

Introduction

Since the work of the original POSNA ad hoc committee on core Curriculum, the study guide has been developed with objectives specific to each subject in the bibliography. The “graded curriculum” was a result of deliberation by the committee on the degree of expertise expected from a graduating resident for each subject in the curriculum, and the objectives were developed based on this grading. The concept of the “graded curriculum” lends validity to the specific objectives as forming the basis of core knowledge in pediatric orthopaedics.

Richard H. Gross, Chair
September 2009

STRUCTURE OF CURRICULUM FOR PEDIATRIC ORTHOPAEDIC RESIDENCY TRAINING

Clinical topics are graded both in expertise and knowledge base. Basic science topics pertinent to pediatric orthopaedics are graded only in knowledge base. Guidelines for assigning the value of a specific topic in the curriculum are as follows:

EXPERTISE

- A. The finished resident is capable of assessing/ managing the problem alone, without need for consultation or assistance.
- B. The finished resident is capable of assessing/ managing well defined problems, but lacks expert capabilities; uses others for complex problems.
- C. The finished resident triages, leaving complete patient assessment and/or management (as specified) to those with complete knowledge and expertise in this problem area.

Subject matter in the knowledge base includes anatomy, pathophysiology, and disease process (classification, natural history, incidence, and genetics).

“Patient assessment” includes obtaining a history, performing a physical exam capable of evaluating the underlying problem, and the ordering and interpreting of appropriate diagnostic studies (lab, imaging, other).

“Nonoperative” and “operative” management need little explanation. “Long-term” management includes rehabilitative modalities. “Complications” includes management of complications resulting from previous treatment.

PATTERNS OF CARE

There are several patterns of care evident in the curriculum. These vary from the expectation that the finished resident will be the complete caregiver for relatively common and uncomplicated problems (most fractures) to the expectation that he/she will only “screen and refer” very difficult problems (osteosarcoma). Almost all clinical components of the curriculum can be matched with one of the following patterns:

Pattern	Expertise					
	Pt. Assessment	Management	Nonop	Op	Longterm	Comp
Complete caregiver	A	A	A	A	A/B	2,3
Usual caregiver	A	B	B	B	B/C	2,3
Discretionary caregiver	B	B	B	B	B/C	2,3
Co-care giver (share with tertiary facility)	B	B/C	C	B/C	C	3
Screen and refer	B/C	C	C	C	C	3,4

For simple problems, a lower level of knowledge base will be adequate for a “complete caregiver” pattern. As problems become more complex, a higher knowledge base is necessary. A sophisticated, fellowship level knowledge base is not expected in residency training. Thus, patterns of care can be graphically depicted as follows:

		DIFFICULTY OF PRESENTING PROBLEM		
		low	mod	high
KNOWLEDGE BASE	(high) 1	<i>treat</i>	<i>treat</i>	<i>treat</i>
	2	<i>treat</i>	<i>treat</i>	<i>treat</i>
	3	<i>treat</i>	<i>treat</i>	<i>treat</i>
	(low) 4	<i>triage</i>	<i>triage</i>	<i>triage</i>

It should be reemphasized that the designated competencies are a minimum and many finishing residents may possess competencies exceeding those listed on the curriculum. The curriculum is in no way intended to dictate a pattern of practice, but rather serve as a guide to plan an educational program designed to impart competency to the finishing resident in those areas likely to be encountered in orthopaedic practice, and to de-emphasize gaining partial knowledge of complex problems unlikely to be encountered in practice by the finished resident.

An integral part of pediatric orthopaedic residency training is the recognition and appreciation of the effect of trauma and illness on the child, the family and the community. The child is unique not only physically and emotionally, but legally and financially as well. Consideration of pertinent ethical, financial, and legal factors is regarded as an essential component of this curriculum.

Finally, we wish to emphasize that the educational process for residents involves both training (process of preparing an individual to perform defined functions in a predictable situation) and education (equipping an individual to perform undefined functions in unpredictable situations). Both capabilities are essential for successful clinical practice.

Respectively submitted by the Ad Hoc Committee on Core Curriculum,

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Addendum added September 2009

The initial version described above attempted to grade the “knowledge base” in addition to the grade assigned to assessment and management. However, time revealed the grading for “knowledge base” to be arbitrary and the specific objectives assigned to each subject listed offered greater specificity. Therefore, the category of “knowledge base” has been removed from the original description by the Committee on Core Curriculum.

Richard H. Gross, Chair
Charleston, South Carolina

CORE CURRICULUM FOR PEDIATRIC ORTHOPAEDIC RESIDENCY TRAINING

(See specific objectives)

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Growth & Development	A				
Embryology	A				
Neuro	A				
Skeletal	A				
Muscular	A				
Osseous growth	A				
Timing of ossification centers	A				
Physeal growth	A				
Enchondral ossification	A				
Intramembranous ossification	A				
Muscular growth	B				
Growth rate	A				
Developmental milestones	A				
Timing – secondary sexual characteristics	A				

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Skeletal Dysplasias (Paris classification)					
Defects of Tubular Bone					
Achondroplasia	B	C	C	C	C
MED	B	C	C	C	C
SED	B	C	C	C	C
Disorganized Cartilage and/or fibrous components					
Ollier's	B	C	C	C	C
Mult Hered Exos	B	B	B	B	C
Fibrous Dysplasia	B	B	C	B	C
OI	B	B	C	C	C
Local or Regional Malformations of bone					
Sprengel's					
Klippel Feil		See specific body area			

	Assessment		Management		
	Non-op	Op	Long-term	Comp	
Constitutional diseases					
With bone path	B	C	C	C	C
Rickets					
Mucopolysacch					
Ca/Phos disorders					
Metabolic	B	C	C	C	C
Rickets/osteomal					
Renal osteodys					
Hypophosphatas					
Parathyroid					
Thyroid					
Heavy metal					
Juv osteoporosis					
Hypervitamin					
Scurvy					
Inf hyperostos					
Connective Tissue	B	C	C	C	C
Ehlers Danlos					
Marfan's					
Down's					
Short Stature	B	C	C	C	C
Genetics					
Autosomal dominant					
Autosomal recessive					
Sex linked dominant					
Sex linked recessive					
Chromosomal disorders					
Multifactorial disorders					
Amniocentesis					

	Assessment		Management		
		Non-op	Op	Long-term	Comp
Hematologic disorders					
Gaucher's	B	C	C	C	C
Hemoglobinopath	B	C	B	C	C
Incl SC					
Hemophilia	B	B	C	B	C
Neoplasia					
Cysts					
Fibrous cort	A	A	B	B	B
Unicameral	A	B	B	B	B
EG	A	B	B	B	C
Aneurysmal	A	B	B	B	C
Chondroblastoma	B	B	C	C	C
Osteoid Osteoma	A	B	B	B	C
Osteochondroma	A	B	B	B	C
Giant cell tumor	B	B	C	C	C
Ewing's	B	C	C	C	C
Osteosarcoma	B	C	C	C	C
Fibrous dysplasia	B	B	B	B	C
Soft tissue sarc	B	C	C	C	C
Neuromuscular (excluding spine)					
Muscular Dyst	B	B	C	B	C
Duchenne					
Becker					
Limb Girdle					
FSH					
Cong Dyst					
Hypotonic					
Myotonic					
Cong Myopath					
Inflammatory	B	C	C	C	C
Myopathies					

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Myositis Ossificans	A	B	B	B	B
Polio	B	B	B	B	B
SMA	B	C	C	C	C
HMSN's	B	B	C	B	C
Cerebral Palsy (excluding spine)	B	B	B	B	C
Myelodysplasia (excluding spine)	B	C	C	C	C
JRA	B	B	B	B	C
Spondyloarthropathies	B	B	C	B	C
Cervical Spine					
Torticollis	A	B	B	B	C
Klippel Feil/ Cong malform	B	B	C	B	C
Rotatory sublux	A	B	B	B	C
Hypermobility	B	B	C	B	C
Spinal Deformity					
Scoliosis					
<40°, idiopath	B	B	N/A	B	C
>40°, idiopath	B	B	C	B	C
Congenital	B	B	C	B	C
Neuromuscular	B	C	C	C	C
Other	B	B	C	B	C
Kyphosis					
Postural	A	B	N/A	B	B
Scheurmann's	B	B	C	B	C
Congenital	B	C	C	C	C
Other	B	B	C	B	C
Spondylosis	A	A	B	B	C

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Spondylolisthesis	B	B	C	B	C
Upper Limb					
Cong deficiencies	B	B	C	B	C
Cong malformations					
Disl rad head	B	B	C	B	C
Radioulnar Syn	B	B	C	B	C
Ost Dissecans, Capitulum	A	B	B	B	C
Sprengel's	B	B	C	B	C
Hip					
CDH, newborn	A	B	C	B	C
Older infant	B	B	C	B	C
Walking age	B	B	C	B	C
Teratologic	B	C	C	C	C
Coxa Vara	A	B	B	B	C
Synovitis	A	B	B	B	B
Slip cap fem ep	A	B	B	B	C
Infections		see infections			
Idio Chondrolysis	B	C	C	C	C
Leg length discrepancy					
<2 cm	A	B	N/A	B	B
2-5 cm	B	B	B	B	C
>5 cm	B	B	C	B	C
Lower limb					
Cong deficiencies	B	B	C	C	C
PFFD					
Tib hemimelia					
Fib hemimelia					
Other (Streeter's, etc.)					
Torsional problems	A	B	B	B	C
Tibia Vara	B	B	B	B	C

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Cong Pseudoarth	B	C	C	C	C
Posteromedial bow	B	B	B	B	C
Patellofemoral					
Pain syndrome	A	B	B	B	C
Cong disl/sub	B	B	C	B	C
Osgood Schlotter's	A	A	A	A	A
Osteo dissecans	A	B	B	B	C
Discoid Meniscus	A	B	B	B	C
Cong disl/sub, knee	B	C	C	C	C
Torn Meniscus	A	A	A	A	B
Clubfoot					
Newborn	B	B	N/A	B	C
Other	B	C	C	C	C
Cong vert talus	B	C	C	C	C
Postural deformation	A	A	N/A	B	B
Met add, cacl vaig					
Planovagus	A	B	B	B	B
Tarsal Coalition	A	B	B	B	B
Adol bunions	A	B	B	B	C
Acc navicular	A	B	B	B	B
Curly, overlap toes	A	A	A	A	B
Cavus foot	B	B	C	B	C
Polydactyly	B	B	B	B	C
Growing pains	A	A	N/A	A	A
Overuse syndromes	A	A	A	A	B
Osteochondroses	B	B	B	B	B
Acquired flatfoot	A	B	B	B	B
Other (Z foot, etc)	A	B	C	C	C
Amputations	B	B	B	B	B
Prosthetics/Orthotics	A	B	N/A	B	B

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Gait	A	B	C	C	C
Fractures, general					
Physcal fractures	A	A	A	B	B
Child Abuse (ms aspects)	A	A	A	B	B
Open fractures	A	A	A	A	B
Multiply injured Child (ms aspect)	B	B	B	B	B
Multiply injured Child (other systems)	B	B	B	B	B
Associated with Head injury	A	A	A	B	C
Fractures dislocations					
Hand, wrist	A	B	B	B	C
Forearm Both bones (incl plastic deform)	A	A	A	A	B
Galeazzi	A	A	A	A	C
Elbow					
Monteggia	A	A	B	B	C
Radial head, neck	A	A	A	A	C
Condyles	A	A	B	B	C
Epicondyles	A	A	A	A	B
Supracondylar	A	A	B	A	C
Dislocation	A	A	B	B	C
Humerus					
Shaft	A	A	A	A	B
Proximal	A	A	A	A	B
Shoulder					
Dislocation	A	A	A	A	B
A-C joint					
Dislocation	A	A	A	A	B
Scapula	A	A	B	B	B

	Assessment	Management			
		Non-op	Op	Long-term	Comp
S-C joint					
Dislocation	A	A	B	B	C
Cervical Spine	B	B	C	C	C
Thoracic Spine	B	B	C	C	C
Lumbar Spine	B	B	C	C	C
Pelvis	B	B	B	C	C
Hip					
Dislocation	A	A	B	B	C
Femur					
Neck	A	A	B	B	C
Shaft	A	A	A	A	B
Distal	A	A	A	A	B
Knee					
Dislocation	A	A	B	B	C
Osteochond fract	A	A	B	B	C
Ligament injury	A	A	B	B	C
Patella					
Fracture	A	A	A	A	B
Dislocation	A	A	A	A	B
Tibia					
Spine	A	A	A	A	B
Tubercle	A	A	A	A	B
Proc metaphysis	A	A	A	A	B
Shaft	A	A	A	A	B
Distal	A	A	A	A	B
Foot/ankle					
Dislocation	A	A	A	A	B
Calcaneus	A	A	B	B	C
Talus	A	A	B	B	C
Tarsals,					
Metatarsals	A	A	A	A	B
Phalanges	A	A	A	A	B

	Assessment	Management			
		Non-op	Op	Long-term	Comp
Infections					
Osteomyelitis					
Acute	A	A	A	A	B
Subacute	A	A	A	A	B
Chronic	A	A	A	B	B
Septic Arthritis					
Hip	A	N/A	A	B	C
Other joints	A	A	A	B	B
Puncture wounds,					
Foot	A	A	A	B	B