FCEM/ FACEM Clinical Revision Facts

Paediatric Formulae

Weight	$(Age + 4) \times 2$
ETT	$\frac{Age + 4}{4}$
ETT length	$12 + \frac{Age}{2}$ (oral) $\quad 15 + \frac{Age}{2}$ (nasal)
Adrenaline, Morphine, Lorazepam	0.1 mg/ kg
Fluid (maintenance)	first 10 kg + 100ml/kg/day second 10kg + 50mg/kg/ day then 25ml/kg/day Use 4%Dextrose N/5 Saline (N/S for resus)
Fluid Bolus (resus)	20 ml/kg (sepsis) 10 ml/ kg (trauma)
Urine output	1-2 mls/kg/ hr
Resp Rate	35 birth, 25 age 1, 20 age 5
Heart Rate	120 birth, 100 age 1, 90 age 5
BP	80 birth 95 age 5
Hb	18 birth, 12 age 1 month+
Dehydration	Na>160 – rehydrate over 48 hrs
Burn fluid	% burn x weight (kg) x 4 - give ½ over first 8 hours, rest over 16 hrs.
Burn transfer	>5% full / >10% partial/ special areas/ circumferential/ inhalational/ chemical/ radiation/ high voltage
Fitting	lorazepam 0.1 mg/kg i.v. OR midazolam 0.5mg/kg buccal OR diazepam 0.5mg/kg PR paraldehyde 0.4 mg/kg phenobarbitone 20 mg/kg phenytoin 18mg/kg 20mins, ECG+BP monitoring thiopentone 5mg/kg / suxamethonium 1.5mg/kg / ETT

Reflexes/ Joints

	Flexion	Extension
Elbow	C5/6 *	C7/8 *
Wrist	C6/7	C6/7
Hip	L2/3	L4/5
Knee	L5/S1	L3/4 *
Ankle	L4/5	S1,2 *
Plantar	UMN*	

Trauma scores

Anatomical AIS/ ISS

AIS – injury graded 1(minor)-6 (unsurvivable) by region (H+N/ Face/ Chest/ Abdo/ Pelvis+extrem/ Skin)

ISS sum of three worst AIS regions – max 75 – 6 in any region = 75

Physiolgical RTS

RTS – RRx 0.3 / BP x 0.75 / GCS x 0.95

TRISS

Age/ ISS/ RTS

Z statistic – diff between MTOS and data

W statistic – extra survivors per 100 patients

M statistic – goodness of fit with MTOS data

SIRS, Sepsis

SIRS = temp>38 OR <36/ RR>20 OR PaCO2 <4.5 / WCC>12 OR <4 / HR>90

Sespsis = 2 of WCC/ temp/ RR as above + 1 of GCS/pa O2/lactate/oliguria

Severe Sepsis = sepsis + hypotension/ hypoperfusion/ organ dysfunction

Septic Shock = sBP <90 or 40 less than base

Notifiable Diseases

Anthrax, Ophthalmia neonatorum, Cholera, Paratyphoid fever, Plague, Poliomyelitis, acute, Typhus Yellow fever, , Rabies Relapsing fever Haemorrhagic fever (viral) Leprosy Smallpox Malaria Tuberculosis, Typhoid fever, Dysentery (amoebic or bacillary)

Meningitis, Leptospirosis, Meningococcal septicaemia (without meningitis), Whooping cough, Measles, Mumps, Diphtheria, Rubella Hepatitis, viral, Scarlet fever, Tetanus, Encephalitis, acute, Food poisoning

Capacity

Ability to Understand/ Retain/ Weigh information.

Sad Persons

Sex/ Age (<19, >45)/ Depression +hopelessness/ Previous attempt + psych inpatient / Ethanol and Drug/ Rational thinking loss/ Social isolation/ Organised plan/ No spouse/ Sickness/ Future intent

Mental State Examination

- Consciousness – GCS
- Appearance – eye contact
- Motor – agitation
- Speech – fluency and articulation
- Mood and Affect – range/ appropriate
- Attention – Repeat 6 numbers
- Thought – Stream/ Process (interrupted/tangential)/ Content (delusions/ ideas of reference/hopelessness) Possession
- Cognition
- Orientation – Time place person
- Perception – illusion (misinterpretation of external stimuli => organic), hallucination (auditory => psych, visual or olfactory => organic)
- Verbal memory – recall of three unrelated words
- Language - naming/ reading/ writing
- Reasoning – apple and ball, child and dwarf
- Construction - clockface
- Calculation – serial 7s x 5
- Insight

Abbreviated Mental Test Score /10

Age/DoB/ Year/ Time of day/ Place/ remember 42 West St/ Monarch/ Year of WW2/ Count 20->1/ Recognise 2 people/ recall address

Mini Mental Test Score /30

Day and Date 4/Season 1/ Where are you? 5/ Registration: Remember three words 3/ Spell 'WORLD' backwards 5/ Recall three words 3/ Show pencil, watch – what is it? 2/ Repeat a sentence "no if ands or buts" 1/ "Take a piece of paper in your right hand" "fold it in half" "put it on the floor" 3/Write "close your eyes", show to patient 1/ Write a sentence 1/ copy two intersecting pentagons. 1

Rockall Score

Initial – Age (60/80)/ Shock(pulse>100&sBP>100/ sBP<100) / Co morbidity (CCF/IHD/renal liver fail/ malign)

Full - Endoscopic appearance/ Stigmata of recent haemorrhage

TIMI score for unstable angina/ NSTEMI

1. Age >65
2. >3 risk factors
3. prior coronary stenosis >50%
4. ST deviation on ECG at presentation
5. 2 anginal events previous 24 hrs
6. use of aspirin in past 1/52
7. elevated serum markers

risk of bad outcome increases by 5% per item

TIA ABCD score

Age >60 (1)

Blood pressure >140/90 (1)

Clinical features – unilateral weakness (2) language (1) Other (0)

Duration >60 min (2) 10-60 min (1) <10 (0)

Risk of stroke 0% in patient with score less than 4

Pancreatitis: Ranson Criteria

On admission Age >55, WCC >16, Glucose >12, LDH>350, AST>250

Base deficit >4, Ca >2, PO2<8 kPa, Hct>10%drop, Urea>16, Fluid >6 litres

Wells score

Clinical signs and symptoms (objective swelling and pain)	3
PE as likely or more likely than alternative diagnosis	3
Immilisation/ surgery 1/12	1.5
Previous PE/DVT	1.5
Heart rate >100	1.5
Haemoptysis	1
Active cancer	1

Low prob < 2 High prob>6

Geneva score for PE

Age 60/80	1/2
Previous thromboembolism	2
Recent surgery	3
Pulse >100	1
PaO2	1/2/3/4

PaCO2	1/2
Atelectesis or raised hemidiaphagm on CXR	1

Low prob <4

NICE Guidelines

GCS <13

GCS 13 or 14 2 hrs post injury

Focal neurology

Suspected open or depressed skull fracture

Signs of basal skull fracture

Post traumatic seizure

>1 vomit

Age 65

Coagulopathy

Retrograde amnesia 30 mins +

Dangerous mechanism

Alveolar gas Equation

$pO_2 = (710 \times FiO_2) - (pCO_2 / 0.8)$

A-a gradient should be 4 +age/4

CURB-65

Confusion (new)

Urea >7

Resp Rate >30

BP <65

Age>65

Admit 2+. Send home 0 +1

Wellens criteria for VT

QRS >0.14/ LAD/ AV dissociation/ capture/ fusion

Wellens syndrome

Biphasic T in septal leads=Proximal LAD stenosis

[other In infarct, ST elevation in aVR = left main stem disease]

Bruguda syndrome

ST elevation +/- RBBB in V1-3 – treat withAID

Long QT syndrome

Drugs – BDZ/ phenothiazines/Congenital (Lange-Jervil-Nielsen/Romano-Ward)/ $Ca^{2+}\downarrow$/ $K^{+}\downarrow$/ Heart disease

Betablockers/ AID

Dental nerve blocks

Inferior alveolar and lingual nerves blocked together 1 cm above molars.

Mental nerve blocked at root of premolar

CPR techniqes

	CC rate	Ratio
Adult	100	30:2
Infant/Child	100	15:2
Newborn	120	3:1

Hypothermia

Mild 35/ Mod 32/ Sev 30

If severe, 3x defib only, no drugs

Mod long intervals

Foreign body

Cricoid ring narrowest part of airway in child

Upper oesophageal sphincter C5

Aortic arch T4

Lower Oesophageal Sphincter T10

Tetanus vaccination

Don't need to boost once initial

Elbow ossification centres - CRITOL

Capitellum/ Radius/ Internal epicondyle/Trochlear/ Olecranon/ Lateral epicondyle

If trochlear (medial, artics with ulnar) centre present, so must Internal (medial)

Anterior humeral line – 1/3 capitellum, radio-capitellar line

Hand

If lunate (cup) is out and apple (capitate) out = lunate dislocation

If the apple is out but cup is in place = perilunate dislocation

Zone of vulnerability

Colles/ Bartons/ Reverse Bartons/ Smiths/ Rolando/ Bennet

Disaster Triage Sieve

Walk ->CAT 3

Breath with airway open – no ->dead

RR >30 or >10 -> CAT 1

Cap refill >2 secs -> CAT 1

CAT 2

Methane

Me (who) Major Incident/ Exact location/ Type of incident/ Hazards/ Access/ Number of casualties/ Emergency services present/ needed

Stroke thrombolysis

CI - Sys BP >180, Dia BP >105, bad CT features, glucose <2.5 or >20,

Alteplase 0.9 mg/kg (max 100)

LVH criteria

R or S >30mm or R+S >35 mm

Risk factors for dissection

Hypertension, Marfans, syphillis, pregnancy, co-arctation, iatrogenic

Opiate withdrawal

NSAID, benzo, clonidine

Multidose charcoal

TCA, digoxin, theophylline, aspirin, phenytoin, carbamazepine, barbiturates

Types of Shock

Hypovolaemic/ Cardiogenic/ Distributive/ Obstructive / Dissociative

Calculated osmolality = 2x Na + Urea + Glucos

Anion Gap = $Na^+ – (Cl^- + HCO^3)$ [normally ≈12]

Increased Anion Gap Acidosis (↑acid production/↓acid excretion)

Methanol

Uraemia

Diabetic ketoacidosis alcoholic

Paraldehyde

Iron

Lactic acidosis (tissue anoxia = shock or disease – diabetes, toxins (metformin), inborn errors of metabolism, hypoglycaemia)

Ethylene glycol, ethanolic ketoacidosis

Salicylate

Also Cyanide, CO, toluene

Normal Anion Gap Acidosis (↑loss of bicarb)

Renal tubular acidosis

Acetazolamide

Uterosigmoidostomy/ Obstructive uropathy

Addisons

Haemodialysis – alcohols, barbiturates, chloral hydrate, lithium, salicylate

Haemoperfusion – barbiturates, anti-epileptics

Rare things that might come up

Hydrofluoric acid burns.

Calcium gluconate gel

Bier's block with calcium gluconate, intra-arterial infsion.

Cyanide toxicity

Antidotes – cobalt and metHb bind cyanide

1. Cobalt EDTA (kelocyanor) toxic, but effective
2. Hydroxycobalamin (Vit B12a) non-toxic, but French
3. Create MetHb (amyl nitrate/ Na nitrite) then use thiosulphate to enable excretion, relatively non-toxic, but American

Wernickes

Ataxia/ confusion/ ophthalmoplegia

2 sets of two vials of multivitamins inc. thiamine, B complex and vit C.

Thyroid Storm

Oxygen/ propylthiouricil/ iodide/ steroid/ propranolol

Neuroleptic malignant syndrome

Fever/ rigidity/ autonomic instability/ GCS ↓

WCC↑ LFTs ↑ CK ↑

Supportive, dantrolene ± bromocriptine , hydrate, watch for rhabdo

Acute dystonia

Benztropine 1-2mg

Sagittal sinus thrombosis

Headache

GBS

Acute inflammatory polyneuropathy (Guillian Barre) lower limbs affected first- DD lead poisoning/ botulism/ diptheria/ porphyria/ Miller fisher varient - ophthalmoplegia

Myasthenia Gravis

Antibodies to muscle end plates – edrophonium (tensilon) test

Eaton Lambert - myasthenia-like assoc with Lung Ca – no response to edrophonium not CNs

Lyme disease

Fever, joint pains, erythema chronica migrans

Eclampsia

mild/moderate/severe by BP

oedema/ proteinurea/ headache/ hyper-reflexia/ LFTs/ pulm oedema

$MgSO_4$ 4g

Phenobarb/ paraldehyde

Delivery – emerg LSCS

HELLP variant

Haemolysis/ Elevated Liver enzymes/ Low Platelets

Triad: RUQ pain + Hypotension + pre-eclampsia, DIC in 50%

Duct dependent cardiac disease

Prostoglandin E2

Rare dangerous abdo conditions in children

Malrotation 1st month +/- volvulus

Incarcerated hernia, Obstruction, Pyloric stenosis, Hirshprung, imperforate anus

Intususception male 4:1 - 3/12 to 6 yrs

Appendix Meckels

Sickle crisis

Sequestration/ Chest

Legionella

Low Na, LFTs, neuro problems common, erythromycin

Acute Glaucoma

Top B Blockers, clonidine, acetazolamide, miotics pilocarpine (small pupil) analgesics surgery

Ruptured Globe/ intra ocular FB

Assess vision/ NBM/ a/bs/ shield eye/ tetanus/ analgesia/ antiemetic/ CT

Chemical attack