# MKAIC

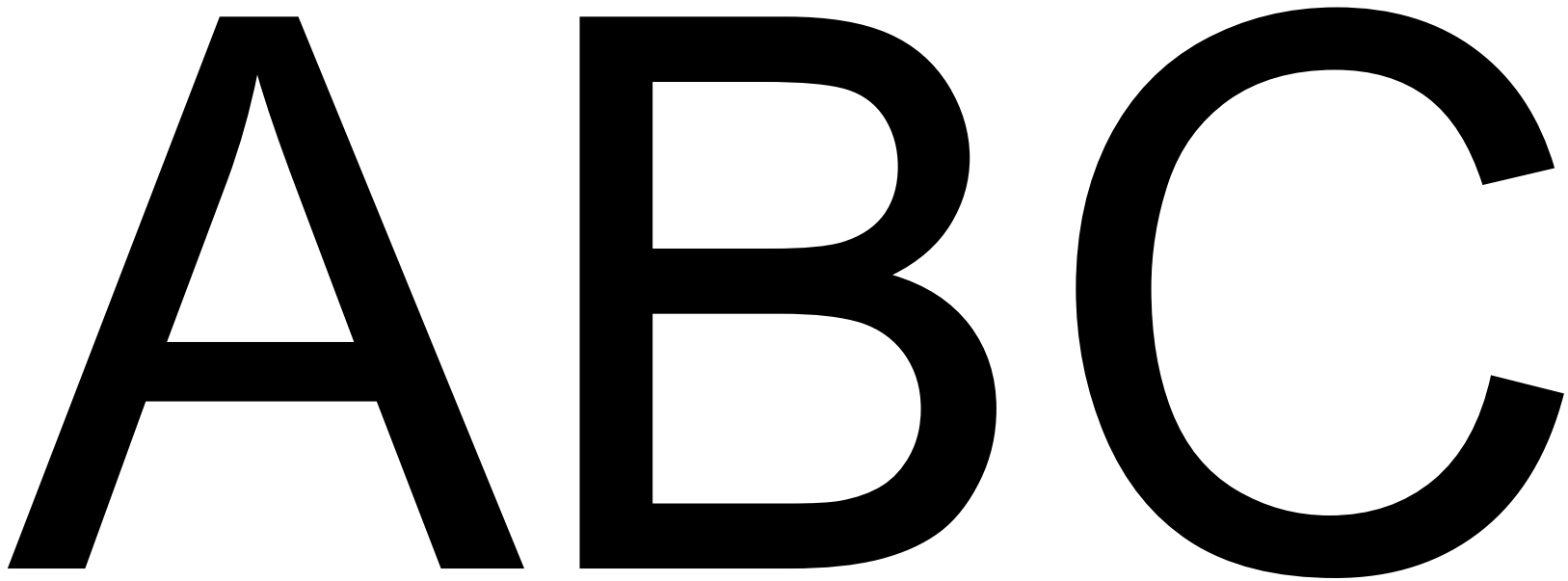
Muhimbili-Karolinska
Anaesthesia &
Intensive Care Collaboration


## PAEDIATRIC ANAESTHESIA & CARE OF THE CRITICALLY UNWELL CHILD

**Muhimbili National Hospital**
**11-14 January 2011**

# Recap Day 1

What did we learn on Tuesday?


ABC

A?

# Airway

B?

# Breathing

C?

# Circulation

D

# Disability (Conscious level)

# Airway

How are children different from adults?

- small airways
- Get blocked by oedema
- Laryngospasm
- Narrowest point cricoid cartilage
- Big tongue in a small mouth
- Big head/back of the head – towel under shoulders

# Airway

How calculate size of Endotracheal tube?

# Airway

Age/4 + 4 (if >2yrs)

# Airway

2 year old?

# Airway

## Age/4 + 4

2 year old

2/4 + 4 = 4.5

# Airway

Size of tube in newborn?

# Airway

3.5

# Airway

Length of ETT to lips?

# Airway

Length of ETT to lips

## Age/2 + 12

2 years old

2/2 + 12 = 13cm

# Airway

How to assess airway?

# Airway

Look, Listen, Feel

Noisy breathing?

Chest movements?

Normal? Able to talk?

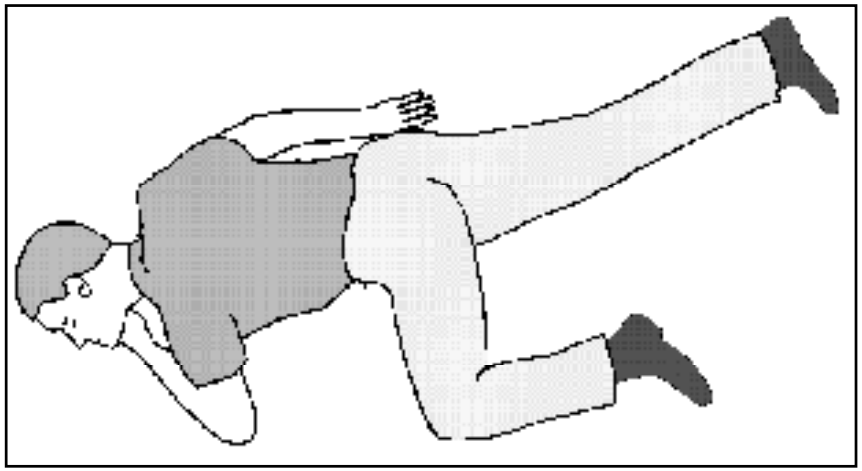
# Airway

How to treat airway problem?

# Airway

Chin lift
Jaw thrust
Towel under shoulders
Recovery position

Suction
Oropharyngeal airway
Intubation



# Breathing

## How are children different from adults?

- Fast resp rate
- Small oxygen reserves
- Diaphragmatic breathing

Quickly become hypoxic!

# Breathing

How fast do children breathe?

0-2 months?

2-12 months?

1-5 years?

# Breathing

How fast do children breathe?

| | |
|---|---|
| 0-2 months? | < 60 |
| 2-12 months? | <50 |
| 1-5 years? | <40 |

# Breathing

How to assess breathing?

# Breathing

Count resp rate

Look chest

Listen chest

Oxygen saturation

# Breathing

How to treat breathing problem?

# Breathing

How to treat breathing problem?

Oxygen!

Nasal prongs 1-2L/min

Mask 5L/min

# Circulation

## How are children different from adults?

- Fast heart rate
- Small blood volume

# Circulation

Heart rate in children?

<1yr?

1-5yr?

# Circulation

Heart rate in children?

| | |
|---|---|
| <1yr? | <160 |
| 1-5yr? | <140 |

Blood volume in children?

New born

Infant

Children

Blood volume in children?

| | |
|---|---|
| New born | 90ml/kg |
| Infant | 85ml/kg |
| Children | 80ml/kg |

| | | | | |
|---|---|---|---|---|
| Eg | newborn | 3.5kg | = | 300ml |
| | 1 yr old | 10kg | = | 850ml |

# Circulation

How to assess circulation?

# Circulation

How to assess circulation?

Shock?

Dehydration?

How to assess circulation?

pulse
Capillary refill time (>2secs)
(blood pressure)

Skin turgor
mucous membranes, eyes / fontanelle

Conscious level
urine output

# Circulation

How to treat shock?

# Circulation

How to treat shock?

IV cannula
IV fluid 20ml/kg FAST!!!

R Lactate/other

REASSESS and REPEAT!!!

# Circulation

Bradycardia in newborn

What to do if newborn has heart rate <60?

# Circulation

Bradycardia in newborn

What to do if newborn has heart rate <60?

Not normal!

Hypoxia?

Oxygen, ventilation, CPR!

# Disability (Conscious Level)

How to assess conscious level?

# Disability (Conscious Level)

How to assess conscious level?

AVPU

Alert

Voice

Pain

Unconscious

How to treat reduced conscious level (coma)?

How to treat reduced conscious level (coma)?

Glucose

5ml/kg 10% dextrose

Eg 1 year old = 50ml

How to treat reduced conscious level (fits)?

How to treat reduced conscious level (fits)?

Diazepam / other

# Hypothermia

Children have large surface area to weight

Keep warm!!

Kangaroo method

Keep covered up.

# A Child’s weight

How do we estimate a child’s weight from their age?

# A Child’s weight

How do we estimate a child’s weight from their age?

(Age + 4) x 2

1 year old?

3 year old?

# A Child's weight

How do we estimate a child's weight from their age?

(Age + 4) x 2

1 year old? (1+4)x2 = 10kg

3 year old? (3+4)x2 = 14kg

# Today

# Thursday timetable

| | |
|---|---|
| 8.00: | Recap |
| 8.30: | Neonatal Resuscitation |
| 9.30: | Scenarios |
| | |
| 10.30: | Coffee |
| | |
| 11.00: | Resuscitation of a child |
| 12:00: | Scenarios |
| | |
| 12.30: | Lunch |
| | |
| 13.15: | Pre-anaesthetic assessment |
| 14.00: | Seminars |
| 15.00: | End |