



We Treat Kids Better

# Key Concepts of Pediatric Nutrition

# PEDIATRIC NUTRITION ASSESSMENT

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# Objectives

- The participant will identify at least 2 unique elements of pediatric nutritional therapy
- The participant will form an entry-level treatment plan utilizing pediatric specific components

# Goals of Nutrition Management

Normal growth and development

Promote healing and immunity

Decrease time on a ventilator

Decrease length of stay

# Value Of Maternal/Pediatric Nutrition



PREVENTION OF DISABILITIES

TREATMENT OF CHRONIC ILLNESSES/DX

SUPPORTIVE or ADJUNCTIVE CARE

MAXIMIZE POTENTIAL FOR BOTH PHYSICAL AND COGNITIVE DEVELOPMENT

# Basic Components Of The Nutritional Assessment

- PERSONAL MEDICAL AND SOCIAL HISTORY
- FOOD AND NUTRITION RELATED HISTORY
- ANTHROPOMETRIC ASSESSMENT
- PHYSICAL ASSESSMENT
- BIOCHEMICAL ASSESSMENT
- FEEDING & BEHAVIORAL ASSESSMENT

# Medical History

BIRTH HISTORY

HEALTH HISTORY

DEVELOPMENTAL  
MILESTONES

# Food And Nutrition Related Hx

- ADMINISTRATION ROUTE
  - oral, g-tube, j-tube, ng, pn
- DIETARY INTAKE
  - 24-hour, 3 -day diet record, or food frequency
- FOOD HABITS
  - family meal patterns
  - purchasing/preparation
  - eating out
  - food/texture refusals
- PHYSICAL ACTIVITY
- VITAMIN/MINERALS/HERBS
- MEDICATIONS



# Biochemical Assessment

## CHEM 14

- Lytes, Renal and Liver labs
- HgbA1C, prn

## COMPLETE BLOOD CELL COUNT

- Hemoglobin, Hematocrit, MCV, MCH
- Iron studies

## PERTINENT VITAMINS

- D, A, E

## PERTINENT MINERALS

- Cu, Zn, Se

## ACUTE PHASE REACTANTS

- C-reactive Protein
- Albumin(very affected by fluid)
- Prealbumin

# Anthropometric Assessment (primary)

## WEIGHT FOR AGE:

### Infant Scale

- up to 30 lbs
- 0-2 Years
- WHO growth chart

### Standing Scale

- > 2 years
- CDC growth chart

## HEIGHT/LENGTH FOR AGE:

### Recumbent Length

- 0-2 Years
- WHO growth chart

### Standing Height

- > 2 years
- CDC growth chart

## HEAD CIRCUMFERENCE FOR AGE

0-3 Years

WHO growth chart

## WEIGHT FOR HEIGHT

0-2 Years

WHO growth chart

## BMI FOR AGE

> 2 Years

CDC growth chart

# Anthropometric Assessment (secondary)

- MIDARM CIRCUMFERENCE (0.1 cm)
- TRICEPS SKINFOLD (0.02 mm)
- SUBSCAPULAR SKINFOLD (0.02 mm)
- CALCULATED ARM MUSCLE AREA (mm<sup>2</sup>)

# Growth History

- WEIGHT & HEIGHT HISTORY:
  - collect & plot on a growth chart
  - standards for wt and growth expectations
- DIAGNOSIS-SPECIFIC GROWTH CHARTS
  - down syndrome
  - turner syndrome
  - prader-willi syndrome
  - preterm growth charts: Fenton and Olsen

# Alternative Methods to Measure Height

## ARM SPAN:

- *should* equal height

## ARM LENGTH:

- multiply by a factor to *estimate* height

## SITTING HEIGHT:

- reference chart , *starts at age 2 years*

## KNEE HEIGHT: CHART *ESTIMATES* WITHIN 2 INCHES

- *starts at age 6 yrs*

## SEGMENTAL HEIGHT/LENGTH:

- An estimate

## ULNA LENGTH

- Linear Regression Analysis Equation
- Starts at 5 years

# Feeding Assessment

- OBSERVE FEEDING/EATING
- COMPARE TO NORMAL MILESTONES OF FEEDING
  - sucking ability
  - chewing ability
  - method of feeding
  - body position during feeding
  - gagging, choking, coughing
  - drooling
  - time required to feed
  - consistency of foods tolerated
  - food refusal/disruptive mealtime behaviors

# Clinical Signs

**ABNORMAL  
SKIN OR HAIR**

**RECURRENT  
INFECTIONS**

**ENDURANCE**

**MUSCULATURE**

**DENTAL  
STATUS**

**FOOD  
INTOLERANCES  
/ALLERGIES**

**IRRITABILITY**

# Intake vs. Needs

- ENERGY:
  - Estimated Energy Requirement
    - Age and Gender dependent
    - Often overestimates energy needs in ill children
  - WHO equation or Schofield for BMR
    - Ideal for critically ill children
  - Kcal/kg OF PRESENT WEIGHT
    - best used for the child whose weight is appropriate
  - Kcal/cm
    - short stature children (<3<sup>rd</sup> percentile)
  - **CONSIDER:**
    - Physical activity, pubescence, catch-up needs, metabolic rate, disease state



# Intake vs. Needs

- PROTEIN
  - Gm/kg:
    - AGE-DEPENDENT
  - **CONSIDER:**
    - INFECTIONS, TRAUMA, BURNS, ACTIVITY, ENERGY INTAKE, DISEASE STATE, CATCH-UP GROWTH
- FLUID NEEDS: DETERMINED BY WEIGHT
  - **Holliday-Segar**
    - 100 ml/kg (1-10 kg) + 50 ml/kg (2-20) + 20 ml/kg thereafter
  - **BSA**
- RDAs/RDIs

# Developing a Nutrition Care Plan

- Assess and integrate results of the five components
- Collaborate with other members of the health care team
- Integrate information from parents/caregivers/teachers
- Identify medical nutrition therapy diagnosis
  - use PES statement
- Make necessary referrals

# Summary

- **Pediatric nutrition assessment** is an essential process to determine appropriate interventions and follow-up required to ensure proper growth and development
- Different requirements exist from infancy to adolescence
- Infants require the highest number of calories per kg of weight than any other time in human development
- Adult nutrition management does not translate to the pediatric nutrition management >> new skill set
- Essential components of a nutrition assessment also include a **pediatric nutrition-focused physical exam**