Evaluating Failure to Thrive: A Growing Body of Evidence

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Goal/Objectives

**Goal**: To review diagnostic and management strategies for failure to thrive (FTT)

**Objectives:**
- Apply evidence in the literature on FTT patients on admission criteria, growth assessment, utilization of laboratory data, and discharge criteria
- Discuss quality metrics, including cost data, to provide improvement opportunities for the hospitalist
- Integrate a systematic approach to the differential diagnosis and the management algorithm for FTT into practice
Outline

• Definition and Differential Diagnosis for FTT
• Growth Assessment
• Management Approach
• Improvement Opportunities for the Hospitalist
Outline

• Definition and Differential Diagnosis for FTT

• Growth Assessment

• Management Approach

• Improvement Opportunities for the Hospitalist
History

- 1897: L. Emmett Holt describes an infant who “ceased to thrive”
- 1933: 10th edition phrase “failure to thrive” first appears
History

• 1960s: FTT = maternal deprivation syndrome

• APA’s DSM III: “reactive attachment disorder”
“Definition”

- Stunting
- Growth
- Deficiency
- Inadequate
- Chart
- Malnutrition
- Wasting
- Physical
- Organic
- Growth
- 2nd
- 3rd percentile
- 5th percentile
- Undernutrition vs non-organic/psychosocial
- Change
- Sign
- Crossed
- Physical
- Growth
**Differential Diagnosis of FFT**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Differentiating Features</th>
<th>Initial Labs (if indicated)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inadequate Caloric Intake</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorrect formula preparation</td>
<td>Dietary history</td>
<td>Chemistry</td>
</tr>
<tr>
<td></td>
<td>History of economic pressures</td>
<td></td>
</tr>
<tr>
<td>Excess juice consumption</td>
<td>Dietary history</td>
<td></td>
</tr>
<tr>
<td>Poor feeding technique</td>
<td>Observation of feeding</td>
<td></td>
</tr>
<tr>
<td>Cleft palate</td>
<td>Milk regurgitated through nose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gelt on physical exam</td>
<td></td>
</tr>
<tr>
<td>Orofacial dysfunction</td>
<td>Observation of feeding</td>
<td></td>
</tr>
<tr>
<td>Psychosocial</td>
<td>Dietary history</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observation of feeding</td>
<td></td>
</tr>
<tr>
<td><strong>Inadequate Caloric Absorption/Utilization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastroesophageal reflux</td>
<td>Vomiting history</td>
<td></td>
</tr>
<tr>
<td>Increased intracranial pressure</td>
<td>Vomiting history</td>
<td>Head CT</td>
</tr>
<tr>
<td></td>
<td>Cushing's triad: bradycardia, hypertension, and abnormal respiration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormal neuro exam</td>
<td></td>
</tr>
<tr>
<td>Milk protein allergy</td>
<td>Family history</td>
<td>Stool occult blood</td>
</tr>
<tr>
<td></td>
<td>Vomiting history</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diarrhea, Bloody stools</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abdominal pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diarrhea</td>
<td></td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>Family history</td>
<td>CBC, ESR, CRP; stool occult blood</td>
</tr>
<tr>
<td></td>
<td>Diarrhea, Bloody stools</td>
<td></td>
</tr>
<tr>
<td>Celiac disease</td>
<td>Family history</td>
<td>CBC, albumin; stool pH, reducing substances, and fecal fats; anti-gliadin and endomysial antibodies</td>
</tr>
<tr>
<td></td>
<td>Abdominal Pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diarrhea</td>
<td></td>
</tr>
<tr>
<td>Cystic fibrosis</td>
<td>Family history</td>
<td>Review newborn screen; sweat test; stool pH, reducing substances, and fecal fats</td>
</tr>
<tr>
<td></td>
<td>Respiratory symptoms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stool pattern / features Diarrhea</td>
<td></td>
</tr>
<tr>
<td>Liver disease</td>
<td>Jaundice</td>
<td>Chemistry including LFTs</td>
</tr>
<tr>
<td></td>
<td>Diarrhea</td>
<td></td>
</tr>
</tbody>
</table>

**Increased Caloric Requirements**

<table>
<thead>
<tr>
<th>Diabetes mellitus</th>
<th>Polydipsia, Polyuria, Polyphagia</th>
<th>Fasting glucose, chemistry, UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperthyroidism</td>
<td>Fatigue, Nervousness, Sleep disturbance, Polyphagia, Increased Sweating, Diarrhea</td>
<td>Thyroid studies</td>
</tr>
<tr>
<td></td>
<td>Tachycardia, Enophthalmos</td>
<td></td>
</tr>
<tr>
<td>Renal tubular acidosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adrenal diseases</td>
<td>Vomiting, Diarrhea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyperpigmentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypotension</td>
<td></td>
</tr>
<tr>
<td>Blood disorders</td>
<td>Fatigue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Palor</td>
<td></td>
</tr>
<tr>
<td>Genetic diseases</td>
<td>Family history</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dysmorphic features</td>
<td>Specific for suspected diseases</td>
</tr>
<tr>
<td>Cardiopulmonary diseases</td>
<td>Fatigue, especially with feeds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Respiratory illnesses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CXR, EKG, Echo</td>
<td></td>
</tr>
</tbody>
</table>

Finding a Cause for FTT

- Up to 5% of admissions to academic pediatric medical hospitals are for FTT
- Hard to always separate out: organic vs. non-organic cause
- <5% of children with FTT have organic disease mostly diagnosed from other symptoms or signs
- Does failure to find an organic cause for FTT mean that there is neglect?
  - Only 5–10% of FTT infants are followed by child protection services

Commonly Noted in Patients with FTT: GERD


- Is GER a cause of FTT or is it an incidental finding in FTT? Can we truly define causality?
Children with Isolated Mild-Moderate FTT Do Not Usually Mandate Metabolic Investigation

**TABLE 1** Diagnostic Approach to a Patient With FTT to not Miss and IEM

<table>
<thead>
<tr>
<th>Is there isolated failure to thrive?</th>
<th>YES</th>
<th>probably no underlying metabolic disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Suspect an IEM when any one of the following (or combination) is present**

- History of acute, severe, and potentially life-threatening symptoms and signs (*recurrent ke*
- Recurrent attacks of vomiting, lethargy, dehydration
- Liver dysfunction
- Developmental delay, hypotonia, seizures, stroke, ataxia
- Cardiomyopathy, myopathy
- Hearing loss or visual impairment
- Organomegaly
- Mild dysmorphic or coarse facial features
- Pancyclopemia

**Baseline screening tests for FTT to rule out IEM**

- Sodium, potassium, chloride, CO2, alanine aminotransferase, aspartate aminotransferase, glucose, blood urea nitrogen, creatine, total protein, albumin, alkaline phosphatase, total bilirubin
- Complete blood count
- Urine analysis

**If there are abnormal**

MRI and MRS

**If there is a suspicion for IEM**

- Plasma amino acids
- Plasma acylcarnitines
- Ammonia**
- Blood lactate, pyruvate**
- CK
- Urine organic acids

*not all IEMs can be ruled out by these tests. Some tests may be normal during well-state. If you su**

**TABLE 2** Red-Flag Findings for IEM in Patients With FTT

**Neurologic**
- Developmental delay
- Developmental regression
- Ataxia
- Seizures
- Stroke
- Hypotonia
- Dystonia

**Gastrointestinal**
- Recurrent vomiting
- Hepatosplenomegaly
- Cholestasis
- Liver dysfunction
- Jaundice
- Gastrointestinal dysmotility

**Cardiovascular**
- Hypertrophic/dilated cardiomyopathy

**Ophthalmologic**
- Cataracts
- Optic atrophy
- Retinal degeneration

**Ear, nose, and throat**
- Hearing loss
- Frequent ear infections
- Sleep apnea

**Other**
- High anion gap acidosis, lactic acidosis, hypoketotic hypoglycemia

Commonly Considered: Renal Tubular Acidosis

- 36 children referred to nephrology to exclude renal etiology of FTT (presumptive Dx of RTA)
- 1 child (2.8%) was confirmed to have RTA

Conclusions:

1. RTA is a rare renal cause of FTT in children
2. VBG determination of serum bicarb is recommended in a child with FTT who is thought to have metabolic acidosis

Outline

- Definition and Differential Diagnosis for FTT
- Growth Assessment
- Management Approach
- Improvement Opportunities for the Hospitalist
Anthropometry: Which Parameter to Use?

<table>
<thead>
<tr>
<th>Box 1: Anthropometric criteria of failure to thrive</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Weight &lt;75% of median weight for chronological age (Gomez criterion)</td>
</tr>
<tr>
<td>• Weight &lt;80% of median weight for length (Waterlow criterion)</td>
</tr>
<tr>
<td>• Body mass index for chronological age &lt;5th centile</td>
</tr>
<tr>
<td>• Weight for chronological age &lt;5th centile</td>
</tr>
<tr>
<td>• Length for chronological age &lt;5th centile</td>
</tr>
<tr>
<td>• Weight deceleration crossing more than two major centile lines; centile lines used: 5, 10, 25, 50, 75, 90, 95, from birth until weight within the given age group</td>
</tr>
<tr>
<td>• Conditional weight gain = lowest 5%, adjusted for regression towards the mean from birth until weight within the given age group</td>
</tr>
</tbody>
</table>

Consensus Statement: American Society for Parenteral and Enteral Nutrition (ASPEN) and Academy of Nutrition & Dietetics (AND): Indicators Recommended for the Identification and Documentation of Pediatric Malnutrition (Undernutrition)

Definition of Pediatric Malnutrition (Undernutrition)

The focus of this consensus statement is pediatric undernutrition. A.S.P.E.N. has defined pediatric malnutrition (undernutrition) as “an imbalance between nutrient requirement and intake, resulting in cumulative deficits of energy, protein or micronutrients that may negatively affect growth, development and other relevant outcomes.” Pediatric undernutrition may

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## Malnutrition Consensus Statement from ASPEN & AND 2014

### Table 3. Primary Indicators When Single Data Point Available.\(^{71-74,76,77}\)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mild Malnutrition</th>
<th>Moderate Malnutrition</th>
<th>Severe Malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight-for-height (z) score</td>
<td>(-1) to (-1.9) (z) score</td>
<td>(-2) to (-2.9) (z) score</td>
<td>(-3) or greater (z) score</td>
</tr>
<tr>
<td>BMI-for-age (z) score</td>
<td>(-1) to (-1.9) (z) score</td>
<td>(-2) to (-2.9) (z) score</td>
<td>(-3) or greater (z) score</td>
</tr>
<tr>
<td>Length/height-for-age (z) score</td>
<td>No data</td>
<td>No data</td>
<td>(-3) (z) score</td>
</tr>
<tr>
<td>Mid-upper arm circumference</td>
<td>Greater than or equal to (-1) to (-1.9) (z) score</td>
<td>Greater than or equal to (-2) to (-2.9) (z) score</td>
<td>Greater than or equal to (-3) (z) score</td>
</tr>
</tbody>
</table>

BMI, body mass index.

### Table 4. Primary Indicators When 2 or More Data Points Available.\(^{71-74,76,77}\)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mild Malnutrition</th>
<th>Moderate Malnutrition</th>
<th>Severe Malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight gain velocity (&lt;2 years of age)</td>
<td>Less than 75(^a) of the norm(^b) for expected weight gain</td>
<td>Less than 50(^a) of the norm(^b) for expected weight gain</td>
<td>Less than 25(^a) of the norm(^b) for expected weight gain</td>
</tr>
<tr>
<td>Weight loss (2–20 years of age)</td>
<td>5% usual body weight</td>
<td>7.5% usual body weight</td>
<td>10% usual body weight</td>
</tr>
<tr>
<td>Deceleration in weight for length/height (z) score</td>
<td>Decline of 1 (z) score</td>
<td>Decline of 2 (z) score</td>
<td>Decline of 3 (z) score</td>
</tr>
<tr>
<td>Inadequate nutrient intake</td>
<td>51%–75% estimated energy/protein need</td>
<td>26%–50% estimated energy/protein need</td>
<td>(\leq 25)% estimated energy/protein need</td>
</tr>
</tbody>
</table>


Why Use Z Scores and Not Percentiles?

- Z-scores allow more precision in describing anthropometric status
- If we all begin to use Z scores
  - More accurately
    - Describe our patients when they do not fall within the growth chart percentiles
    - Use for monitoring over time
    - Any height below -2 Z score should be evaluated and if less than -2.25 Z score should be referred to a subspecialist

## Z Scores: Resources

<table>
<thead>
<tr>
<th>Table 1. Resources for Determining $z$ Scores for Anthropometrics.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CDC Growth Charts</strong></td>
</tr>
<tr>
<td>STAT GrowthCharts (compatible with iPod Touch, iPhone, iPad)</td>
</tr>
<tr>
<td>PediTools Home: <a href="http://www.peditools.org">www.peditools.org</a></td>
</tr>
<tr>
<td>Clinical tools for pediatric providers; growth charts, calculators, etc; mobile compatible</td>
</tr>
</tbody>
</table>

CDC, Centers for Disease Control and Prevention; WHO, World Health Organization.

Mid Upper Arm Circumference: Advantages

- Easy to use
- Standards available
- Used in children 6–59 months of age to classify malnutrition
- Standardized technique
- Can be used in all ages since it is not affected by
  - Ascites/lower body edema
  - Steroids
  - casts/prosthetics

<table>
<thead>
<tr>
<th>Malnutrition</th>
<th>MUAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe malnutrition</td>
<td>&lt;11.5 cm</td>
</tr>
<tr>
<td>Moderate malnutrition</td>
<td>11.5-12.4 cm</td>
</tr>
<tr>
<td>At risk for malnutrition</td>
<td>12.5-12.4 cm</td>
</tr>
</tbody>
</table>

Growth Measurements and Charts

- **Measurements**
  - Accurate measurements by trained personnel
  - Correct equipment and standardized techniques
    - Stadiometers, digital weight scales, length boards
  - <2 years: supine length
  - <3 years: include head circumference

- **AAP guidelines for usual growth monitoring**

- **Growth charts**
  - <2 years
    - Use weight for length
    - WHO charts
  - >2 years
    - Use BMI
    - CDC charts
Failure to Gain Weight

Usually due to inadequate caloric intake, malabsorption, or increase caloric needs

Failure to Grow

- Differential diagnosis
- Hypothyroidism
- Growth hormone deficiency
- Cushing’s disease, Renal/cardiac disease
- Inborn errors of metabolism, chromosomal abnormalities

What Else to Watch Out For?

- Change in growth percentiles in infancy
  - 6 weeks to 2 years

- “Catch-up growth”
  - Former premature infant
    - Need to correct for gestational age (Olsen growth charts)
  - IUGR
    - Have rapid growth initially but usually end up being shorter and lighter than their peers during childhood
  - SGA
    - Exhibit catch-up growth in first 6–24 months, with only 14% being short at age 18 years

- “Catch-down growth”
  - LGA babies or those with above-expected birth weight
  - Initial fall in percentiles, then follow curve

What Else to Watch Out For?

- **Short stature**
  - Constitutional short stature or delay of growth and puberty
    - Initial drop in percentiles, then follow their own curve
    - Family history: growth and pubertal history similar pattern
    - Significantly delayed bone age/puberty but achieve normal adult height
    - Parents of average height
  - Idiopathic short stature
    - Height below 2 SD mean for age with no other diagnosis
    - Normal growth velocity, normal testing but may have SHOX mutations
    - Growing below percentile predicted by mid-parental height
    - Parents average height
  - Genetic or familial short stature
    - Short parents; do not cross percentiles; normal bone age and puberty

Outline

• Definition and Differential Diagnosis for FTT

• Growth Assessment

• Management Approach

• Improvement Opportunities for the Hospitalist
Your Best Friends

Pediatric History and Physical Examination
Fourth Edition

Elizabeth K. Albright, MD

a Current Clinical Strategies medical book

Figure 1. Growth chart for AB.
Approach to FTT: What Category Are You Dealing With?

- **Inadequate caloric intake**
  - Breastfeeding difficulties
  - Improper formula mixing
  - Poor socioeconomic status; lack of available food
  - Feeding difficulties including poor transition to solid food
  - Maternal depression
  - Dietary beliefs – restricted diets including avoidance of high caloric foods
  - Parent child interactions: food refusal

- **Increased losses**
  - Vomiting
  - Maldigestion: liver disease, cystic fibrosis
  - Malabsorption: celiac disease, IBD

- **Increased caloric need**
  - Cardiorespiratory disease
  - Liver disease
  - Renal disease
  - Chronic infections
  - Hyperthyroidism

- **Inability to utilize calories consumed**
  - Chromosomal disorders
  - Endocrine and metabolic disorders
Approach to the Patient

- Determine the cause for FTT
- Plot on growth chart
- Calculate mid-parental height
- Consider testing
  - Lab tests: as appropriate, including nutritional tests
  - Other: radiology
- Diet history
- Appropriate referral
  - Sub-specialist
  - Social worker
  - Dietitian referral
  - Home care company
## Labs

- **Common labs that may be done**
  - CBC, ESR, comprehensive metabolic panel
  - Testing for celiac disease
  - Urinalysis and culture
  - Nutritional testing: zinc, iron, vitamin D
  - Bone age
  - Sweat test
  - Chest x-ray
  - Chromosomal analysis
  - Thyroid function

Labs

- Not helpful
  - 185 children admitted for evaluation of FTT
  - Only 1.4% laboratory tests were helpful in making a diagnosis
  - All positive results were suspected clinically

Treatment

- Determine nutritional plan
  - Calorie, protein, fat, fluid and micronutrient needs (zinc)
  - Oral diet
    - Appropriate meal time behaviors
    - High-calorie diet
    - High-calorie beverages/supplements
  - Tube feeds
    - Nasogastric vs. gastrostomy
    - Age appropriate intact formula
      - <1 year of age: 0.67 kcal/ml
      - >1 year of age: 1 kcal/ml

- Assess response to plan: weight gain, refeeding syndrome
- Discharge plan
## Treatment

### Continuous feeding guidelines

<table>
<thead>
<tr>
<th>Age</th>
<th>How to Start</th>
<th>How to Advance</th>
<th>Tolerance Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 months</td>
<td>1-2 ml/kg/hr</td>
<td>1-2 ml/kg every 2-8 hr</td>
<td>6 ml/kg/hr</td>
</tr>
<tr>
<td>1-6 years</td>
<td>1 ml/kg/hr</td>
<td>1 ml/kg every 2-8 hr</td>
<td>1.5 ml/kg/hr</td>
</tr>
<tr>
<td>&gt;7 years</td>
<td>25 ml/hr</td>
<td>25 ml every 2-8 hr</td>
<td>100-150 ml/hr</td>
</tr>
</tbody>
</table>

### Bolus feeding guidelines

<table>
<thead>
<tr>
<th>Age</th>
<th>How to Start</th>
<th>How to Advance</th>
<th>Tolerance Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 months</td>
<td>10-15 ml/kg every 2-3 hr</td>
<td>10-30 ml per feed</td>
<td>20-30 ml/kg every 4-5 hr</td>
</tr>
<tr>
<td>1-6 years</td>
<td>5-10 ml/kg every 2-3 hr</td>
<td>30-45 ml per feed</td>
<td>15-20 ml/kg every 4-5 hr</td>
</tr>
<tr>
<td>&gt;7 years</td>
<td>90-120 ml every 3-4 hr</td>
<td>60-90 ml per feed</td>
<td>330-480 ml every 4-5 hr</td>
</tr>
</tbody>
</table>

Prognosis

- Natural history
  - Gradual improvement in weight and height over preschool years, but with a lasting deficit through adolescence
  - Variable deficits in IQ
  - Significant development quotient deficits at age 1 year but not lasting
  - No emotional deficit but appetite less in adolescents who had FTT compared with controls

Suggested Management Algorithm

PCP:
- Obtain thorough Hx/PE
- Monitor growth charts
- Give correct calories

If indicated, increase calories via oral and/or naso-gastric feeds

Establish a multidisciplinary support system

If still no improvement, consider further workup (refer to Figure 1 for DDx of FTT)

If still no improvement or otherwise indicated, consider admission to hospital

Outline

• Definition and Differential Diagnosis for FTT

• Growth Assessment

• Management Approach

• Improvement Opportunities for the Hospitalist
When Do You Admit?

- Most cases of FTT can be managed outpatient

- Admit
  - Severe FTT/malnutrition
  - Moderate dehydration
  - Severe infection
  - Evaluation of parent-child feeding interaction
  - When outpatient management has failed
When Do You Discharge?

- Adequate, consistent weight gain demonstrated
- Diagnostic tests and consultations complete
- The caretaker demonstrates understanding of nutrition recommendations and growth expectations
- Proper follow-up arranged
However...

- “Weight gain in the hospital is not conclusive evidence that psychosocial problems alone caused the poor growth; both children who have organic and nonorganic growth deficiency have been found to gain weight in the hospital.”

Diagnostic Yield of Hospitalization

- 122 infants, age 1–25 months, admitted to a teaching hospital with diagnosis of FTT

Diagnostic Yield of Hospitalization

Cost Data: HCUP/Kids’ Inpatient Database – 2012

http://hcupnet.ahrq.gov/
# HCUP/Kids’ Inpatient Database – 2012

<table>
<thead>
<tr>
<th>ICD-9-CM principal diagnosis code and name</th>
<th>Total number of discharges</th>
<th>Charges, $ (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>783.41 Failure To Thrive – Child</td>
<td>8,669</td>
<td>25,573</td>
</tr>
</tbody>
</table>

**Total National Bill:** $220,620,087!!

**Mean LOS:** 5.5 days
Additional Food for Thought

- Increased LOS and costs associated with weekend admissions for FTT
- PHIS (administrative data from 42 freestanding US hospitals) for children aged <2 years (N = 23,332) with a primary admission diagnosis of FTT from 2003-2011
- “If one-half of weekend admissions in 2010, with both admission and discharge diagnoses of FTT, were converted to Monday admissions, total savings in health care dollars for 2010 would be $534,145.”

Summary

- Most FTT can and should be managed outpatient
- FTT is a multifactorial symptom → treatment should be multidisciplinary
- History and physical exam are the most valuable tool
- There is no FTT lab set: use labs to supplement history and physical examination
- Suggested approach to DDx and management algorithm may lead to quicker diagnosis, improvement in care, and shorter length of stays
- Make sure outpatient discharge plan is in place!!
Hospitalists are fast becoming the “go to” leaders for inpatient education… It’s a great time to be a pediatric hospitalist!

Ricardo Quinonez, MD, FAAP
Section Chairperson

Celebrating 15 years of Accomplishments: 1999-2014

• Founded the first journal dedicated to Pediatric Hospital Medicine (PHM), Hospital Pediatrics.
• Drafted the policy statement “Guiding Principles for Pediatric Hospital Medicine Programs,” outlining basic principles for starting and maintaining PHM programs.
• Assisted in developing the innovative Advancing Pediatric Educator Excellence Teaching Program.
• Established working groups to tackle topics such as certification, neonatal hospital medicine, surgical patient care, and quality.
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