



## Orthopaedic Surgery

From infants to young adults, the team treats all aspects of children's orthopaedic needs on an inpatient and outpatient basis. Performing about 2,200 pediatric orthopaedic surgeries a year, our experienced team of pediatric orthopaedic surgeons specialize in the treatment of conditions such as congenital deformities of the upper and lower extremities, spinal disorders, sports-related injuries and neuromuscular diseases. Our orthopaedic surgeons are experts at treating young patients whose growth plates are not yet closed.

Sports injuries are common among children and adolescents. Valley Children's pediatric orthopaedic physicians have extensive experience in treating young athletes and employ sport-specific treatment to get athletes back to play as soon as possible.

The practice was one of the first in the nation to implement an "urgent clinic" that allots additional time and resources to handle anticipated influxes in pediatrician referrals and unscheduled appointments. These include traumatic injuries from simple falls on the playground to major motor vehicle collisions. Based on experience, the practice developed the concept that we could predict – and therefore better prepare for – increases in patients who require immediate attention.

### Access Center

24/7 access for referring physicians  
866-353-KIDS (5437)

### Outpatient Referral

Referral forms online at [valleychildrens.org/refer](http://valleychildrens.org/refer)  
FAX: 559-353-8888

### Orthopaedic Surgery Office Numbers

Main: 559-353-5941  
FAX: 559-353-5945

Condition	Pre-Referral Work-up	When to Refer
<p>Acute Fracture at Any Anatomic Site</p>	<ul style="list-style-type: none"> <li>• Clinical history: Patient usually presents w/ discrete hx of trauma and localized bony pain +/- deformity</li> <li>• X-rays of the anatomic area of pain (two views) if pain can be localized</li> <li>• If skeletal fx visualized on X-ray then definitive care by PCP or referral if X-rays negative then:</li> <li>• Labs: ESR, CRP, CBC +/- Blood Culture</li> <li>• Consider bone scan if labs abnormal and plain X-rays not diagnostic</li> </ul>	<ul style="list-style-type: none"> <li>• All fractures that are beyond comfort level of treating physician should be referred for acute care</li> <li>• The degree of acceptable angulation or step off varies by fx site and patient age. As a general rule, fractures w/ &gt; 15-20 degrees of angulation are likely to require reduction or correction of their deformity. Forearm, femur and elbow fractures are the more common and challenging fractures.</li> </ul>
<p>Bone Infection or Osteomyelitis</p>	<ul style="list-style-type: none"> <li>• Clinic history: pain &gt; 48 hours, no hx of trauma</li> <li>• Physical exam: local osseous tenderness</li> <li>• Labs: CBC, ESR, CRP, WBC</li> <li>• X-rays: AP and lateral plain films</li> <li>• If labs consistent w/ infection, consider total body scan</li> </ul>	<ul style="list-style-type: none"> <li>• All cases with pain, abnormal labs or abnormal bone scan</li> <li>• Total body scan is an excellent screening tool in young children (&lt; 10 yrs) who may represent a diagnostic challenge</li> </ul>

Condition	Pre-Referral Work-up	When to Refer
Developmental (Congenital) Dislocation of the Hip (DDH) Hip Dysplasia	<ul style="list-style-type: none"> <li>• Clinical history: high risk family hx includes breech delivery in mother with/ without DDH. Note: Conditions associated with DDH are prior family hx, breech presentation, torticollis and feet and knee deformities.</li> <li>• Physical exam: Infant hip exam is difficult and requires pediatric orthopaedic expertise. Hip "click" can be very significant, exam findings are very subtle. A hip "click" is not a sign of pathology. Hips and knees click in infants when soft tissues snap over young prominences. These are physiologic "clicks."</li> <li>• Plain X-rays: AP of pevis and exam are diagnostic for a pediatric orthopaedist in patients &gt; 2-3 months. Ultrasound also helpful in younger patients (6 months).</li> </ul>	<ul style="list-style-type: none"> <li>• All infants with hip click</li> <li>• Patient with family hx of DDH, breech presentation and abnormal ultrasound or X-ray should be referred</li> <li>• Breech presenting in utero or a positive family history of hip dysplasia are absolute indications for a radiograph (AP pelvis) around 3-4 months of age</li> </ul>
Extreme Pain, Limping or Non-Ambulation	<ul style="list-style-type: none"> <li>• Clinical history: no fever</li> <li>• Physical exam: localizing the pain</li> <li>• X-rays</li> <li>• **Beware septic hip, especially in child &lt; 12 yrs w/ hip or non-specific leg pain or limp &gt; 2 days</li> </ul>	<ul style="list-style-type: none"> <li>• Persistent pain or limp - 48 hours</li> <li>• Abnormal X-ray consistent with fracture or infection</li> <li>• Abnormal labs</li> <li>• Bone scan</li> <li>• Fracture or infection</li> <li>• Any child with limp who appears acutely ill</li> </ul>

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Hip Pain (or knee pain referred from hip) "Possible Septic Hip"	<ul style="list-style-type: none"> <li>• Clinical history</li> <li>• Physical exam: focusing on range of motion of the hip (stiffness or loss of internal rotation)</li> <li>• Labs: CBC, CRP, ESR if there is hip stiffness</li> <li>• AP/frog lateral of hips/ pelvis</li> <li>• Hip ultrasound if hip is stiff or labs are abnormal</li> <li>• Total body scan if ultrasound is negative, labs are abnormal and hip is stiff on exam</li> </ul>	<ul style="list-style-type: none"> <li>• Any child with "hip" pain &gt; 48 hours or if child is acutely ill or if labs/ radiology are abnormal</li> </ul>
Legg Perthes Disease Legg Calves Perthes Perthes Disease	<ul style="list-style-type: none"> <li>• Clinical history: Perthes is an idiopathic avascular necrosis of one or both (bilateral) hips, typically ages 4-10. Pain-free limp or moderate pain with activity is often seen.</li> <li>• Physical exam: loss of motion (internal rotation) is an important finding</li> <li>• Radiographs: plain X-rays are typically diagnostic; AP/frog pelvis</li> </ul>	<ul style="list-style-type: none"> <li>• All infants with Perthes or consideration of Perthes disease should be evaluated by an orthopaedist. Plain X-rays are recommended prior to referral.</li> </ul>

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Limb Lengthening and Deformity Correction	<ul style="list-style-type: none"> <li>Physical exam: detectable limb length discrepancy or visible deformity (consider physiologic genu varum or genu valgum in children &lt; 7 yrs old)</li> <li>Lower extremity or back pain secondary to leg length discrepancy</li> <li>Gait abnormality secondary to deformity or leg length discrepancy</li> </ul>	<ul style="list-style-type: none"> <li>When there is any limb length discrepancy in skeletally mature children &gt; 2 cm in limb length discrepancy</li> <li>Visible/significant progression of deformity of lower extremity</li> </ul>
Scoliosis or Spinal Curvature	<ul style="list-style-type: none"> <li>Clinical history: significant or other diseases associated with scoliosis or neurologic deficits</li> <li>Physical exam: obtain angle of trunk rotation (scoliometer reading if possible). Also spine flexibility, tenderness and neurologic function.</li> <li>Radiographs: upright AP/ lateral thoracic-lumbar spine on 36" cassettes</li> </ul>	<ul style="list-style-type: none"> <li>Refer all children with a scoliosis <math>\geq 20</math> degrees (X-ray) or scoliometer &gt; 7 degrees. As a general rule, patients receive bracing treatment for significant progression in young patients with slow curves (20-40 degrees) and surgical treatment for curves &gt; 50 degrees.</li> </ul>

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<p>Slipped Capital Femoral Epiphysis (SCFE) Severe Hip Pain Physal Fracture of Femoral Head</p>	<ul style="list-style-type: none"> <li>• Clinical history: hip pain or referred knee pain in well adolescent</li> <li>• Physical exam: severe pain/acute loss of hip internal rotation</li> <li>• Plain X-rays: demonstrate either obvious physal fracture of femoral head or chronic very subtle "slip" - difficult to determine slip, requiring orthopaedic evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Refer all children between ages 6-12 with persistent hip pain and painful passive ROM (especially internal rotation) as an URGENT referral because of the need to avoid severely displaced fracture/ dislocations of the hip. Referral of children with a radiographic diagnosis should occur within 24 hours. Treatment is URGENT operative fixation. Patients should be on strict non-weight bearing.</li> </ul>