Monash Children's Hospital Referral Guidelines
PAEDIATRIC ORTHOPAEDICS

EXCLUSIONS

Services not offered by Monash Children's Hospital

Patients over 18 years of age: Click here for adult Monash Health Orthopaedics guidelines

CONDITIONS

ANKLE AND FEET
- Flat feet
- In-toeing
- Out-toeing
- Toe walking

HIP
- Developmental dysplasia of the hip
- Perthes disease
- Slipped under femoral epiphysis

KNEE
- Bow legs
- Knock knees
- Osgood-Schlatter disease

OTHER
- Infection – bone
- Infection – joint
- Limping child
- Tumour – bone and soft tissue

PRIORITY

All referrals received are triaged by **Monash Children's Hospital clinicians** to determine **urgency of referral.**

EMERGENCY	For emergency cases please do any of the following: - send the patient to the Emergency department OR - Contact the on call registrar OR - Phone 000 to arrange immediate transfer to ED
URGENT	The patient has a condition that has the potential to deteriorate quickly with significant consequences for health and quality of life if not managed promptly.
ROUTINE	The patient's condition is unlikely to deteriorate quickly or have significant consequences for the person's health and quality of life if the specialist assessment is delayed beyond one month

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Monash Children's Hospital

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REFERRAL

How to refer to Monash Children's Hospital

Find up-to-date information about how to send a referral to Monash Health on the eReferrals page on our website.

CONTACT US

Medical practitioners

To discuss complex & urgent referrals contact orthopaedic case manager:
(03) 8572 3832

General enquiries

Phone: 8572 3004

ANKLE AND FEET

FLAT FEET

Initial GP Work Up

Clinical History

- Most children under age three have flat feet
- Ask if the child has pain in their feet

Physical Examination

- Ask the child to stand on tip toes.
- If the arch corrects, the foot is flexible
- (requires no treatment)
- Alternatively, if an arch can be seen in a non-weight-bearing position (e.g. sitting), the foot is flexible (requires no treatment)

Investigations

- For rigid flatfoot only: weight-bearing X-ray (AP, lateral and oblique)

Management Options for GP

- Reassure parents. Most children develop an arch by age six
- The vast majority of patients with flexible flatfoot do not require orthopaedic referral
- Painless flexible flat feet require no treatment. Orthotics do not help form an arch and are not recommended

WHEN TO REFER?

Routine

- Rigid flatfoot (arch does not reform on tip toe test or in non-weight-bearing)
- Painful flatfoot
- Asymmetry
- Localised tenderness
- Difficulty in functional activities e.g. running, jumping

BACK

IN-TOEING

Initial GP Work Up

Clinical History

- Common causes:
  - Infant – Metatarsus adductus
  - Toddler – Internal tibial torsion
  - School-age child – Increased femoral anteversion (excessive range of internal rotation and small range of external rotation)

Physical Examination

- Observe child's gait
- Place in prone and check range for internal and external rotation of the hip, thigh-foot angle and foot posture

Management Options for GP

- Reassure the parents. In-toeing in most children will improve as they grow and no treatment is required.
- In-toeing can persist into adult life but rarely does this seem to cause major problems

WHEN TO REFER?

Routine

- In-toeing exceeds normal limits for age
- Asymmetrical deformity
- Tripping in a school-age child that affects participation in activities
- Progressive in-toeing
- Associated patella pain
- Hypertonicity

BACK

ANKLE AND FEET (cont'd)

OUT-TOEING

WHEN TO REFER?

Initial GP Work Up

Clinical History

- Commonly seen in early walkers due to restricted internal rotation of the hip
- May be associated with knock knees (genu valgum) and flatfoot
- Be aware of serious causes e.g. slipped upper femoral epiphysis

Physical Examination

- Observe child's gait
- Place in prone and check for internal and external hip range of motion, thigh-foot angle and foot posture

Management Options for GP

- Reassure the parents. The majority of out-toeing will resolve as the child grows and no treatment is required
- Exclude other causes such as slipped upper femoral epiphysis

Routine

- If progressive out-toeing
- Functional difficulties
- Asymmetrical deformity
- Thigh-foot angle > 30–40 degrees

BACK

TOE WALKING

WHEN TO REFER?

Initial GP Work Up

Clinical History

- Usually idiopathic; family history of toe walking
- Although rare, need to rule out significant conditions such as spinal dysraphism, muscular dystrophy and cerebral palsy

Physical Examination

- Gait assessment
- Inspect spine
- Functional tests: check if able to stand with heels down with trunk straight and able to walk on heels
- Calf length
- Calf size
- Neurological assessment

Investigations:

If suspicious order:

- spinal X-ray
- CPK

Management Options for GP

Consider referral to paediatric physiotherapist for assessment and management

Routine

- Inability to dorsiflex foot beyond neutral, stand with heels down or walk on heels
- Signs of cerebral palsy with hypertonia, hyperreflexia or ataxia
- Calf hypertrophy
- Asymmetry
- Abnormal spine examination

BACK

KNEE

BOW LEGS (*GENU VARUM*)

Initial GP Work Up

Clinical history

- Physiologic bowing is the most common cause of bow legs and is seen from birth until two or three years of age
- Be aware of pathological causes e.g. rickets, Blount's disease

Physical examination

- Determine the patient's height and weight percentiles
- Assess in-toeing
- Measure intercondylar distance in standing with feet together

Investigations

- X-ray of knees if:
  - unilateral deformity
  - progressive deformity
  - lack of spontaneous resolution
  - aged over three years old

Management Options for GP

- Reassure the parents. Physiological bow legs will resolve by age three with normal development. No specific treatment is required
- If concerned, serial measurement of intercondylar distance every six months to document progression or resolution may be useful

WHEN TO REFER?

Routine

- Persistence of bow legs after three years of age
- Intercondylar separation >6 cm
- Asymmetrical deformity
- Excessive deformity
- Progressive deformity or lack of resolution
- Pain
- After a traumatic event
- Other associated skeletal deformity such as height below 5th centile for age

BACK

KNEE (cont'd)

KNOCK KNEES (GENU VALGUM)

Initial GP Work Up

Clinical history

- Physiological knock knees is seen from three to five years of age; it resolves with growth by age eight
- May be familial

Physical examination

- Determine the patient's height and weight percentiles
- Measure intermalleolar distance in standing with knees together

Investigations

- X-ray of knees if:
  - unilateral deformity
  - progressive deformity
  - lack of spontaneous resolution

Management Options for GP

- Reassure. The majority of physiological knock knees will resolve with normal development by age eight; no specific treatment is required
- If concerned, serial measurement of intermalleolar distance every six months to document progression or resolution may be useful

WHEN TO REFER?

Routine

- Persistence of significant knock knees beyond age eight
- Intermalleollar separation > 8 cm
- Asymmetrical deformity
- Progressive deformity or lack of spontaneous resolution
- Pain
- After a traumatic event
- Other associated skeletal deformity such as height below 5th centile for age

BACK

OSGOOD-SCHLATTER DISEASE

Initial GP Work Up

Clinical History

- Most frequent cause of knee pain in children aged 10–15 years

Physical Examination

- Pain and swelling over the tibial tubercle
- Prominent and tender tibial tubercle

Investigations:

Plain radiographs are used to rule out serious pathology e.g. neoplasm, acute tibial apophyseal fracture and infection

Management Options for GP

- Reassurance. This is a self-limiting condition and symptoms will resolve with skeletal maturity (i.e. when the bones finish growing)
- Modify activities to manage the pain. Jumping or kicking activities should be avoided
- Local measure such as ice, anti-inflammatories and quadriceps stretching are recommended

WHEN TO REFER?

Routine

- Symptoms not resolving with conservative treatment
- Symptoms persisting >18 months

BACK

HIP

DEVELOPMENTAL DYSPLASIA OF THE HIP (DDH)

Initial GP Work Up

Clinical History

- Risk factors:
  - Female sex
  - Breech delivery
  - Intrauterine packaging deformities e.g. plagiocephaly, foot deformities or torticollis
  - Family history of DDH

Physical Examination

- Conduct hip examination to check for instability with Barlow's or Ortolani's test
- Review limitation of hip abduction
- Deep uneven gluteal crease
- Leg length discrepancy
- Waddling gait after walking age

Investigations

- Hip ultrasound if aged under six months (paediatric ultrasound service if possible)
- Plain X-ray if aged over six months (paediatric radiology service if possible)

Management Options for GP

- Reassure the parents. The majority of out-toeing will resolve as the child grows and no treatment is required
- Exclude other causes such as slipped upper femoral epiphysis

WHEN TO REFER?

Urgent

- Abnormal clinical examination
  - Positive Ortolani's or Barlow's test
  - Limited hip abduction
  - Leg length discrepancy
- Abnormal ultrasound or X-ray
- If risk factors and any clinical concerns

BACK

PERTHES DISEASE

Initial GP Work Up

Clinical History

- Typically presents between the ages of four and 10 years
- Variable pain with activity – thigh, groin or knee pain
- Sometimes seen in hyperactive boys

Physical Examination

- Variable limp
- Hip irritability
- Loss of hip motion, especially internal rotation and abduction in flexion

Investigations:

- Plain X-ray (AP and frog leg views)

Management Options for GP

- Pain management:
  - Paracetamol
  - NSAIDS

WHEN TO REFER?

Urgent

- All patients with confirmed Perthes or possible Perthes

BACK

HIP (cont'd)

SLIPPED UPPER FEMORAL EPIPHYSIS (SUFE)

Initial GP Work Up

Clinical History

- Hip, thigh or referred knee pain in age group 10–16 years
- Pain worse with activity and stressing hip joint
- Obesity
- Family history of SUFE

Physical Examination

- Obligatory hip external rotation during hip flexion in supine
- Acute loss of hip internal rotation
- Short leg
- Externally rotated leg
- Trendelenburg gait

Investigations

- Plain X-ray (AP pelvis and frog leg lateral of both hips)
- In early slips, X –rays may be normal. If clinical suspicion is high, an MRI may be needed and this will be part of the paediatric orthopaedic work-up.

Management Options for GP

- **Send to ED immediately** - non-weight-bearing with crutches until arrival at hospital

WHEN TO REFER?

Emergency

- All patients with confirmed SUFE should be sent to the ED immediately
- Contact orthopaedic registrar on call through switchboard

BACK

OTHER

INFECTION – BONE E.G. OSTEOMYELITIS

WHEN TO REFER?

Emergency

If clinically suspected, send referral to ED

Initial GP Work Up

Clinical History

- Any bone can be affected but cancellous bone is more common such as the metaphyseal region of long bones
- Child is unwell with a fever, anorexia, localised tenderness or spasm around the joint if the infection is close to the joint
- Beware of subacute osteomyelitis, where there may be few constitutional signs

Investigations

- FBE, ESR, CRP
- X-ray (change may lag 10 days behind clinical presentation)

Management Options for GP

- **Send to ED immediately** if unwell
- Do not give antibiotics as will negate cultures
- May be reasonable to arrange some investigations if child not clearly unwell

BACK

INFECTION – JOINT E.G. SEPTIC ARTHRITIS

WHEN TO REFER?

Emergency

Immediate referral to ED due to high risk to joint cartilage and growth plates

Initial GP Work Up

Clinical History

- Infection more common in infants and toddlers
- Hip joint more common than knee or ankle joint
- Child unwell, listless, flushed and fever
- Child cannot be coaxed to move the joint

Management Options for GP

- **Send to ED immediately**
- Do not give antibiotics as will negate cultures
- No need for investigations if clinically suspected

BACK

OTHER (cont'd)

INFECTION – BONE E.G. OSTEOMYELITIS

WHEN TO REFER?

Initial GP Work Up

Clinical History

Common causes not to be missed:

All ages

- Trauma
- Infection – septic arthritis, osteomyelitis
- Tumour
- Referred pain

1 to 4 years

- Developmental dysplasia of the hip
- Irritable hip (transient synovitis)

4 to 10 years

- Perthes disease
- Irritable hip (transient synovitis)
- Juvenile idiopathic arthritis

10 to 16 years

- Slipped upper femoral epiphysis

Emergency

- Red flag signs: unwell, flushed, lethargic, fever, flat, anorexic
- Joint is irritable and stiff
- Not improving

Investigations

- Depending on clinical presentation, consider:
  - FBE, ESR,CRP
  - hip X-rays (AP and lateral)
  - hip ultrasound

Management Options for GP

N/A

BACK

TUMOUR – BONE AND SOFT TISSUE

WHEN TO REFER?

Initial GP Work Up

Clinical History

- Standard history
- Physical examination
- Standard examination

Investigations

- X-ray
- FBE and U&E
- ESR/CRP/LFT

Do not administer needle biopsy/injection

Emergency

All cases of tumours or suspected tumours should be referred to The Royal Children's Hospital's musculoskeletal tumour service and the referral discussed verbally with the service (contact Orthopaedic department on 9345 5444)

Management Options for GP

N/A

BACK