

Infant and Pediatric Nutrition- Formulas

| Nutrition Facts | |
|--------------------------------|------------|
| Serving Size 7lb 6oz (3.3kg) | |
| Servings Per Container About 1 | |
| Amount Per Serving | %* |
| Total Baby Fat | 35% |
| Diaper Filler | 2% |
| Total Cuteness | 55% |
| Rock 'n' Roll Attitude | 8% |

* Percent Daily Values (DV) are based on a 2,000 calorie diet.


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- ## Overview
- Infant and toddler growth
 - Breast milk
 - Infant formulas and indications
 - Pediatric formulas and indications


- ## Growth-
- Sensitive indicator of nutrition adequacy
 - Term infants triple their birth weight and increase in length by 50% in the first 12 months of life
 - Rate of weight gain is most rapid in the first 3 months and progressively decreases
 - Change in body fat composition

- ## Assessment of Growth
- American Academy of Pediatrics recommends individual evaluation of each child to assess overall weight gain and growth.
 - Intervention may be indicated when-
 - Weight is >10% below birth weight
 - Failure to regain birth weight by 2 weeks of age
 - Weight-for-age or weight-for-length <2 SD below the mean
 - Weight-for-age crosses more than 2 percentile channels downward


Changes in Body Fat Composition




14-15% at birth



25-26% at 6 months



22-25% at 12-36 months



9-15% for boys, 14-21% for girls at school age

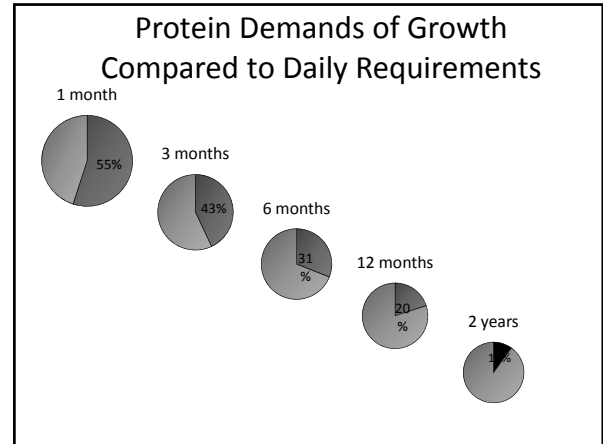
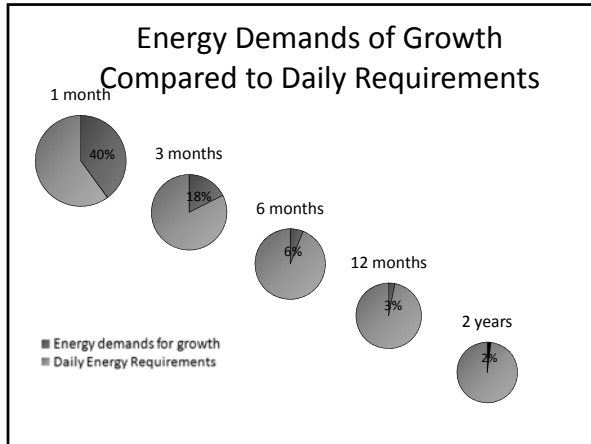


TABLE 5-15 Weight Gain and Energy Deposition of Boys and Girls 0 Through 2 Years of Age

| Age Interval (mo) | Protein Gain (g/d) ^a | Fat Mass Gain (g/d) ^a | Energy Cost of Tissue Deposition (kcal/g) | Weight Gain (g/d) ^b | Energy Deposition (kcal/d) |
|-------------------|---------------------------------|----------------------------------|---|--------------------------------|----------------------------|
| Boys | | | | | |
| 0-3 | 2.6 | 19.6 | 6.0 | 31 | 186 |
| 4-6 | 2.3 | 3.9 | 2.8 | 18 | 50 |
| 7-9 | 2.3 | 0.5 | 1.5 | 12 | 18 |
| 10-12 | 1.6 | 1.7 | 2.7 | 10 | 27 |
| 13-15 | 1.3 | 1.0 | 2.2 | 9 | 20 |
| 16-18 | 1.3 | 1.0 | 2.2 | 8 | 17 |
| 19-24 | 1.1 | 2.1 | 4.7 | 7 | 33 |
| Girls | | | | | |
| 0-3 | 2.2 | 19.7 | 6.3 | 26 | 163 |
| 4-6 | 1.9 | 5.8 | 3.7 | 17 | 63 |
| 7-9 | 2.0 | 0.8 | 1.8 | 12 | 21 |
| 10-12 | 1.8 | 1.1 | 2.3 | 10 | 23 |
| 13-15 | 1.3 | 1.4 | 2.5 | 9 | 23 |
| 16-18 | 1.3 | 1.4 | 2.5 | 8 | 20 |
| 19-24 | 1.0 | 0.8 | 2.2 | 7 | 15 |

^a Body composition (Butte et al., 2000a).
^b Increments in weight at the 50th percentile (Guo et al., 1991).

- ### How do infants meet these nutritional needs?
- #### Human milk
- Provides superior nutrition for growth
 - 20-22 kcal/oz average caloric density
 - ~42% calories Carbohydrate (lactose and oligosaccharides)
 - ~6% calories Protein (60% aqueous whey, 40% casein)
 - ~52% of calories Fat (includes essential fatty acids, DHA, & ARA)
 - Provides adequate hydration
 - 90% water
 - Protects against infection

| Bioactive Factor in Human Milk | Target or Function |
|--------------------------------|---|
| Secretory IgA | Specific antigen-targeted anti-infective action, protects intestinal epithelium from luminal antigens |
| Lactoferrin | Immunomodulation, iron chelation (competes with bacteria for nonprotein-bound iron), antimicrobial action, anti-adhesive, trophic for intestinal growth |
| Lysozyme | Bacterial lysis, immunomodulation |
| Oligosaccharides | Bacterial attachment |
| Cytokines, at least 7 types | Anti-inflammatory, epithelial barrier function |
| Vitamins A, E, C | Antioxidants |
| Glutamine | Intestinal cell fuel, immune responses |
| Nucleotides | Enhance antibody responses |
| Growth factors | Insulin, growth, gut development (luminal surveillance, epithelial cell growth) |
| Macrophages | Engulf bacteria |
| Bile-salt-stimulated lipase | Improves fat digestion |
| IgG, IgM, and IgD | Specific antigen-targeted anti-infective action |

Adapted from: Pediatric Nutrition Handbook, 6th Edition, American Academy of Pediatrics. Pediatric Manual of Clinical Dietetics, 2nd Edition. Pediatric Nutrition Practice Group, American Dietetic Association.

- ### Potential Protective Effects of Human Milk
- Chronic disorders
 - Type 1 Diabetes
 - Celiac disease
 - Crohns disease
 - Childhood cancer (lymphoma, leukemia)
 - Allergies
 - Acute disorders
 - Diarrhea
 - Otitis media, recurrent otitis media
 - Urinary tract infections
 - Necrotizing enterocolitis
 - Septicemia
 - Infant botulism
 - Hospitalizations
 - Infant mortality
 - Obesity and overweight
-

Breastfeeding benefits mom and family too!

- Protects mother's health
 - helps reduce risk of uterine bleeding and helps the uterus to return to its previous size
 - reduces risk of breast and ovarian cancer
- Helps delay a new pregnancy
- Economic benefits
 - breastfeeding costs less than formula
 - breastfeeding may result in lower medical care costs

Vitamin & Mineral Supplementation for Breastfed Infants

- Vitamin D: add within the first 2 months
 - recommended intake 400 IU/day
 - breast milk content is low (12-60 IU/L)
 - supplement if taking < 500 mls formula/day
- Iron: add at 4-6 months
 - First foods should be high in iron, iron-fortified cereals and pureed meats
- Fluoride: add at 6 months



Contraindications to Breastfeeding

- Galactosemia
- Certain Inborn errors of metabolism
- Mothers infected with HIV or human T-cell lymphotropic virus
- Mothers with active herpetic lesions on the breast
- Mothers with active tuberculosis
- Mothers using illicit drugs
- Mothers taking antimetabolite chemotherapy

Indications for Infant Formula

- Mother chooses not to breastfeed
- Breastfeeding is contraindicated
- Supplement breastfeeding for infants not taking adequate breast milk to support growth
- Fortify expressed breast milk for infants requiring more calories, protein, vitamins, and minerals

Infant Formula Composition

- Provides 20 kcal/oz caloric density, generally
 - 41-47% calories Carbohydrate
 - Sources may include lactose, corn syrup solids, maltodextrin, sucrose
 - 8-12% calories Protein
 - Sources may include casein, whey, soy protein isolate, L-methionine, casein hydrolysate, L-amino acids
 - 45-50% of calories Fat
 - Sources may include palm olein, soy oil, coconut oil, high-oleic sunflower and/or safflower oil, may include DHA & ARA

Types of Infant Formulas


- Routine
 - Cow's Milk Protein
 - Standard
 - Lactose reduced
 - Thickened
 - Partially Hydrolyzed
 - Soy Protein
- Hydrolyzed Protein
- Free Amino Acid (elemental)
- Special Diagnosis
 - Preterm Infants
 - Low mineral
 - Low fat

Routine Formulas- Cow's Milk Protein

- Protein source is casein and whey
- Indications
 - Supplement breast feeding
 - Calorie and nutrient enhancer to breast milk
 - Sole source of nutrition
- Contraindications
 - Milk protein allergy
 - Galactosemia

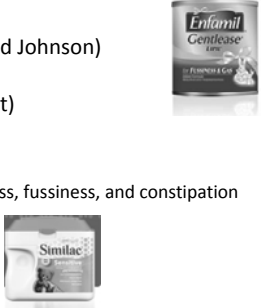
Routine Formulas- Cow's Milk Protein

- Standard
 - Enfamil Premium Lipil (Mead Johnson)
 - Similac Advance (Abbott)
 - Store Brand
 - Organic...



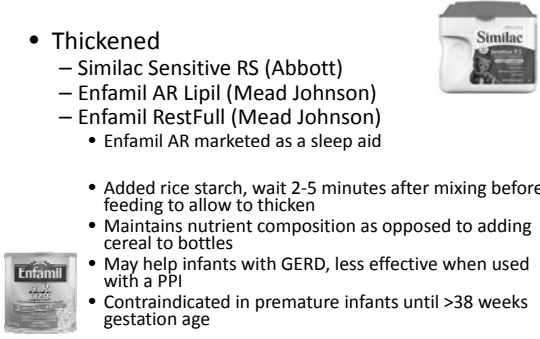
Routine Formulas- Cow's Milk Protein

- Lactose-reduced
 - Enfamil Gentlease (Mead Johnson)
 - 20 % less lactose
 - Similac Sensitive (Abbott)
 - trace lactose
- May help relieve gassiness, fussiness, and constipation



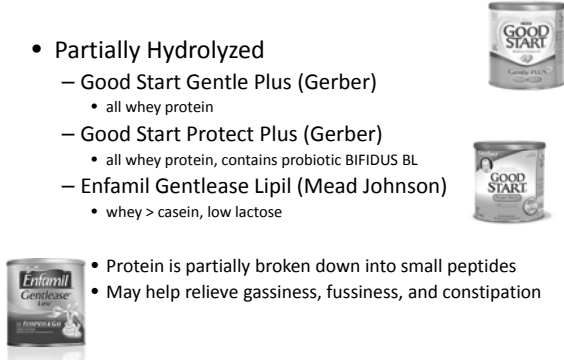
Routine Formulas- Cow's Milk Protein

- Thickened
 - Similac Sensitive RS (Abbott)
 - Enfamil AR Lipil (Mead Johnson)
 - Enfamil RestFull (Mead Johnson)
 - Enfamil AR marketed as a sleep aid
- Added rice starch, wait 2-5 minutes after mixing before feeding to allow to thicken
- Maintains nutrient composition as opposed to adding cereal to bottles
- May help infants with GERD, less effective when used with a PPI
- Contraindicated in premature infants until >38 weeks gestation age



Routine Formulas- Cow's Milk Protein

- Partially Hydrolyzed
 - Good Start Gentle Plus (Gerber)
 - all whey protein
 - Good Start Protect Plus (Gerber)
 - all whey protein, contains probiotic BIFIDUS BL
 - Enfamil Gentlease Lipil (Mead Johnson)
 - whey > casein, low lactose
- Protein is partially broken down into small peptides
- May help relieve gassiness, fussiness, and constipation



Routine Formulas- Soy Protein

- Protein source is soy isolates
- Indications
 - IgE-mediated allergy to cow milk protein?
 - Probably not as 10-14% have soy protein allergy too
 - Galactosemia
 - Vegan diet preference
- Contraindications
 - Cow milk protein enterocolitis/enteropathy
 - Premature infants born <1800 grams

Routine Formulas- Soy Protein

- Standard
 - Enfamil ProSobee Lipil (Mead Johnson)
 - Similac Isomil Soy (Abbott)
 - Store Brand
- Partially hydrolyzed
 - Good Start Soy Plus (Gerber)
 - Protein is partially broken down into small peptides



Routine Formulas- Soy Protein

- Diarrhea management
 - Isomil DF (Abbott)
 - Added soy fiber, 6 gm/liter
 - For infants over 6 months old
 - Only made ready-to-feed liquid
 - Marketed specifically to help manage loose, watery stools. May be effective in antibiotic-induced diarrhea.



Hydrolyzed Protein Formulas

- Hypoallergenic
 - Protein is broken down into small peptides and supplemented with added amino acids
- Indications (general)
 - cow milk protein allergy
 - soy protein allergy
 - Galactosemia (lactose free)
 - Colic?
- Contraindications
 - Expense
 - Taste

Hydrolyzed Protein Formulas

- Nutramigen Lipil (Mead Johnson)
 - Powder form now contains the probiotic LGG (Enflora LGG)
 - Ready-to-feed and liquid concentrate forms do not have the probiotic added
 - Mixing calls for PACKED scoops
 - Indications
 - Cow milk or soy protein allergy
 - Lactose, galactose, and sucrose free
 - Colic
 - Diarrhea



Hydrolyzed Protein Formulas

- Similac Alimentum (Abbott)
 - New name will be Similac Expert Care Alimentum
 - Ready-to-feed form is corn free
 - Fat is 33 % MCT oil
 - Indications
 - Cow milk or soy protein allergy
 - Colic
 - Diarrhea
 - Fat malabsorption (cystic fibrosis, pancreatic insufficiency)



Hydrolyzed Protein Formulas

- Pregestimil Lipil (Mead Johnson)
 - Fat is 55 % MCT oil
 - Limited retail availability, most stores due not stock on the shelves. Pharmacies can order.
 - Mixing calls for PACKED scoops
 - Indications
 - Cow milk or soy protein allergy
 - Lactose and sucrose free
 - Diarrhea
 - Fat malabsorption (cystic fibrosis, pancreatic insufficiency, short bowel, cholestasis)



Free Amino Acid Formulas

- Hypoallergenic
 - Protein is all non-allergic free amino acids
- Indications
 - Multiple food allergies
 - Severe milk protein allergy
 - Malabsorption
- Contraindications
 - Expense
 - Not available retail- must special order
 - Taste

Free Amino Acid Formulas

- Neocate Infant (Nutricia)
 - Fat now 33 % MCT
 - Non-standard mixing
 - added powder then water, for 20 calories/oz dilution the ratio is 1 scoop to make 1 oz total
 - Additional Indications
 - Short bowel syndrome
 - Eosinophilic GI disorders
 - GI-tract impairment



Free Amino Acid Formulas

- EleCare (Abbott)
 - Fat is 33 % MCT
 - Unflavored cans have 20 calories/oz and 30 calories/oz mixing instructions
 - Vanilla flavored, only approved for >1 year olds, cans only have 30 calories/oz mixing instructions
 - Additional Indications
 - Short bowel syndrome
 - Eosinophilic GI disorders
 - GI-tract impairment



Free Amino Acid Formulas

- Nutramigen AA Lipil (Mead Johnson)
 - Does not have MCT
 - Non-standard mixing
 - For 20 calories/oz the ratio is 1 scoop per 1 oz of water



Special Diagnosis Formulas- Preterm Infants




- Protein source is casein and whey
- Indications
 - For preterm infants weighing <2000 gm at birth that require higher calories, protein, and minerals
 - Supplement breast feeding, fortify breast milk, or sole source of nutrition
- Contraindications
 - NOT indicated for term infants due to risk for hypervitaminosis and hypercalcemia

Special Diagnosis Formulas- Preterm Infants

- Types-
 - Premature In-hospital
 - Generally only used in the hospital/NICU
 - Not indicated when infants weigh >3600 gm
 - Premature Post-Discharge
 - For preterm infants weighing <2000 gm at birth who are now >2500 gm and/or discharging from the hospital/NICU
 - Generally used until corrected age of 6-9 months, may be used until 1 year corrected age

Special Diagnosis Formulas- Preterm Infants



- Premature In-hospital
 - Ready-to-feed liquids
 - Enfamil Premature Lipil (Mead Johnson)
 - 20 and 24 calories/oz
 - Similac Special Care (Abbott)
 - 20 and 24 calories/oz, 20 and 24 calories/oz low iron, 24 calories/oz high protein, and 30 calories/oz
 - Good Start Premature (Gerber)
 - 24 calories/oz
 - Protein source is partially hydrolyzed whey

Special Diagnosis Formulas- Preterm Infants

- Premature In-hospital
 - Human milk Fortifiers
 - Enfamil Human Milk Fortifier (Mead Johnson)
 - Similac Human Milk Fortifier (Abbott)



– Fortifiers are added to expressed breast milk to make 22-24 calories/oz, generally

Special Diagnosis Formulas- Preterm Infants


- Premature Post-Discharge
 - Enfamil Enfacare Lipil (Mead Johnson)
 - Similac Neasure (Abbott)

– Standard dilution is 22 calories/oz


Special Diagnosis Formulas- Low Mineral

- Similac PM 60/40 (Abbott)
 - Mineral levels are similar to those of human milk
 - Milk protein source, 60:40 ratio of whey to casein
 - Indications
 - Renal function impairment
 - Hypercalcemia or hypocalcemia due to hyperphosphatemia
 - Precautions
 - Additional iron may be needed
 - Additional electrolytes may be needed




Special Diagnosis Formulas- Low Long-Chain Fat

- Enfaport (Mead Johnson)
 - Fat blend is 84 % medium-chain triglycerides
 - Milk protein based, all casein
 - 8 oz liquid, ready-to-use at 30 calories/oz
 - Indications
 - Fatty acid metabolism disorders
 - Severe fat malabsorption
 - Chyllothorax
 - Lymphangiectasia
 - Contraindication
 - Not a long-term sole-source of nutrition due to risk for fatty acid, vitamin, and mineral deficiencies



Formula Selection and Mixing Guide



- Specialized Infant Feeding Guidelines for Healthcare Professionals
- New 2010 version
- Contains mixing instructions for 22, 24, and 27 calories/oz
- Written and Compiled by Oregon Pediatric Nutrition Practice Group
- Order at www.eatrightoregon.org/PNPG/

Infant Formulas: What's New?

- "Functional" Additives
 - Prebiotics, non-digestible food ingredients that stimulate the growth and/or activity of good bacteria in the digestive system
 - Enfamil Premium's Triple Health Guard
 - Contains prebiotic GOS (galactooligosaccharides) and nucleotides, starting in April 2010 adding another prebiotic- polydextrose
 - Similac Advance's EarlyShield
 - contains prebiotic GOS (galactooligosaccharides), nucleotides, and antioxidants (beta-carotene, lycopene, and lutein)
 - Starting the summer of 2010 Abbott will be adding the "EarlyShield" to Similac Sensitive and Similac Isomil (prebiotic will be FOS (fructooligosaccharides))

Infant Formulas: What's New?

- "Functional" Additives
 - Probiotics, live microorganisms that are similar to the good bacteria found in the digestive system
 - Good Start Protect PLUS
 - contains prebiotic Bifidus BL (Bifidobacterium lactis)
 - Nutramigen with Enflora LGG
 - Powder form now contains the prebiotic LGG (*Lactobacillus rhamnosus* GG)

Infant Formulas: What's New?



Starting the Summer of 2010- new can labels and new can sizes for these Abbott products

Other Formulas...

- Second Stage Formulas
 - Similac Go & Grow, Similac Go & Grow Soy (Abbott)
 - Enfagrow Premium Next Step, Enfagrow Soy Next Step (Mead Johnson)
 - Good Start 2 Gentle Plus, Good Start 2 Protect Plus, Good Start 2 Soy Plus (Gerber)
 - Store brand
 - For babies 9-24 months old who also eat solid foods.
 - Higher in calcium, phosphorous, iron, and vitamins C & E.
 - Contain DHA and ARA.
 - Standard dilution is 20 calories/oz
 - Not available through WIC

Indications for Pediatric Formulas


- Complete nutrition source for children ages 1 to 10 (up to 13 years for some formulas)
- High calorie oral supplement
- Tube feeding formula
- Lactose and gluten free

Types of Pediatric Formulas

- Cow's Milk Protein
- Soy Protein
- Blenderized
- Hydrolyzed Protein
- Free Amino Acid (elemental)
- Special Diagnosis



Pediatric Formulas- Milk based

- Standard
 - Protein source is casein and whey
 - Liquid ready-to-feed bottles, boxes, or cans
 - 30 calories/oz (1 calorie/ml)
- Brands
 - Nutren Junior and Nutren Junior with fiber (Nestle)
 - 44 % carbohydrate, 12 % protein, 44 % fat
 - Vanilla flavored
 - 250 mls per can
 - Not available retail and must be ordered





Pediatric Formulas- Milk based

- Brands, continued
 - Pediasure and Pediasure with fiber (Abbott)
 - 53 % carbohydrate, 12 % protein, 53 % fat
 - Flavors- vanilla, chocolate, strawberry, banana cream, and berry cream
 - With fiber is only in vanilla flavor
 - 237 mls per bottle or can
 - Available retail
 - Pediasure Enteral and Pediasure Enteral with fiber (Abbott)
 - 53 % carbohydrate, 12 % protein, 53 % fat
 - Vanilla flavored
 - Formulation for tube feedings, can be taken orally
 - 237 mls per can
 - Not available retail and must be ordered


Pediatric Formulas- Milk based

- Brands, continued
 - Boost Kid Essentials (Nestle)
 - 54 % carbohydrate, 12 % protein, 34 % fat
 - Flavors- vanilla, chocolate, and strawberry
 - No with fiber version
 - “Retail” version comes with a straw containing probiotics and is 244 mls/box
 - “Hospital” version does not have probiotics in the straw and is 237 mls/box

Pediatric Formulas- Milk based

- Brands, continued
 - Boost Kid Essentials 1.5 and Boost Kid Essentials 1.5 with fiber (Nestle)
 - 44 % carbohydrate, 11 % protein, 45 % fat
 - Flavors- vanilla, soon also in chocolate and strawberry
 - With fiber is only in vanilla flavor
 - 45 calories/oz (1.5 calories/ml)
 - 237 mls per box
 - Not available retail and must be ordered




Pediatric Formulas- Milk based

- Brands, continued
 - Bright Beginnings Pediatric Drink and Bright Beginnings Pediatric Drink with fiber (PBM Products)
 - 43 % carbohydrate, 12 % protein, 45 % fat
 - Flavors- vanilla, chocolate, and strawberry
 - With fiber is only in vanilla flavor
 - 237 mls per can
 - Not available retail and must be ordered
- Store brands



Pediatric Formulas- Soy based

- Bright Beginnings Soy Pediatric Drink (PBM Products)
 - Protein is soy isolates
 - 43 % carbohydrate, 12 % protein, 45 % fat
 - Liquid ready-to-feed cans
 - 30 calories/oz (1 calorie/ml)
 - Vanilla flavored
 - Contains fiber
 - 237 mls per can
 - Not available retail and must be ordered



Pediatric Formulas- Blenderized

- Compleat Pediatric (Nestle)
 - Protein sources are chicken, milk, and pea
 - Also contains fruits and vegetables
 - 50 % carbohydrate, 15 % protein, 35 % fat
 - Liquid ready-to-feed cans
 - Only for tube feeding
 - 30 calories/oz (1 calorie/ml)
 - Contains fiber
 - 250 mls per can
 - Not available retail and must be ordered



Pediatric Formulas- Hydrolyzed Protein

- Protein is hydrolyzed into small peptide chains
 - Lactose and gluten free
- Brands
 - Vital Jr (Abbott)
 - Hydrolyzed casein and whey
 - 53 % carbohydrate, 12 % protein, 35 % fat
 - Fat is 50 % MCT
 - Flavors- vanilla and strawberry
 - Contains prebiotic fiber FOS
 - 30 calories/oz (1 calorie/ml)
 - 237 mls per can
 - Not available retail and must be ordered



Pediatric Formulas- Hydrolyzed Protein

- Brands continued
 - Peptamen Junior, Peptamen Junior with Prebio, and Peptamen Junior with Fiber (Nestle)
 - Hydrolyzed whey
 - 55 % carbohydrate, 12 % protein, 33 % fat
 - Fat is 60 % MCT
 - Flavors- unflavored, vanilla, chocolate, and strawberry
 - With Prebio is only in vanilla flavor, contains prebiotic fibers FOS and inulin
 - With fiber is only in vanilla flavor, contains prebiotic fibers FOS and inulin as well as insoluble fiber
 - 30 calories/oz (1 calorie/ml)
 - 250 mls per can
 - Not available retail and must be ordered



Pediatric Formulas- Hydrolyzed Protein

- Brands continued
 - Peptamen Junior 1.5 (Nestle)
 - Hydrolyzed whey
 - 49 % carbohydrate, 12 % protein, 39 % fat
 - Fat is 60 % MCT
 - Unflavored
 - Has Prebio- contains prebiotic fibers FOS and inulin
 - 45 calories/oz (1.5 calories/ml)
 - 250 mls per can
 - Not available retail and must be ordered



Pediatric Formulas- Hydrolyzed Protein

- Brands continued
 - Peptide Junior (Nutricia)
 - Hydrolyzed pork and soy proteins and amino acids (non-dairy)
 - 42 % carbohydrate, 12 % protein, 46 % fat
 - Fat is 35 % MCT
 - Unflavored and banana flavored
 - Powder, packaged in “single servings”
 - Standard dilution is 30 calories/oz (1 calorie/ml)
 - add one packet to 7 oz (210 mls) of water to make 8 oz (240 mls) total
 - Not available retail and must be ordered



Pediatric Formulas- Free Amino Acid

- Protein source is free amino acids
 - Hypoallergenic
 - Lactose and gluten free
- Brands
 - EleCare (Abbott)
 - 43 % carbohydrate, 15 % protein, 42 % fat
 - Fat is 33 % MCT
 - Unflavored and vanilla flavor
 - Powder
 - Standard dilution is 30 calories/oz (1 calorie/ml)
 - Unflavored cans have 20 calories/oz and 30 calories/oz mixing instructions
 - Vanilla flavored cans only have 30 calories/oz mixing instructions
 - Not available retail and must be ordered



Pediatric Formulas- Free Amino Acid

- Brands continued
 - Neocate Junior (Nutricia)
 - 42 % carbohydrate, 13 % protein, 45 % fat
 - Fat is 35 % MCT
 - Flavors- unflavored, chocolate, and tropical
 - Powder
 - Standard dilution is 30 calories/oz (1 calorie/ml)
 - Higher vitamin and mineral content than Neocate One+
 - Not available retail and must be ordered



Pediatric Formulas- Free Amino Acid

- Brands continued
 - Neocate One+ (Nutricia)
 - 58 % carbohydrate, 10 % protein, 32 % fat
 - Fat is 35 % MCT
 - Unflavored
 - Powder, packaged in “single servings”
 - Standard dilution is 30 calories/oz (1 calorie/ml)
 - add one packet to 7 oz (210 mls) of water to make 8 oz (240 mls) total
 - Not available retail and must be ordered



Pediatric Formulas- Free Amino Acid

- Brands continued
 - EO28 Splash (Nutricia)
 - 58 % carbohydrate, 10 % protein, 32 % fat
 - Fat is 35 % MCT
 - Flavors- grape, tropical fruit, and orange-pineapple
 - 237 ml ready-to-feed boxes
 - 30 calories/oz (1 calorie/ml)
 - Same nutrient content and composition as Neocate One+
 - Not available retail and must be ordered



Pediatric Formulas- Free Amino Acid

- Brands continued
 - Vivonex Pediatric (Nestle)
 - 63 % carbohydrate, 12 % protein, 25 % fat
 - Fat is 68 % MCT
 - Unflavored
 - Powder, packaged in “single servings”
 - Standard dilution is 24 calories/oz (0.8 calorie/ml)
 - add one packet to 220 mls of water to make 250 mls total
 - Not available retail and must be ordered



Special Diagnosis Formulas- Low Long-Chain Fat

- Portagen (Mead Johnson)
 - Milk protein, all casein
 - 46 % carbohydrate, 14 % protein, 40 % fat
 - Fat is 87 % MCT
 - Unflavored
 - Powder
 - Standard dilution is 30 calories/oz (1 calorie/ml)
 - Not a long-term sole-source of nutrition due to risk for fatty acid, vitamin, and mineral deficiencies
 - Not available retail and must be ordered



Special Diagnosis Formulas- Low Long-Chain Fat

- Monogen (Nutricia)
 - Milk protein, all whey
 - 64 % carbohydrate, 11 % protein, 25 % fat
 - Fat is 90 % MCT
 - Unflavored
 - Powder
 - Standard dilution is 30 calories/oz (1 calorie/ml), also has mixing instructions for 22 calories/oz
 - Not a long-term sole-source of nutrition due to risk for fatty acid, vitamin, and mineral deficiencies
 - Not available retail and must be ordered



WIC

- Similac Advance, Similac Isomil, and Similac Sensitive are available without medical documentation
- Specialty formulas require medical documentation in Oregon
- A list of Oregon WIC approved formulas are listed on the WIC website at

http://www.oregon.gov/DHS/ph/wic/docs/med_doc_WIC_formulary.pdf

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Thank You!