

NORMAL VALUES AND FORMULAE etc

α -1-anti-trypsin

1.3-3.28g/l

-amylase

0-180 Somogyi U/dl

-fetoprotein

<10kU/l

ABG

pH 7.35-7.45

PaCO₂ -32-48mmHg (4.7-6.0kPa)

PaO₂ -80-105mmHg (10.6-14kPa)

BE +/- 2.3

Bicarbonate 22-26mmol/l

Acid Phosphatase-Total

1-5iu/l

ACTH

<80ng/l

Activated PTT

35-45 secs

ADH

0.9-4.6pmol/l

Adult Respiratory Distress Syndrome

DEFINITION

1. Hx of precipitating factor
2. PaO₂<7.5kPa; FiO₂>0.5; arterial/alveolar O₂ ratio <0.25
3. Pulmonary capillary wedge pressure <15-18mmHg
4. CXR bilateral alveolar shadows
5. Total thoracic compliance <30ml/cmH²O

RISK FACTORS

trauma/sepsis/smoke inhalation/fat embolus/gastric aspiration/near drowning/burns/DIC/
head injury-[^]ICP/massive transfusion/massive bruising/cardiopulmonary bypass/drugs
eg: aspirin, heroine/multisystem disease eg: vasculitis, eclampsia

AML (FAB classification)

M1•undifferentiated blasts

M2•myeloblastic

M3•promyelocytic

- M4•myelomonocytic
- M5•monocytic
- M6•erythroleukæmia
- M7•megakaryoblastic leukæmia

Anti-arrhythmics

CLASS I

Atrioventricular node
eg: adenosine, verapamil, β-blockers, digoxin

CLASS II

Ventricles only
eg: lignocaine, mexiletine, phenytoin, flecainide

CLASS III

Atria, ventricles & bundle of Kent
eg: quinidine, procainamide, disopyramide, amiodarone

Apgar Score

	0	1	2
Tone	floppy	flexion	moving
Respiratn.	nil	irreg	cry++
Pulse	0	<100	>100
Response	nil	grimace	cry+
Colour	blue	blue limbs	pink

Average Statistics

Age Wt Pulse Mean BP

Term	3.5	95-145	40-60
3mts	6	110-175	45-75
6mts	7.5	110-175	50-90
1yr	10		105-170 50-100
3yr	14		80-140 50-100
7yr	22	70-120	60-90
10yr	30	60-110	60-90
12yr	38	60-100	65-95
14yr	50	60-100	65-95
Adult	60	65-115	95-125
Adult	70	65-115	95-125

Weight in kg = 2(Age + 4)

Albumin

35-50g/dl

Aldosterone

100-500pmol/l

ALP

30-300iu/l

ALT

5-35iu/l

Angiotensin II

5-35pmol/l

AST

5-35iu/l

Base excess/defecit (mEq/l)

=Actual pH-Predicted pH x 67

Predicted pH

= 0.008units change in pH from 7.40 with inverse change of 1mmHg in PaCO₂

eg Normal PaCO₂=40mmHg

if PaCO₂=30mmHg (ie alkalotic), predicted pH is 40-30=10 x 0.008=0.08 so predicted pH=7.48

Basophils

0.0-0.1

0-1%

Bicarbonate

24-30mmol/l

Bilirubin

3-17mcmol/l

Bishop score

	0	1	2	3
Cx dilatn	0	1-2	3-4	5+
Cx length	3	2	1	0cm
Above spines	-3	-2	-1	0cm
Cx consist	Firm	med	Soft	
Cx pos'n	Posterior	middle	anterior	

'Blind' Treatment of Pneumonias

PRIMARY

Pneumococcus

po; Amoxicillin (+ e'mycin*)

iv; Ampicillin (+ e'mycin*)

*if atypicals likely

SECONDARY

Previous Lung disease: Pneumococcus/Hæmophilus

po; Co-amoxyclav

iv; Co-amoxyclav + e'mycin

or cefuroxime + e'mycin

After flu/URTI:

Staphylococcus as well

po/iv; add flucloxacillin.

Aspiration:

Pneumococcus, Anaerobes. Klebsiella, Gram negs

po; nil

iv; benzyl pen+genta+metronidazole.

Immunosuppression:

Pseudomonas as well

iv; ticarcillin+gentamycin

or ceftazidime+gentamycin.

Hospital acquired:

Gram negs as well

iv; cefuroxime+gentamycin

Severely ill:

iv; cefotaxime+e'mycin+genta

BMI

=weight/height²

Normal=20-25

Obesity Grade 1=25-30

Obesity Grade 2=30-40

Obesity Grade 3=>40

Calcitonin

<0.1mcg/l

Calcium (ionised)

1.0-1.25 mmol/l

Calcium (total)

2.12-2.65mmol/l

Chest X-rays-diffuse lung disease

NODULAR

- Granulomas (mil. TB, sarcoid, Wegeners, hydatid, histoplasma)
- Viral
- Pneumoconiosis (except asbestos), Caplan's syn.
- Septic emboli
- Malignancy (bronchoalveolar Ca, 2°s, lymphangitis carcinomatosa)
- Mitral stenosis (microlithiasis pulmonale from pulmonary hæmosiderosis)

RETICULAR

- Fibrosis of chronic infections (TB, histoplasma)
- Sarcoid, silicosis, asbestosis
- Early LVF
- Malignancy (lymphangitis carcinomatosa)
- Extrinsic allergic alveolitis
- Cryptogenic fibrosing alveolitis
- Autoimmune diseases (Wegener, SLE, PAN, CREST, RA)

ALVEOLAR

- Pulmonary oedema
- Infection
- Pulmonary hge
- Smoke inhalation
- Drugs (heroin, cytotoxics)
- ARDS, O₂ toxicity, fat emboli, DIC
- Renal/liver failure
- Head injury, neuroSx
- Alveolar proteinosis
- Near drowning, heat stroke

Chloride

95-105mmol/l

Cholesterol

3.9-7.8mmol/l

CK

Males 25-195iu/l

Females 25-170iu/l

Cortisol

am 450-700mmol/l

midnight 80-280mmol/l

Creatinine

70-<150µmol/l

Cricothyrotomy Flow Rate

1 l/min/year

CSF

Glucose- 3.3-4.4mmol/l

Chloride- 122-128mmol/l

Lactate- <2.8mmol/l

Pressure

Infants <80 (mmCSF) Children <90

Adults <210

White cells; 0-20 x 10⁶/l (<1wk)

0-5 x 10⁶/l (>1wk)

Daily maintenance requirements:

Na 1-1.5mmol/kg/d

K 1 mmol/kg/d

Cl 1 mmol/kg/d

PO₄ 0.2 mmol/kg/d

Ca 0.1 mmol/kg/d

Mg 0.1 mmol/kg/d

H₂O 35 ml/kg/d

ECG

Time: 5mm=0.2s

PR-0.12-0.20

QT-<0.43

P<0.12

Q<0.04

QRS<0.12

Height: 10mm=1mV

Q=<25% of R

R<27mm

S<30mm

T<10mm

Elbow ossification

CRITOE

Capitulum 2 years

Radial head 4

Internal epi 6

Trochlear 8

Olecranon 9

Lateral Epi 10

Endotracheal Tube Sizes

Age Wt Int.Diam Lip

------(kg)---(mm)----(mm)--

neo	<0.7		2.0		5.0
neo	<1			2.5+	5.5
neo	1.0			3.0+	6
neo	2.0			3.0+	7
neo	3.0			3.0+	8.5
neo	3.5			3.5+	9
3mt	6.0			3.5+	10
1yr		10		4.0	11
2yr		12		4.5	12
3yr		14		4.5	13
4yr		16		5.0	14
6yr		20		5.5	15
8yr		24		6.0	16
10yr	30		6.5		17
12yr	38		7.0		18
14yr	50		7.5		19
Adult	60		8.0		20
Adult	70		9.0		21

ETT sizes

Internal = (age/4)+4
 Length = (age/2)+12 [oral]
 = (age/2)+15 [nasal]

Eosinophils

0.04-0.44
 1-6%

ESR

Men- age (yrs) divided by 2
 Women- years+10 divided by 2

Ferritin

12-200mcg/l

Fluid Maintenance-neonates

Day 1=2ml/kg/hr
 Day 2=3ml/kg/hr
 Day 3 to 12mts=4ml/kg/hr

Fluid maintenance by kg

Wt	ml/hr
4	16
6	24
8	32
10	40

12	45
14	50
16	55
18	60
20	65
30	70
40	80
50	90
60	95
70	100

or

4ml/kg for the first 10kg then
 2ml/kg for the next 10kg then
 1ml/kg thereafter

Fluid balance (Adults)(24hrs)

INPUT:	OUTPUT:
drink=1500ml	urine=1500
food=800ml	insensible=800ml
met'm=200ml	stool=200ml
TOTAL=2500ml	TOTAL=2500ml

Folate

2.1mcg/l

FSH

2-8u/l (luteal)Category: Normal Values

-GT

Males- 11-51iu/l

Females-7-33

Glucose (fasting)

3.5-5.5mmol/l

Glycosylated Haemoglobin

5-8%

Growth Hormone

<20mU/l

Haemoglobin

Males=13.5-18

Females=11.5-16

HDL

0.9-1.93mmol/l

Jones Criteria (revised)

for rheumatic fever

=Previous strep. + 2 major OR

=1 major + 2 minor

PREVIOUS STREP.

- recent scarlet fever
- positive throat culture
- ASOT \wedge $>200\text{IU/L}$

MAJOR CRITERIA

- Carditis
- Chorea (Sydenhams)
- Polyarthritis
- Erythema marginatum
- Nodules

MINOR CRITERIA

- \wedge CRP/ESR
- Arthralgia (not with arthritis as a major)
- Fever
- History of RHD
- Prolonged PR interval (not with carditis as a major)

INR

<1 normal

2-2.5 prophylaxis of DVT

2-3 prophylaxis in hip surgery and fractured femur operations

treatment of DVT, PE, systemic embolism, prevention of thromboembolism in AMI, mitral stenosis with embolism, TIA's, atrial fibrillation, tissue prosthetic heart valves

3-4.5 recurrent DVT/PE, arterial disease including MI and mechanical prosthetic heart valves. Category: Normal Values

Iron

Males- 14-31 mcmol/l

Females- 11-30

LDH

70-250iu/l

LDL

1.55-4.4mmol/l

Lead

<1.8mmol/l

LH

3-16u/l (luteal)Category: Normal Values

Liver enzymes

Protein	5.8 - 8.4 g/dL	
(<3 ascites= transudate)		
albumin	5.4 - 5.4 g/dL	
AST	0 - 40 U/L	SGOT
ALT	0 - 40 U/L	SGPT
tot bili	0.2 - 1.5 mg/dL	
dir bili	0.0 - 0.3 mg/dL	
Alk Phos	25 - 115 U/L	

^AST/ALT in hepatocellular damage

^GGT/ALP in obstructive jaundice

Long synacthen test

Depot tetracosactrin 1mg im at time 0

Serum 0,30,60,120m,4,8,12 + 24hrs

Lymphocytes

1.3-3.5

20-45%

Magnesium

0.75-1.05mmol/l

MCH

27-32

MCHC

30-36

MCV

76-96

Monocytes

0.2-0.8

2-10%

Neutrophils

2-7.5

40-75%

Osmolality

278-305mosmol/kg

Oxygen Content in blood

CO₂ (m/dl)=

$0.023 \times PO_2 + 1.34 \times Hb \times SO_2 / 100$

Pædiatric Trauma Score

Item	+2	+1	-1
Weight	>20kg	10-20	<10
Airway	Normal	Guedal, O ₂	Definitive
sBP	>90	50-90	<50
LOC	Awake	Obtund.	Coma
Fracture	None	1/closed	>1/open
Skin	None	Contusn Abrasn Lacn<7	tissue loss

Paediatric history

- * the pregnancy and mothers health during the pregnancy
 - * events of labour and delivery
 - * the condition of the baby in the neonatal period
 - * growth and development
 - * immunisations
 - * diet and feeding history
- previous diseases and whether sequelae occurred
- * previous history including operations or hospitalisation
 - * the childs emotional development and adjustment
 - * family history
 - * social history

PCV

Males=0.4-0.54

Females=0.37-0.47

pH

=7.35-7.45

pH change of 0.01 causes an inverse change of 0.67 mEq/L of base

PaCO₂ change of 1(from 40) leads to a change of pH of .008 units (from 7.40)

Phosphate (inorganic)

0.8-1.45mmol/l

Platelets

150-400

Potassium

3.5-5mmol/l

Prolactin

Males- <450u/l

Females- <600

Prostatic Acid Phosphatase

0-1iu/l

Protein (total)

60-80g/l

Prothrombin time

10-14secs

PSA

2.5ng/ml:40-49 years

3.5 :50-59

4.5 :60-69

6.5 :70+ years

PTH

<0.8-8.5pmol/l

RBC

Males=4.5-6.5

Females=3.9-5.6

RDA

VitB12/VitD/VitK/Cr=2-10µg

Biotin/I/Se=100µg

Folate/Mo=200µg

VitA/thiamin/riboflavin/vitB6/F/Cu=1-2mg

Pantothenate/Mn=5-10mg

Niacin/VitE/Fe/Zn=15mg

VitC=50mg

Mg=300mg

Ca/P=1g

Na/Cl/K/ess FA's=1-5g

Protein=50g

Carbo's=50-100g

Water=1kg

Red cell folate

0.36-1.44mcmol/l

160-640mcg/l

Renin

Erect 2.8-4.5pmol/ml/h

Recumbent 1.1-2.7

Respiratory FailurePaO₂ <8kPaType I: PaCO₂<6.5kPaType II: PaCO₂>6.5kPa**Reticulocytes**

25-100

0.8-2.0%

Revised trauma score

=A+B+C (0 to 12)

A) Respirations	
10-29	4
>29	3
6-9	2
1-5	1
0	0
B) Systolic BP	
>89	4
76-89	3
50-75	2
1-49	1
0	0
C) GCS	
13-15	4
9-12	3
5-8	2
4-5	1
<4	0

TBG

7-17mg/l

Theophylline levels

60-80µmol/l (neonates)

60-110µmol/l (asthma)Category: Normal Values

Thyroxine-free

9-22pmol/l

Thyroxine (T4)

70-140nmol/l

Total Iron Binding Capacity

54-75mcmol/l

Transfusion

PCC's (ml)=Hb deficit x kg x 3

Tri-iodothyronine (T3)

1.2-3.0nmol/l

Triglycerides

0.55-1.90mmol/l

TSH

0.5-5.7mU/l

Ulcerative Colitis vs Crohns Disease

Item	UC	Crohns
Course	recurrent	Chronic
Rectal	+	Rare
Ileum	Rare	+
Obstruction	-	+
Perforation	+	+
Skip lesions	-	+
Cobblestone	-	+
Rose thorn ulcers	-	+
Irreg. mucosa	+	-
Full mucosal inv.	-	+
Granulomata	-	+
Anal/Perianal	-	+

Non-bowel inv.	-	+
Steroids improve	Prognosis	Symptoms
Resection=cure	+	-

Urate

Males- 210-480mcmol/l

Females- 150-390

Urea

2.5-6.7mmol/l

Urinary:

Cortisol- <280nmol/24hr

Hydroxy-indole acetic acid- 16-73mcmol/24hr

HMMA/VMA- 16-48mcmol/24hr

Metanephrines- 0.03-0.69mcmol/mmol creatinine

Osmolality- 350-1000mosmol/kg

17-oxogenic steroids- male;28-30mcmol/24hr

female;21-66

17-oxosteroids (neutral)

male;17-76mcmol/24hr

female;14-59

Phosphate (inorg)- 15-50mmol/24hr

Potassium- 14-120mmol/24hr

Protein- <150mg/24hr

Sodium- 100-250mmol/24hr

Ventilator Settings

Tidal volume=10ml/kg

Minute volume=100ml/kg

Vit B12

0.13-0.68 nmol/l

(>150ng/l)Category: Normal Values

VLDL

0.128-0.645mmol/l

WCC

4-11