



YALE UNIVERSITY
DEPARTMENT OF PEDIATRICS

FIRST SCREENING EVALUATIONS

Comments or questions on this project can be directed to Dinesh Pashankar, MD at email Dinesh.Pashankar@yale.edu.

For copies of this booklet please visit: <http://www.yalepediatrics.org/intranet/firstscreening.html>.

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Aims of the Project

The First Screening Evaluations are designed to help:

- 1) primary care physicians assess the relative importance of commonly encountered signs or symptoms of illness,
- 2) pediatric subspecialists determine the appropriate urgency for scheduling assessment of referred patients, and
- 3) patients place symptoms or signs in a realistic perspective with regard to whether they indicate a serious disorder.

If the First Screening Evaluation is normal, primary care physician may want to follow the patients and reassure their families about the normal initial findings, thus reducing patient and parental anxiety and expenses. In some situations, parental anxiety may lead to a referral to a pediatric specialist despite normal First Screening Evaluation. However, if First Screening Evaluation indicates an abnormality, referral to a pediatric subspecialist can be expedited and the initial visit with the pediatric subspecialist can be more productive. Moreover, pediatric subspecialists will be able to evaluate patients more effectively since important information from the First Screening Evaluation will be available and a more focused diagnostic workup can be instituted thus expediting implementation of appropriate treatment. In this manner, the primary care physician, pediatric subspecialist and, most importantly the patients will benefit from utilization of the attached First Screening Evaluations.

Symptoms and Signs

Allergy - Immunology

- Food Allergy
- Asthma
- Recurrent Infections

Cardiology

- Chest Pain
- Dizziness
- Skipped Beats

Endocrinology

- Short Stature
- Hypothyroidism
- Hyperthyroidism
- Thyroid Nodule
- Obesity

Gastroenterology

- Gastroesophageal Reflux

Hematology

- Anemia

Nephrology

- Isolated Microscopic Hematuria
- Asymptomatic Proteinuria

Neurology

- Headache
- Migraine Headache
- Dyslexia
- Developmental Delay

Rheumatology

- Leg Pains
- Positive ANA

PEDIATRIC ALLERGY & IMMUNOLOGY:

Food Allergy: Community physicians can obtain IgE CAP RAST to foods prior to referral to our clinic for the following problems:

1. Eczema (Atopic dermatitis): milk, casein, soy, egg, wheat, codfish, and peanut (The 6 most common food allergens in atopic dermatitis)
2. Anytime a food allergy is suspected, although sometimes a careful history can rule out allergy to many foods.
3. Urticaria and Anaphylaxis are urgent conditions. RAST tests after treatment and while waiting for an appointment can be done, but this is best done in coordination with us.

Negative RAST test **do not** rule out food allergy in 5-10% of cases. Positive RAST tests do not always indicate clinical disease. Referral to our clinic should be done if the index of suspicion is high but the screening tests are negative or to help determine the clinical significance of positive test results.

Asthma: The guidelines for the diagnosis and management of asthma recommend that allergy testing should be performed in all asthmatic children who are on daily medications (i.e. persistent asthma). Community physicians can perform IgE CAP RAST to inhalant allergens,; however, skin testing is more sensitive for the diagnosis of inhalant allergies.

Recurrent Infections: Immunoglobulin levels, including IgE and IgG subclasses, are a reasonable screen for immunodeficiency. However, if the history of recurrent infections is strong enough, further testing in our clinic is still warranted even if immunoglobulin levels are normal.

Referral to Pediatric Allergy & Immunology : Fax (203) 737 2805, Telephone (203) 785 7689.

PEDIATRIC CARDIOLOGY:

Chest Pain

History suggesting benign diagnosis	Contributing Factors	Likely Benign Diagnoses	Management	Screening Tests	Referral - When Cardiac Disease Can Be Expected
Duration - "lasts all day" or "lasts seconds"	Anxiety, nervousness	Anxiety	Behavior modification	A baseline ECG may be performed as a screening test only, but is not required.	Chest pain associated with pallor, diaphoresis, or syncope
Associated with movement or activity	History of reactive airway disease	Musculoskeletal Chest Pain	Motrin around the clock for 2 to 3 days; improved hydration		Chest pain in an otherwise conditioned athlete
Increases with inspiration	History of reactive airway disease	URI or reactive airway disease		Rule out exercise induced asthma	

Referral to Pediatric Cardiology: Fax (203) 737 2786, Telephone (203) 785 2022.

Dizziness (not associated with syncope)

History suggesting benign diagnosis	Contributing Factors	Likely Benign Diagnoses	Management	Screening Tests	Referral - When Cardiac Disease Can Be Expected
Position dependent - dizziness occurs when rising from seated or supine position or when patient has been standing for a long time	Pre-adolescent and adolescent females are particularly prone to these symptoms; hydration status is a contributor	Orthostatic hypotension	Behavior modification - avoid rapid positional changes; encourage calf-muscle movement if standing for a long time	For all types, a baseline ECG may be performed as a screening test only, but is not required.	Sustained palpitations (~1min in duration) precede dizziness (may represent SVT)
Temperature dependent - dizziness occurs in extreme heat; can be with or without activity	Can occur during/after a hot shower	Dehydration	Anticipate situations and improve hydration (water or Gatorade) before the event	For illustrative purposes only, a urine spec grav can be performed to prove poor hydration	True syncope with exercise (may suggest arrhythmia or structural heart disease)
Hydration dependent - dizziness occurs in an individual with poor fluid intake	Events can occur in the morning, possibly with hair-combing, urination	Dehydration	Drink water or Gatorade; advise pts. that pale yellow urine indicates good hydration; Give pts. permission slip to carry water/Gatorade at school		Seizures or family history of seizures & syncope, sudden death, or congenital deafness (all may suggest the long QT syndrome)
Stress- related - "watching a movie or listening to a lecture in health class", having blood drawn, immunizations	Also hydration dependent	Vasovagal hypotension	As above: improve hydration and anticipate events. Occasionally, salty snacks (pretzels, saltines) are a good adjunct to increased fluids		Syncope (not associated with any of the preceding symptoms)

Referral to Pediatric Cardiology: Fax (203) 737 2786, Telephone (203) 785 2022.

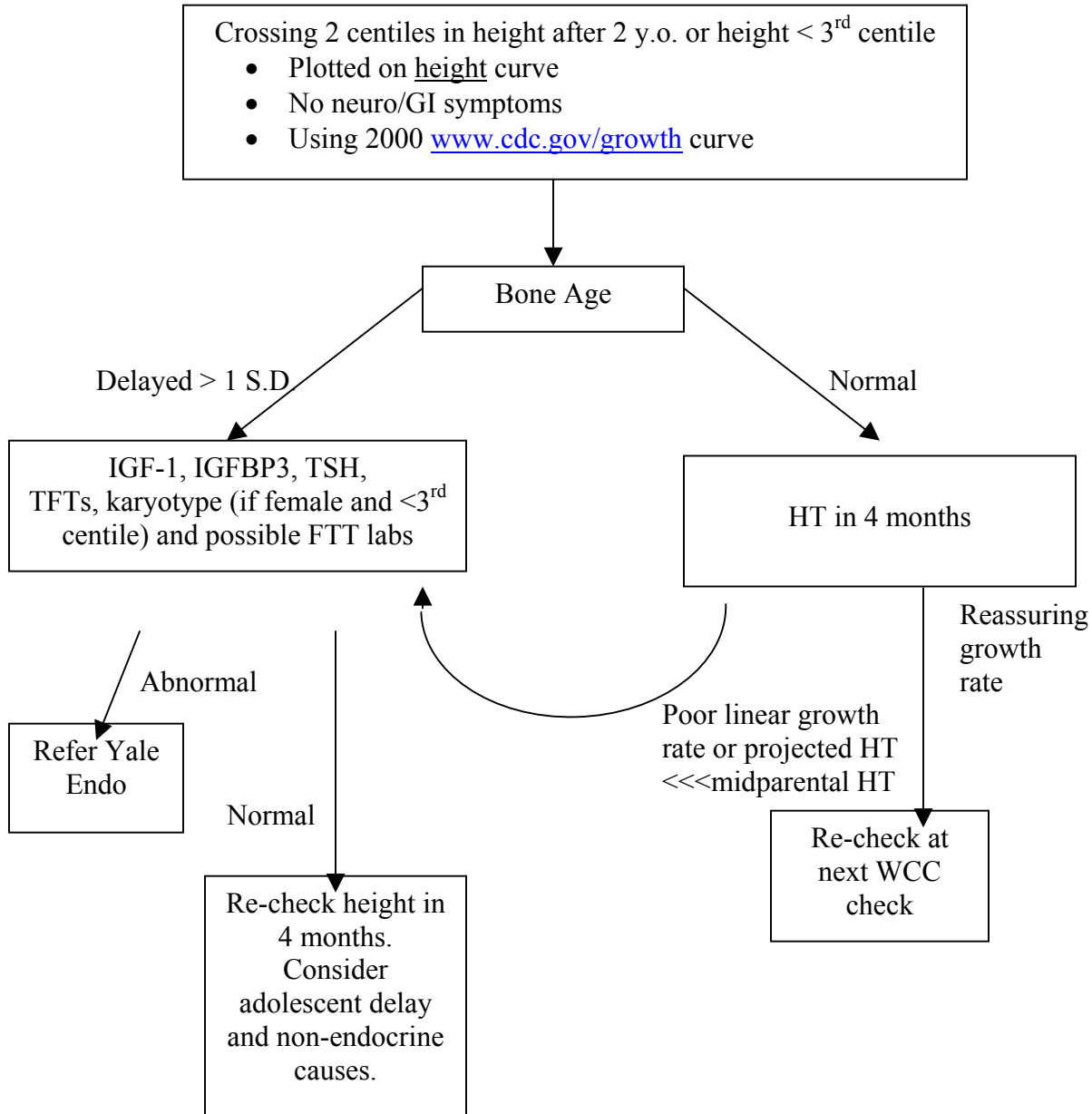
"Skipped Beats", "Hard Beats", or Irregular Heart Rhythm

History suggesting benign diagnosis	Contributing Factors	Likely Benign Diagnoses	Management	Screening Tests	Referral - When Cardiac Disease Can Be Expected
Occurs mostly at night or at rest		Benign PACs or PVCs	Reassurance for the family that this is a variant of normal	A baseline ECG may be performed as a screening test only, but is not required.	Sustained palpitations that start & stop suddenly
Irregular rhythm on exam in an otherwise healthy, asymptomatic child	Rhythm varies with the respiratory cycle	Normal sinus arrhythmia	None	ECG will confirm the diagnosis	
Patient complains of a single hard beat followed by a pause	Usually at rest; events are not felt with activity	Benign PACs or PVCs	Reassurance for the family that this is a variant of normal	A baseline ECG may be performed as a screening test only, but is not required	Sustained palpitations that start & stop suddenly

Referral to Pediatric Cardiology: Fax (203) 737 2786, Telephone (203) 785 2022.

PEDIATRIC ENDOCRINOLOGY:

SHORT STATURE ALGORITHM



Developed by Thomas Carpenter, MD AND Greg Germain, MD
Referral to Pediatric Endocrinology clinic (Thomas Carpenter, MD) Fax (203) 737 1998,
Telephone (203) 764 9199.

Hypothyroidism

1. Definition: TSH level > 5 uIU/ml, and/or free T4 < 1.0 ng/dl

2. Relevant Information:

- Patient is asymptomatic or has cold intolerance, pallor, growth delay
- Family History: Thyroid disorders, autoimmune disease
- Past Medical Problems: autoimmune disease, CNS tumors, head/neck irradiation or surgery, hypopituitarism
- Medications: Lithium, anticonvulsants, steroids

3. Physical Exam:

- HR- low or normal for age
- BP – normal for age
- Skin- pale, vitiligo, puffy
- Eyes- exophthalmus (can occur infrequently)
- Genitalia – normal or advanced for age (can have precocious puberty)
- Reflexes- normal or delayed relaxation phase
- Thyroid- increased in size, normal or atrophic

4. Initial Screening Studies:

Serum: (normal values)
TSH 0.10 - 5.0 uIU/ml
Free T4 1.0-2.2 ng/dl
Total T4 5.0-10.6 ug/dl
Antithyroid antibodies- negative

5. Disposition:

- a) Routine follow-up if all findings and lab screening tests are normal
- b) Referral if abnormalities on examination or screening test
- c) Referral to Yale Pediatric Thyroid Center (Scott Rivkees, MD) Telephone 203-737-5971, Fax 203-737-5972.
<http://www.yalepediatrics.org/thyroid/index.html>

Hyperthyroidism

1. Definition: TSH level < 0.1 uIU/ml, and free T4 > 2.2 ng/dl

2. Relevant Information:

- Patient is asymptomatic, or has heat intolerance, inability to concentrate, tiredness, weight loss, diarrhea, palpitations
- Family History: Thyroid disorders, autoimmune disease
- Past Medical Problems: autoimmune disease

3. Physical Exam:

- HR- high for age
- BP – normal for age
- Skin- normal
- Eyes- exophthalmous, lid-lag, stare, prominent
- Genitalia – normal or exaggerated
- Thyroid- increased in size or normal, asymmetric fullness, bruit

4. Initial Screening Studies:

Serum: (normal values)

TSH 0.10 - 5.0 uIU/ml

Free T4 1.0-2.2 ng/dl

Total T4 5.0-10.6 ug/dl

Antithyroid antibodies- negative

Thyroid stimulating antibodies (TSI)- < 120%

Optional Imaging:

Ultrasound- enlarged, hypervascular with Graves disease

- look for nodule

123I uptake - diffuse increased uptake with Graves disease (>25% at 24 hrs) or

"hot" nodule present

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<http://www.yalepediatrics.org/thyroid/index.html>

Thyroid nodule

1. Definition: Thyroid nodule

2. Relevant Information:

- Patient is asymptomatic (or is hyperthyroid)
- Family History: Thyroid cancer, autoimmune disease, MEN disorder
- Past Medical Problems: autoimmune disease, head-neck radiation exposure

3. Physical Exam:

- HR- normal for age
- BP – normal for age
- Skin- normal
- Eyes- normal
- Genitalia – normal
- Thyroid- increased in size or asymmetric fullness

4. Initial Screening Studies:

Serum: (normal values)
TSH 0.10 – 5.0 uIU/ml
Free T4 1.0-2.2 ng/dl
Total T4 5.0-10.6 ug/dl
Antithyroid antibodies negative
Thyroglobulin- normal
Calcitonin- normal
Calcium- 8.8-10.2 ng/dl

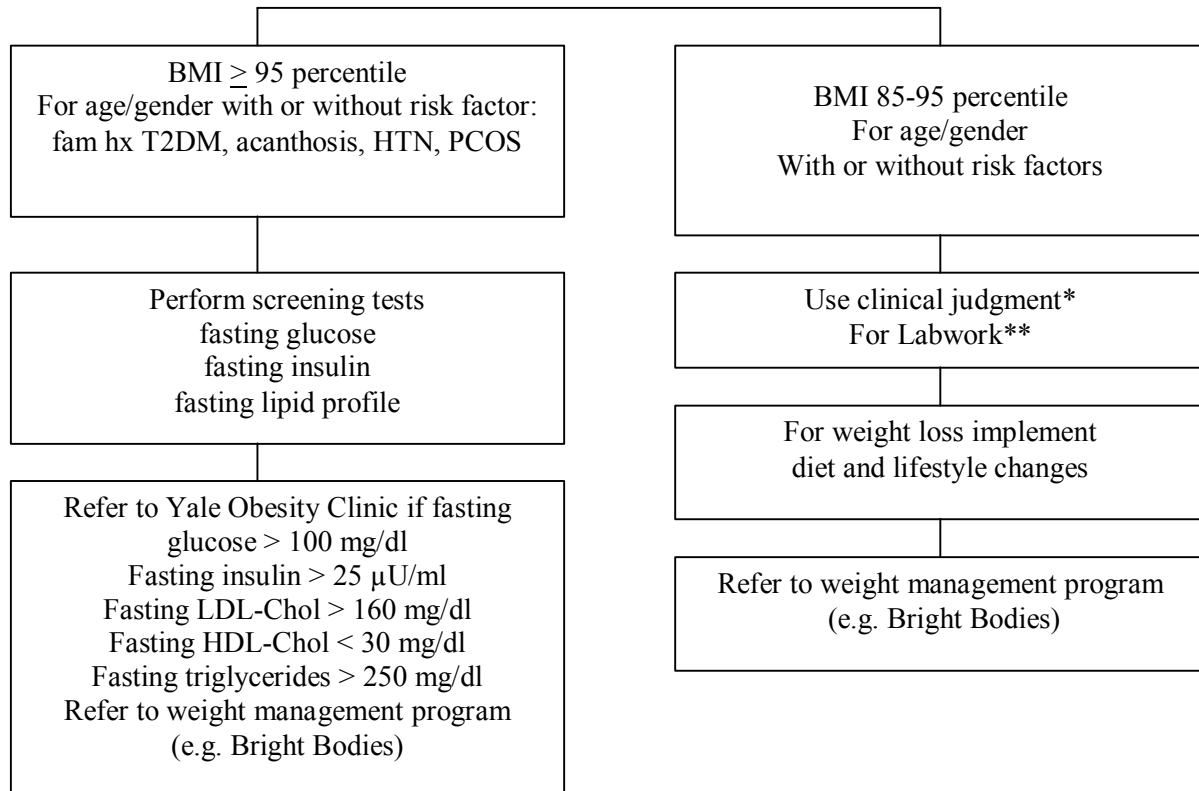
Imaging: Ultrasound

5. Disposition:

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<http://www.yalepediatrics.org/thyroid/index.html>

Algorithm for Screening and Referral of Obese Children



Developed by Sonia Caprio, Mary Savoye, Greg Germain, and Craig Summers.

*Some reviews recommend screening at the 85 percentile (Pediatrics 116:473, 2005) as yet, this is not an AAP or ADA recommendation.

** If fasting LDL > 160 mg/dl, try Step 1 AHA. If not improved after 4 months, initiate Questran 4 gm BID if > 6 yrs old.

Referral to Pediatric Endocrinology/Obesity clinic: Fax (203) 737 1998, Telephone (203) 764 9199, Bright Bodies: Tel. (203) 785 6459.

PEDIATRIC GASTROENTEROLOGY:

Gastroesophageal Reflux of Infancy

1. Definition: Regurgitation/spitting in the first year of life

2. Relevant Information:

- Usually starts within first two months of life
- Vomiting is effortless
- Absence of blood or bile in the vomitus
- Vomiting gets worse till 6 months
- Vomiting improves after 6 months
- Vomiting disappears around 1 year of age
- Growth is usually excellent

3. Examination:

- Good growth parameters
- Abdomen – no distension or masses

4. Initial Screening Studies:

- Usually not necessary

5. Disposition:

- a) Routine follow-up with reassurance as most infants would improve after 6 months. Addition of rice cereal in formula and keeping infant upright after feeding helps. Medications usually not necessary. Acid suppression with H2 blockers or proton pump inhibitors can be tried if vomiting persistent.
- b) Referral if poor growth or vomiting blood or bile or parental anxiety.

Referral to Pediatric Gastroenterology (Dinesh Pashankar, MD) Fax 203 737 1384 or Telephone 203 785 4649.

PEDIATRIC HEMATOLOGY:

Anemia

1. **Definition:** There are age related changes in the definition of anemia, so age related standards should be used. Anemia is defined as a hemoglobin or hematocrit > 2 standard deviations below the mean normal level for a given age or gender. After the newborn period, during most of childhood, anemia is defined as a hemoglobin < 11.0 gm/dL and a hematocrit $< 33\%$. African – American children may have a hemoglobin level 0.5 gm/dL lower than Caucasian or Oriental children. Other cell lines in CBC should be normal. Anemia may be present in a variety of systemic disorders.

2. **Relevant Information** (family history, past medical history, medication):
 - Previous blood count
 - Ethnic background of both parents
 - Neonatal anemia or jaundice. Results of neonatal screening for hemoglobinopathies. Birth weight.
 - Family history of anemia, gall stones, splenectomy
 - Diet. Type of infant formula. 24 hour recall
 - Medications
 - Blood loss
 - Symptoms

3. **Physical Exam** (pertinent finding especially for referral):
 - Pallor, paleness of mucous membranes and conjunctiva
 - Scleral icterus
 - Splenomegaly
 - “Hemic” systolic heart murmur

4. **Initial Screening Studies:** Complete blood count done on venous blood by an electronic counter which includes: WBC and differential, platelets, RBC, Hbg, Hct, MCV, MCH, RDW, reticulocyte count and description of RBC morphology.

When appropriate, additional studies might include: ESR, serum ferritin and hemoglobin electrophoresis, including Hemoglobin A₂ level, Stool guiac.

5. **Disposition (Who should be referred):**
 - Children with more severe degrees of anemia (HB < 7.5 gm/dL)
 - Children with anemia plus low WBC and/or thrombocytopenia to rule out significant bone marrow disease
 - Children with probable hemolytic anemia – anemia, high reticulocyte count
 - If the diagnosis is not evident by the screening studies, or if there is parental anxiety

Referral to Pediatric Hematology (Howard Pearson, MD): Fax (203) 737 2228, Telephone (203) 785 4640.

PEDIATRIC NEUROLOGY:

Headache

1. Screening questions and examination

- A. Symptomatic headaches are those with an underlying etiology requiring emergent or urgent attention.
- B. Benign headaches include chronic daily headaches (“CDH”), migraine and those related to chronic sinusitis.

Question	Probably symptomatic	Probably benign
Recent history	Trauma or sinusitis; sickle cell dis.	FH of headaches; recent stressor event
Frequency	Rapid escalation; short time	Intermittent over months/years
Symptoms	Unremitting, “worst HA of my life”	Stereotypic ± photophobia± phonophobia
Time of day	Early morning, overnight	Daytime onset; relieved by sleep
Emesis	Early morning nausea, emesis	Emesis may proceed sleep
Progression?	Loss of function	No
Altered LOC	Progressive lethargy	No
BP	May be elevated	Not elevated
Neuro deficit	± Progressive focal neuro deficit	± “aura” with transient stereotypic def.
Meningismus	May be present	No
Papilledema	Yes	No

Headache (continued)

2. Evaluation/ Disposition

- A. Symptomatic headaches with papilledema, meningismus, CN 6 palsies and acute onset of “worst headache of my life” require EMERGENT referral – to the Pediatric Emergency Department, Neurology and/or Neurosurgery
- B. Emergency MRI studies can be arranged by calling the on-call Neuroradiology fellow (and the sedation service as needed)
- C. For patients with migraine, CDH, etc, MRI studies can be arranged by the House Officer and should be performed prior to the Pediatric Neurology Clinic appointment.

Signs and symptoms	Course of Action
Early morning HA, vomiting, unremitting headache, papilledema and/or focal neurologic examination	Emergent MRI w/wo contrast and Neurol/neurosurg evaluation
Acute onset of HA, papilledema +/- meningismus	Emergent CT w/wo contrast to R/O SAH and subdural empyema
Progressive chronic daily headache, papilledema and bilat CN 6 palsies	MRI and LP with OP – R/O pseudotumor
Probable migraine (ie, stereotypic throbbing hemicranium, photophobia, phonophobia, emesis)	MRI to R/O mass, vascular malformation

Referral to Pediatric Neurology (Laura Ment, MD): Fax (203) 737 2236, Telephone (203) 785 5708.

Migraine headache

1) Finding: Recurrent, stereotypic throbbing headache

2)Relevant Information:

- Older children may report visual or sensory aura or focal neuro deficit
- Triggered by sleep deprivation, stress, fasting
- May be associated with photophobia, phonophobia and emesis
- Relieved by sleep
- Acute treatment: ibuprofen and a caffeinated beverage (non-diet)
- “Mountain Dew” has the most caffeine of any soda in the “caffeinated beverage” category

3) Physical Examination:

- Normal chest, heart, abdominal examination
- Normal fundus examination
- Normal neurological examination

4) Screening Studies:

- Consider MRI head

5) Disposition:

1. All patients with abnormal MRI studies and migraine should be referred to Pediatric Neurology Clinic.
2. All patients with normal MRI studies and 1) infrequent migraine which does not respond to ibuprofen/caffeine; or 2) more than 1 incapacitating migraine per month (ie, child must leave school, parent must leave work); or 3) migraine difficult to manage, should be referred to Pediatric Neurology clinic.

Referral to Pediatric Neurology (Laura Ment, MD): Fax (203) 737 2236, Telephone (203) 785 5708.

Dyslexia

- 1. Definition:** Unexpected difficulty in reading in children (and adults) who otherwise possess the intelligence and motivation considered necessary for accurate and fluent reading.
- 2. Relevant Information:**
 - History of school difficulties.
 - Family History: Reading difficulties in parents and/or siblings.
 - Past Medical Problems: Mild delay in the onset of spoken language, difficulties in appreciating or repeating rhymes, mispronunciations and difficulties in learning letter names may be very early indicators that a child is at-risk for a reading problem.
- 3. Diagnosis in the school age child**

Dyslexia is a clinical diagnosis. The clinician seeks a history of inaccurate, slow, and labored approach to decoding, word recognition, and text reading. These are most evident when a child is asked to read aloud in class where mispronunciations, omissions of words that are present or conversely, inserting words that are not on page, reading with a lack of prosody, and frequent pauses, hesitations or loss of place are evident. Other problems include: poor spelling, messy handwriting, difficulty learning a second language, and an avoidance of reading. At all ages, spoken language difficulties are evident, including speech that is not fluent, and is replete with hesitations, um's, and mispronunciations, difficulties with word retrieval, circumlocutions, and the need for time to summon an oral response. Listening comprehension is typically robust.

- 4. Tests of Reading** (Tests can be done by the school, private psychologists or private educational consultants)
 - Tests of phonologic capabilities and reading readiness: Comprehensive Test of Phonological Processing in Reading (CTOPP)
 - Test of word reading: Woodcock-Johnson III
 - Test of reading fluency: Gray Oral Reading Test (GORT-4)
- 5. Disposition:**
 - a) Dyslexia is a persistent, chronic problem that does not disappear over time.
 - b) For the school age child, effective evidence-based reading interventions focus on the alphabetic principle and are taught explicitly and systematically. These interventions are provided by the school system.
 - c) For the adolescent and young adult, accommodations in the form of extra time on tests, is critical.

Referral to Pediatric Neurology (Bennett Shaywitz, MD): Fax (203) 737 2236, Telephone (203) 785 5708.

Developmental delay

- 1) **Definition:** Developmental skills in one or more developmental domain is less than would be predicted (2 sd/~15 on Gesell based screening instruments, but quantitation not necessary initially if there is sufficient clinical suspicion).
 - 2) **Relevant Information:** There should be no pathological social interaction or social reciprocity, developmental regression nor arrest, and no seizures or dyskinesias. Family history should be normal in addition to pregnancy and perinatal history.
 - 3) **Physical Exam** (pertinent findings that would not require referral): Normal growth, vision and hearing, no dysmorphic or neurocutaneous features, no organomegaly, normal neurological exam apart from higher mental functions.
 - 4) **Initial Screening Studies** : Chromosomes including telomeric FISH and DNA for Fragile X, lead level, serum amino acids and urine for organic acids, lactate and ammonia (needs to be processed immediately), MRI of brain without contrast.
- 5) Disposition:**
- Those who satisfy above criteria, can be followed in clinic.
 - Those who do not satisfy above criteria and have abnormal screening studies, should be referred.
 - Referrals to a Birth to Three Program or Neurodevelopmental Pediatrician or Pediatric Neurologist if above criteria not satisfied.

Pediatric Neurology (Geoffrey Miller, MD): Fax (203) 737 2236, Telephone (203) 785 4641.

PEDIATRIC NEPHROLOGY:

Isolated Microscopic Hematuria

1. Definition: Routine urine – dipstick 1+ to 2+ occult blood positive

2. Relevant Information:

- Patient is asymptomatic
- Family History: Renal disease, deafness, stones
- Past Medical Problems: Previous history of gross Hematuria/GN/trauma

3. Physical Exam:

- BP – normal for age
- Abdomen – without masses
- Genitalia – clear and intact
- Extremities – no evidence of edema

4. Initial Screening Studies: (normal values)

- Serum:
 - BUN < 20 mg/dl
 - Cr < 1.0 mg/dl
 - C₃ normal limits per lab
- Urine – Urine Sediment Exam:
 - RBC < 20/hpf
 - WBC < 2 – 5/hpf
 - Casts: none
 - Crystals: none

 - Spot urine protein/creatinine < 0.2
 - Spot urine calcium/creatinine < 0.2
- Imaging:
 - Renal ultrasound – optional

5. Disposition:

- a) Routine follow-up if all findings and lab screening tests are normal
- b) Referral if abnormalities on examination or screening test
- c) Pediatric Nephrology (Sandra Iragorri, MD): Fax (203) 785 3462, Telephone (203) 785 4643.

Asymptomatic Proteinuria

1. Definition: Unexpected finding of isolated protein in urine.

2. Relevant Information:

- a) Usually found by dipstick on routine urine screening
- b) Urine only positive for protein without occult blood or glucose
- c) Otherwise healthy patient
- d) No family history of renal disease, DM, HBP
- e) No current medications or recent weight gain

3. Physical Exam:

- a) Normal BP for age
- b) No edema formation

4. Initial Screening Studies:

- a) Step I: Repeat dipstick of urine x 2-3
 - If follow-up urines are negative or trace – no other evaluation needed
 - If follow-up urines are 1+ to 4+ protein, go to Step II
- b) Step II: Evaluate for orthostatic proteinuria
 - Check AM and PM urine for protein on 5-7 different days: AM urine should be consistently negative or trace and PM urine should be 1+ to 4+ protein consistently or
 - Collect 24^o urine in two containers: One for daytime & one for overnight urine. Analyze for protein and creatinine.
 - If daytime sample has > 100 mg protein ($U_{p/cr} > 0.3$); night time sample has < 50 mg protein ($U_{p/cr} < 0.2$) likely to be orthostatic proteinuria
- c) Step III: Confirm diagnosis of orthostatic proteinuria by documenting:
 - normal BP
 - lack of edema
 - normal BUN/Cr
 - normal C_3 and C_4
 - isolated Proteinuria
 - total 24 hr urine protein excretion < 1 gm

5. Disposition:

- a) Routine follow-up for both Step I and II patients with confirmation in Step III.
- b) Referral for patients with abnormal values on screening studies, family history of renal disease, hematuria plus proteinuria.
- c) Pediatric Renal Service (Sandra Iragorri, MD), Fax: (203) 785-3462, Telephone: (203) 785-4643.

PEDIATRIC RHEUMATOLOGY:

Leg Pains

- 1) Finding:** Lower extremity pain around knees and pretibial areas bilaterally in children ≥ 3 years of age
- 2) Relevant Information:** Patient is in good health; growing normally; active during day – pain occurs at end of day or awakens them at night. No joint swelling noted. Pain episodes self-limited. No morning stiffness. No systemic complaints, such as unexplained fevers.
- 3) Physical Examination:**
 - No distress
 - Normal chest, heart, abdominal examination
 - Skin – no evidence inflammation
 - Muscles – normal
 - Joints – normal, especially hips, knees ankles; child may have hyperextensible joints
 - Gait normal
 - Back exam normal
- 4) Screening Studies:**
 - CBC, manual differential
 - Sedimentation Rate
 - CRP, albumin, total protein, CPK

If any clinical suspicion of bone, knee or hip abnormality, then plain x-rays.

If any suspicion of inflammatory problem, then consider screening Rheumatology tests, which may include ANA, RF, IgG, IgA, Lyme, CH50, HLA-B27.

5) Disposition:

1. Ongoing clinical monitoring for any evidence of joint swelling or evidence of inflammation.
2. One dose of an NSAID when complaints occur.
3. Assess activities that may be putting undue stress on joints, such as sports, and modify these activities if indicated.
4. Referral to Pediatric Rheumatology if abnormalities on tests.

Pediatric Rheumatology (Paul McCarthy, MD): Fax: (203) 785 3932 Telephone: (203) 688 2475.

Positive ANA

1) Finding: Positive ANA; low titer ANA may be a normal variant

2) Relevant Information:

1. State of patient's health – activity, growth
2. Family History of auto-immune disease such as Lupus or tendency to vascular clotting
3. Associated Historical findings especially:
 - Recurring mouth ulcers
 - Sun Sensitivity → malar rash
 - Cold Sensitivity – Raynaud's
 - Inflammatory rashes or unexplained fevers
 - Joint Swelling or muscle weakness
 - Cardiac or pulmonary symptoms, especially findings to suggest pericardial or pleural pain

3) Physical Exam: Eye examination – no retinal or anterior uveal tract findings such as irregular pupils
Oral Cavity – normal
Chest, Heart, Abdomen – benign
Muscles, Joints – normal
Skin - no evidence of inflammatory disease
CNS – no focal findings

4) Screening Tests : CBC, ESR, platelets, UA
LFTs, BUN, Creatinine, CPK, Thyroid Studies, total protein/albumin

ENA (DNA, Ro, La, RNP, Sm, SCL-70) – these tests speciate the ANA.
C3, CH50, IgG, IgA, RF

Antiphospholipid Tests: Lupus Anticoagulant and Anti-Cardiolipin Antibody

5) Disposition:

- 1) If the history does not suggest auto immune disease, the physical exam and the above studies are unremarkable, other than low titer ANA, then the child can be monitored clinically.
- 2) If arthralgias are a component of complaints, perform an eye examination by ophthalmologist to rule out uveitis.
- 3) If any change in symptoms occurs over time, the above studies can be repeated to assess any significant changes.
- 4) Referral to Pediatric Rheumatology if examination findings or blood tests abnormal.

Pediatric Rheumatology (Paul McCarthy, MD): Fax: (203) 785 3932, Telephone: (203) 688 2475.