

Advanced Medical Issues in CPS: Nutritional Issues in Children

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1 PM - 2 PM



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PROFESSIONAL DEVELOPMENT PROGRAM
ROCKEFELLER COLLEGE UNIVERSITY AT ALBANY, STATE UNIVERSITY OF NEW YORK

Advanced Medical Issues in CPS: Nutritional Issues in Children

Case Presentation

- 4 month old infant is brought to clinic for first visit-mother states that she lost her insurance after delivery of infant
- On exam, infant is listless with a feeble cry. His weight is 8 lbs- mother reports that birth weight was 5 lbs

Failure To Thrive (FTT)

Term attributed to L. Emmett Holt (Diseases of Infancy and Childhood, 1st ed, 1898) to describe children with weight/weight gain significantly below the norm
Holt used the term to describe the malnourished condition of children in institutions. In the 1920's, a Bellevue provider H. Bakwin coined the term TLC (Tender Loving Care) as a mode of treatment for these children

Definition

- This is a syndrome, not a diagnosis
- Most definitions are imprecise
- Absolute deficiency in growth
 - Prior known normal weights (by age and sex)
 - Weight below the 5th percentile
- Crossing of percentiles
 - Weight gain is less than expected
 - Crossing two major percentile lines
 - Exceeds 'normal' crossing in first year

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Definitions

- FTT describes a clinical picture
- Number of definitions used that demonstrate the lack of consensus regarding anthropometric criteria

How is it Determined?

Variations in Growth

- Normal variations in growth velocity during infancy
- Common non-pathologic causes of short stature (with normal weight for height)

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Differential Diagnosis of FTT

- Medical causes- Organic FTT
- Psychosocial- Non-organic FTT
 - >lack of maternal- infant interactions
 - >inadequate emotional nurturing- reactive attachment disorder
- “Mixed” FTT- presence of a medical problem complicated by psychosocial issues

Failure To Thrive Cause:

- All children with Failure To Thrive are **undernourished**

Frequency of Organic Systems Causing FTT

- Most common---→least common
 - Gastrointestinal
 - Neurological
 - Respiratory- pulmonary
 - Cardiovascular
 - Endocrine
 - Other

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**How Do We Identify The Parental
Role Separately From Any
Medical Causes?**

Causes of Inadequate Weight Gain

- Inadequate intake
- Inadequate absorption
- Excessive metabolic demands

Inadequate Intake

- Unavailability of food
 - >inadequate access to food
 - >inappropriate food choices
 - >food not provided by caretaker
- Lack of appetite
- Difficulty with feeding/eating
 - >CNS/Neuromuscular
 - >Anatomical
- Vomiting- reflux

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Inadequate Absorption

- Malabsorption- carbohydrate, protein and/or fats
- Anatomic malformations of the gut
- Anatomic problems as a result of medical interventions for an underlying disorder

Excessive Metabolic Demand

- Endocrine disorders- thyroid, diabetes
- Cardiac diseases
- Chronic infections
- Respiratory insufficiency
- Inborn errors of metabolism
- Malignancy

Clinical Assessment

- Degree/severity of malnutrition
- Secondary physiologic and developmental consequences

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Key to FTT is the History

- History-taking must be thorough and complete
- Physical exam and lab testing for organic causes of FTT is much less likely to be helpful

Components of History

- Feeding History
- Developmental History
- Family History
- Psychosocial History

Feeding History

- Breastfeeding technique
- Formula preparation
- Components of diet (formula, solids)
- Quantities consumed (calorie count)
- Vomiting/regurgitation associated with feeds
- Development of fatigue during feeds
- Caretaker-infant interactions

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Prenatal/Perinatal History

- Gestational problems- IUGR
Intrauterine Growth Retardation
- Delivery complications
- Prematurity

Intrauterine Growth Retardation

- Birth weight <10th percentile for gestational age
- Causes of IUGR:
 - Maternal factors-infection, toxins
underlying disease, substance use
 - placental dysfunction, nutrition
 - Fetal-chromosomal abnormalities

Developmental History

- Milestones- motor, cognitive, language, social
- Temperament of infant

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Family History

- Height and weight of parents
- Inherited disorders involving growth
- Short stature in family
- Developmental delay in another family member

Psychosocial History

- Family composition/supports/strengths
- Maternal depression/mental illness
- Maternal substance use
- Poverty

Psychosocial History

- Social Stressor
 - employment
 - relocation
 - separation/divorce
- Young Parents
 - studies show poorer growth in children of mothers < 18 yrs old

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Interview of Parent/Caretaker

- Cognitive/ functioning level
- Affect
- Response to child's condition
- Explanation for child's condition

Physical Exam-Growth Charts

- Use age/gender appropriate growth charts to plot height, weight, and head circumference
- Plot previous measurements to identify growth pattern and changes in growth velocity
- Changes in growth velocity may suggest underlying diagnosis

Changes in Growth Due to FTT

- Early finding
 - weight
- Late findings
 - length
 - head circumference

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Observation of Feeding

- Provider should observe the parent/caretaker during a regular feeding, noting positioning, level of comfort of parent and child
- Observer should note the infant- parent interaction during feeding such as eye contact, comforting gestures, response to the child's verbal/tactile cues

Newborn Screening

- Testing is mandatory for all infants born or brought to a hospital after birth
- Testing is state-specific
- New York screens for >40 clinical problems, from sickle cell to very rare metabolic diseases
- This is a screening process- needs follow up testing to confirm problem

Treatments: Admissions, Home Nursing, Nutritionists, Primary Care, Medical Home

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Long Term Effects of FTT

- Stunted growth-
 psychosocial dwarfism
- Cognitive difficulties
- Psychosocial problems-
 attachment disorders

Outcomes

- Cognitive
 - Children with FTT had lower cognitive scores than healthy controls at age 4y, controlling for poverty
 - Normal IQ by age 6y in 224 children: Mackner, 2003
 - FTT lower memory and quantitative scales in 38 children: Boddy, 2000
 - FTT children had worse attention and aggression scores on CBCL, Dyckman, 2001
 - Children with FTT and maltreatment had lower IQ than those without CM, Kerr, 2000

Outcomes

- Attachment
 - Higher numbers with disordered attachment
 - Less affectionate contacts with parents
 - More withdrawn
 - More maternal eating disorders, depression
 - Multiple small studies

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FTT of Long Duration

- Impaired brain growth & cognition
- Lower social maturity and more behavioral disturbances
- Abnormal attachment
- Abnormal length and head circumference
- Psychosocial Dwarfism
- Eating dysfunction

Services Needed, What to Monitor, Questions CPS Workers Need to Ask Medical Providers

CPS Assessment Issues

- Caretaker's expectations and acceptance of the child
- Caretaker's history of maltreatment
- Presence of mental and/or physical limitations
- Use of substances that might interfere with child care
- Family strengths and resources
- Child with special needs

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Definition of Obesity

- Overweight/ Obesity is defined by the BMI
- BMI of 85th – 95th percentile is defined as overweight
- BMI > 95th percentile is defined as obese

BMI

- BMI- Body Mass Index is a ratio
- To calculate:
weight in kilograms/
square of height in meters

Statistics

- In the age group 6 -11 years of age, 15.3 % are at or above the 95th percentile
- In the age group 12-19 years of age, 15.5 % are at or above the 95th percentile

AAP statement

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Factors that Influence Obesity

- Culture
- Economics
- Country of Origin

What is the Parental Role?

Nutritional Vulnerability

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Biochemical/Physiologic Vulnerability

- Familial
- Research on satiety center of the brain

Long Term Effects

- Cardiovascular Disorders
- Diabetes
- Metabolic Syndrome

Interventions

- Toddler – preschoolers
- School age children
- Early teens
- Older teens

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Interventions

- Behavioral/psychosocial
- Nutritional
- Pharmacologic
- Surgical

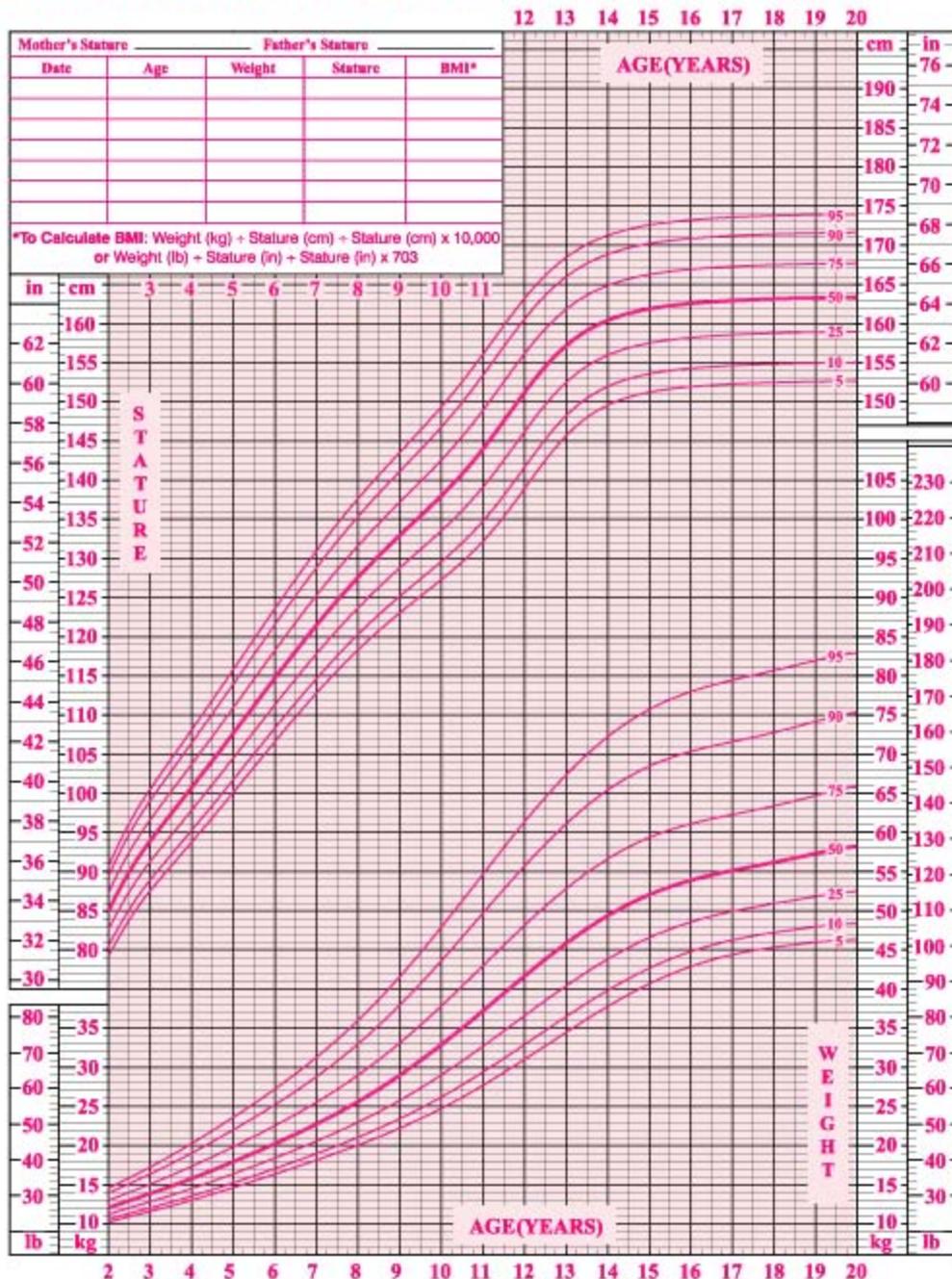
CPS Assessment

- Age of child- source of food
- Family structure and functioning- reliance on fast foods
- Family understanding of the significant effects of excessive weight
- Resources in community for nutritious foods

2 to 20 years: Girls

Stature-for-age and Weight-for-age percentiles

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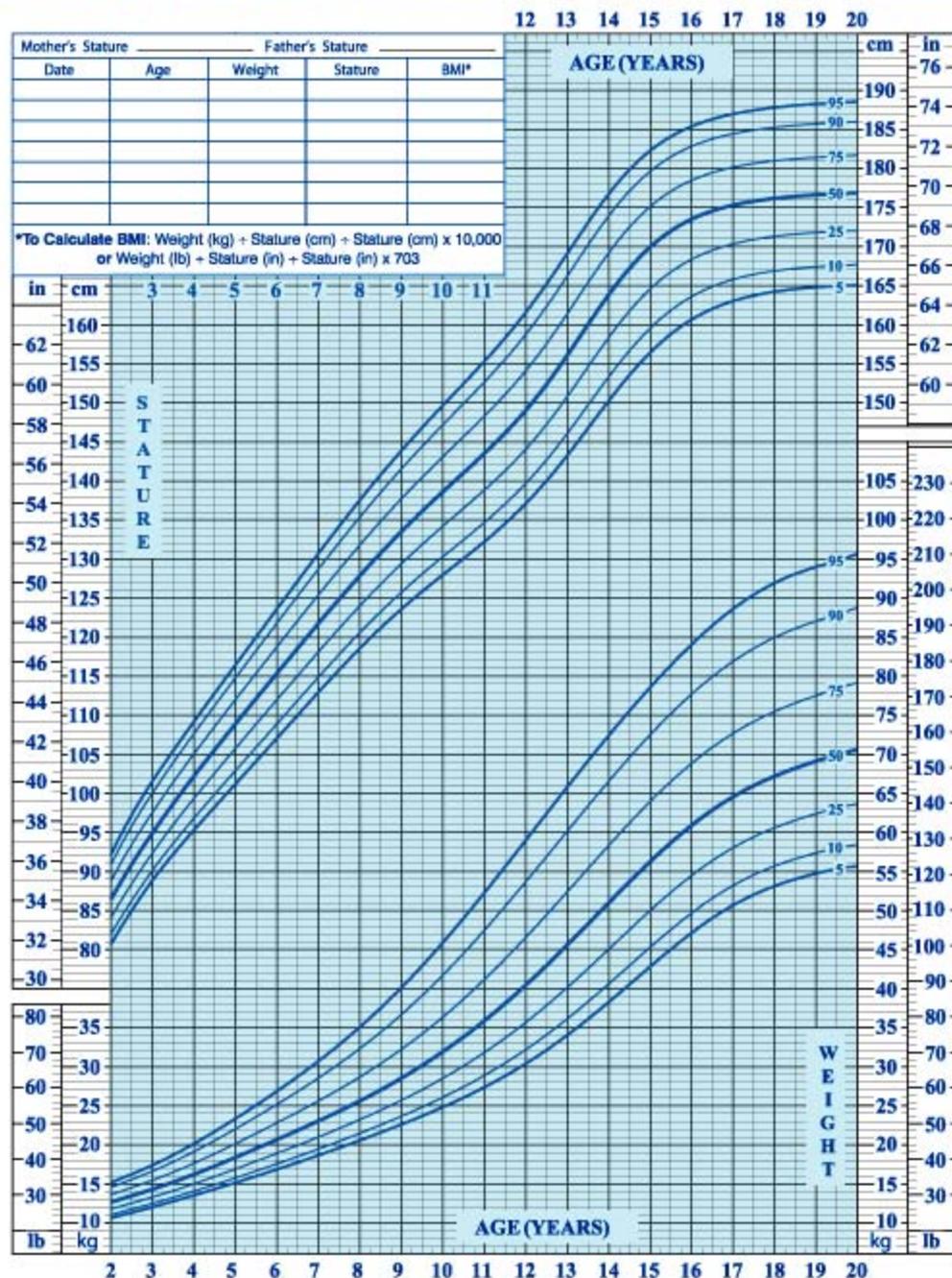


SOURCE : Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000). <http://www.cdc.gov/growthcharts>

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