

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.

Pre-operative evaluation of children includes:

a) History

- Perinatal history/ events especially for children less than 6 months of age
- If born premature, the corrected post-menstrual age (PMA) $\text{PMA} = \text{gestational age} + \text{chronological age}$ should be calculated
- Complications related to prematurity if applicable
- 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 routines and issues
- congenital anomalies
- Upper Respiratory Tract Infection (URTI)
- Previous anaesthetic history/ history of motion sickness
- Family history of anaesthesia related problems,
- Drug history including the regular consumption of supplements
- 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 cardiovascular and respiratory system
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). In obese patients it may be appropriate to use the lean body weight for the dose determination of drugs.

BMI and Obesity in Children

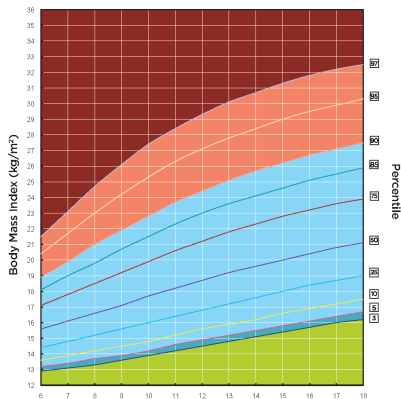
BMI for children and adults are calculated the same way:

$$\text{BMI} = \text{Weight (kg)} / (\text{Height} \times \text{Height}) \text{ m}^2$$

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.



**PERCENTILES OF
BODY MASS INDEX-FOR-AGE
BOYS AGED 6 TO 18 YEARS**



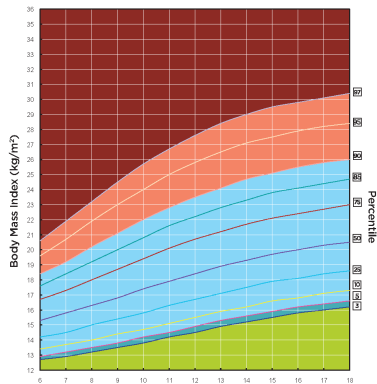
Age (years)

- $\geq 97^{\text{th}}$ Percentile : Severely Overweight
- 90^{th} to $<97^{\text{th}}$ Percentile : Overweight
- 5^{th} to $<90^{\text{th}}$ Percentile : Acceptable Weight
- 3^{rd} to $<5^{\text{th}}$ Percentile : Underweight
- $< 3^{\text{rd}}$ Percentile : Severely Underweight

Anthropometric Study on
School Children in Singapore, 2002
Health Promotion Board



**PERCENTILES OF
BODY MASS INDEX-FOR-AGE
GIRLS AGED 6 TO 18 YEARS**



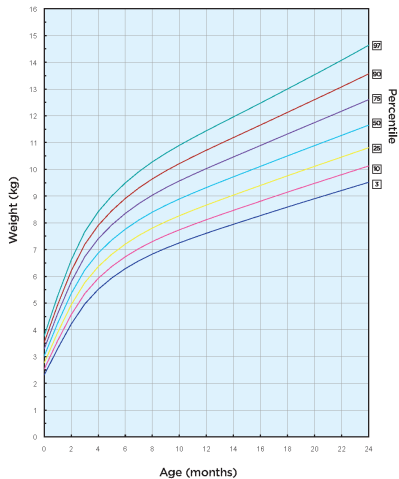
Age (years)

- $\geq 97^{\text{th}}$ Percentile : Severely Overweight
- 90^{th} to $<97^{\text{th}}$ Percentile : Overweight
- 5^{th} to $<90^{\text{th}}$ Percentile : Acceptable Weight
- 3^{rd} to $<5^{\text{th}}$ Percentile : Underweight
- $< 3^{\text{rd}}$ Percentile : Severely Underweight

Anthropometric Study on
School Children in Singapore, 2002
Health Promotion Board



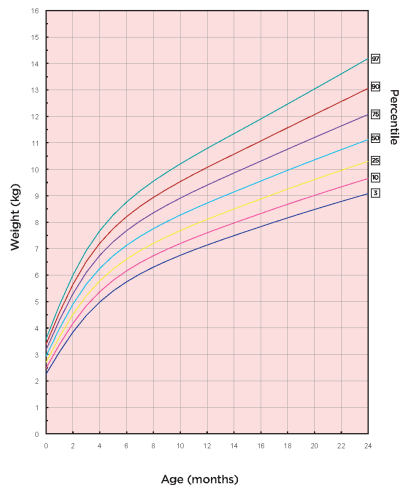
**PERCENTILES OF
WEIGHT-FOR-AGE
BOYS AGED 0 TO 24 MONTHS**



Anthropometric Study on Pre-School Children in Singapore, 2000
National Healthcare Group Polyclinics



**PERCENTILES OF
WEIGHT-FOR-AGE
GIRLS AGED 0 TO 24 MONTHS**



Anthropometric Study on Pre-School Children in Singapore, 2000
National Healthcare Group Polyclinics

c) Laboratory Investigations

Routine investigations are unnecessary for normal children undergoing minor surgery, and are not ordered unless the history/ physical examination suggests 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

in our institution we practise the following fasting instructions for elective surgery in healthy patients (regardless of age with the exception of non-human milk or formula milk):

- Clear fluids: completed 1 hour before anaesthesia
Breast milk : completed 4 hours before anaesthesia
- Non-human milk/Formula milk :
 - o If ≤ 4 months of age, to be completed 4 hours before (not more than 150ml)
 - o If > 4 months of age to be completed 6 hours before anaesthesia
- Light meal: completed 6 hours before anaesthesia

*Clear fluids refer to glucose, water, valens carborie (10g sachet in 100ml water), clear fruit juice (non- particulate, e.g. apple juice, ribena, but **NOT** orange juice with pulp).

*Light breakfast means milk/milo with 2 pieces of biscuits or a piece of plain bread only (no spread/fillings). Please be specific: in our Asian

context breakfast could mean a bowl of noodles or fried rice! A heavier meal may require a longer period of fasting

* 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
5. Thomas M, Morrison C, Newton R, et al. Consensus statement on clear fluids fasting for elective pediatric general anesthesia. *Paediatr Anaesth*. 2018; 28:411–4