PAEDIATRIC ANAESTHESIA

PREOPERATIVE EVALUATION

All children must be assessed before anaesthesia and surgery. Establish good rapport with both parent and child to help make the anaesthesia experience a pleasant one.
For a child < 6 months, the birth history is important.
Pre-operative evaluation of the children includes:

a) History

- Perinatal history/ events
- If born premature, the corrected post-gestational age (PGA) PGA = post-natal age + gestational age
- Complications related to prematurity
- Neonatal Intensive Care Unit admission and events if applicable
- History of apnoeic spells
- Current medical problems e.g. congenital heart disease, asthma
- Developmental milestones
- Feeding
- Any other associated congenital anomalies
- Upper Respiratory Tract Infection (URTI)
- Previous anaesthetic history/ history of motion sickness
- Family history of anaesthesia related problems,
- Drug history
- Allergies: drugs, foods, adhesive tapes etc
- Special needs/ Learning disabilities/ behavioural issues

b) Physical Examination

- Any obvious anomalies e.g. dysmorphism, cleft lip/palate
- Airway
- Dentition: presence of loose teeth/ orthodontic devices
- Examination of the heart and lungs
- State of hydration, nutrition
- Developmental/ cognitive/ neurological state
- Vital signs of the child including saturations on room air
- Examination for possible venous access sites

- Height and Weight. (Weight is particularly important as drug dosages are ordered based on it. Height is important for calculating the body mass index (BMI) and body surface area. The latter is applicable in situations such as cardiopulmonary bypass). Exception: obese patients where it should be based on an estimate of lean body weight.

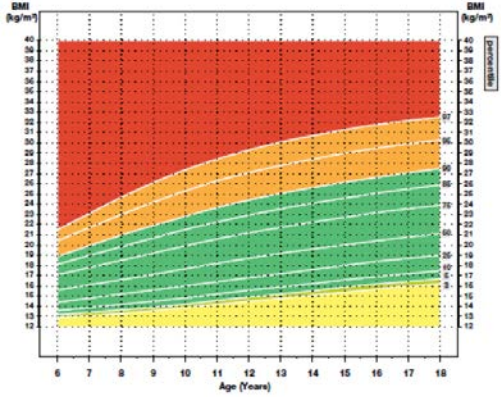
BMI and Obesity in Children

BMI for children and adults are calculated the same way:

BMI = Weight (kg)/ (Height x Height) m^2

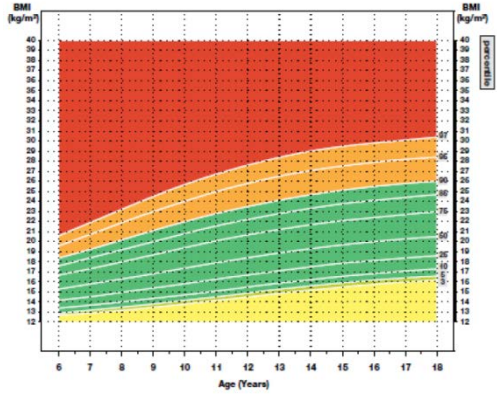
However, the calculated BMI is *interpreted differently* between children & adults. BMI for children needs to be interpreted in relation to the child's age & gender by plotting the BMI value on the gender specific BMI-for-age percentile charts provided below.

Body Mass Index–For–Age Percentiles: Boys (6 – 18 years old)



Weight Status	Percentile/ Percentile Range
Severely Overweight	≥97th percentile
Overweight	90th to <97th percentile
Acceptable Weight	5th to <90th percentile
Underweight	3rd to <5th percentile
Severely Underweight	<3rd percentile

Body Mass Index–For–Age Percentiles: Girls (6 – 18 years old)



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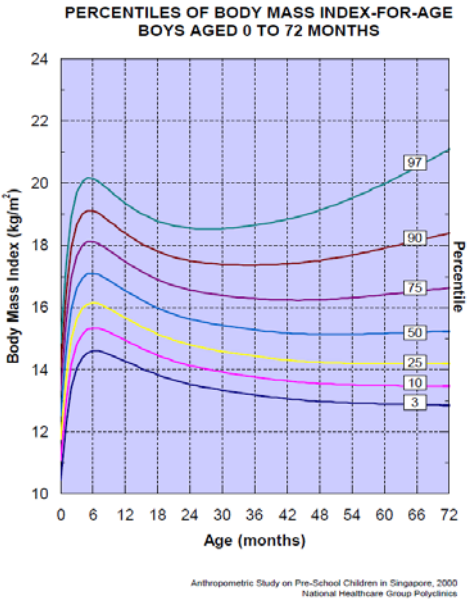
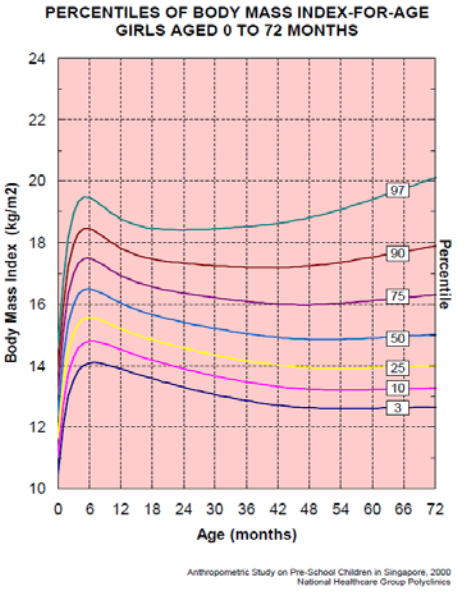

PERCENTILES OF BODY MASS INDEX-FOR-AGE
BOYS AGED 0 TO 72 MONTHS
Body Mass Index (kg/m²)
Age (months)
Percentile
97
90
75
50
25
10
3
Anthropometric Study on Pre-School Children in Singapore, 2000
National Healthcare Group Polyclinics


PERCENTILES OF BODY MASS INDEX-FOR-AGE
GIRLS AGED 0 TO 72 MONTHS
Body Mass Index (kg/m2)
Age (months)
Percentile
97
90
75
50
25
10
3
Anthropometric Study on Pre-School Children in Singapore, 2000
National Healthcare Group Polyclinics

c) Laboratory Investigations

Routine investigations are unnecessary for most healthy, normal children undergoing minor surgery, and are not ordered unless the history/ physical examination suggest otherwise.

For major operations, the following investigations may be required:

- FBC including platelets.
- Urea, electrolytes and glucose
- PT/PTT
- GXM or Type and screen.
- ECG / CXR
- LFT or any other relevant investigations like 2D echocardiograms

FASTING GUIDELINES

Recommendations for Elective Surgery in healthy patients (regardless of age):

- Clear fluids: completed 2 hours before anaesthesia (10 mls/kg up to a maximum of 200mls)
- Breast milk : completed 4 hours before anaesthesia
- Formula milk : completed 6 hours before anaesthesia
- Non human milk: completed 6 hours before anaesthesia
- Light meal: completed 6 hours before anaesthesia
- Full meal: completed 8 hours before anaesthesia

*Clear fluids refer to glucose, water, clear fruit juice (non- particulate, e.g. apple juice, but **NOT** orange juice with pulp).
*Light breakfast means milk with 2 pieces of biscuits or a piece of plain bread only (no butter). Please be specific: in our Asian context breakfast could mean a bowl of noodles or fried rice!

***ALWAYS** consult the anaesthetist in charge of the list as the order of cases may change.
* Fasting guidelines may need to be more stringent in cases where there is gastro-esophageal reflux or other factors increasing the risk of pulmonary aspiration.

Emergency surgery

When possible, depending on the urgency of the case, fasting guidelines should follow those for elective surgery.

References:

1. Black AE. Medical assessment of the paediatric patient. British Journal of Anaesthesia 1999; 83(1):3-15.
2. Cook-Sather SD, Harris KA, Chiavacci R et al. A liberalised fasting guideline for formula-fed infants does not increase average gastric fluid volume before elective surgery. Anesthesia and Analgesia 2003; 96: 965-969
3. McCann ME, Kain ZN. The Management of Preoperative Anxiety in Children: An Update. Anesth Analg 2001; 93: 98-105.
4. Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration: Application to Healthy Patients Undergoing Elective Procedures. A Report by the American Society of Anesthesiologists Task Force on Preoperative Fasting. Anesthesiology 1999; 90: 896 – 905