



The Weekly Probe



20th January 2017

Volume 14 Issue 2

Picture above. – 2 shots from the Xmas party. Common element? It must have been very noisy as Michelle is engaging in an intimate conversation both times!

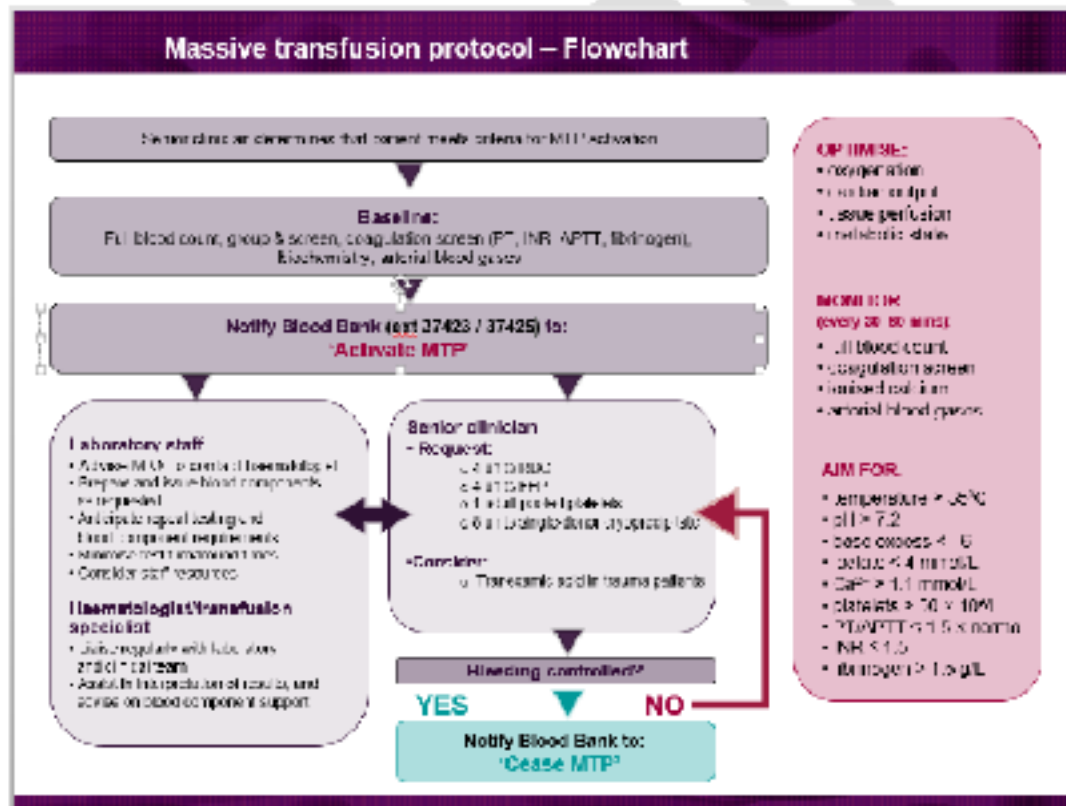
Orthogeris admissions – please ensure that the Geriatric Team is notified of Orthogeriatric Admissions at an appropriate time.

Massive Transfusion Protocol – there has been an update to the Massive Transfusion Protocol . The article can be found [on the SESLHD intranet page](#) under [SGSHHS Blood and Blood Products](#) and "[M](#)". Have a look at this when you get a chance.

The protocol MUST be activated for patients are likely to replace their entire blood volume in under 24 hours or >50% of blood volume in 4 hours (4U in 4hrs)

Figure 1: Massive Transfusion Protocol – Flowchart

Adapted from the *NRA Patient Blood Management Guidelines: Module 4 Critical Bleeding/Massive Transfusion 2012 (4)*



(NB at TSH, the Platelets will be available 1 – 1.5 hours following the MTP activation)

THIS WEEK

Estimating Weight of Children
VHOT Study and Troponins
Next Week's case
Quote / Joke of the Week

Looking at the last edition of Emergency Medicine Australasia, there were a number of articles worth looking at yet there are 2 more relevant to those “on the floor” worth summarising . For a copy of the articles go to CIAP-then “Journals”.

ESTIMATING WEIGHT OF CHILDREN

When we don't have time (such as during a resuscitation) or the when this is difficult (eg # femur) and the parents are unaware of their child's weight we can estimate these weights.

Note that this is an approximate especially considering the wide range of “body types” we see in our community and you may need to revise these weights up or down 10kg or so.

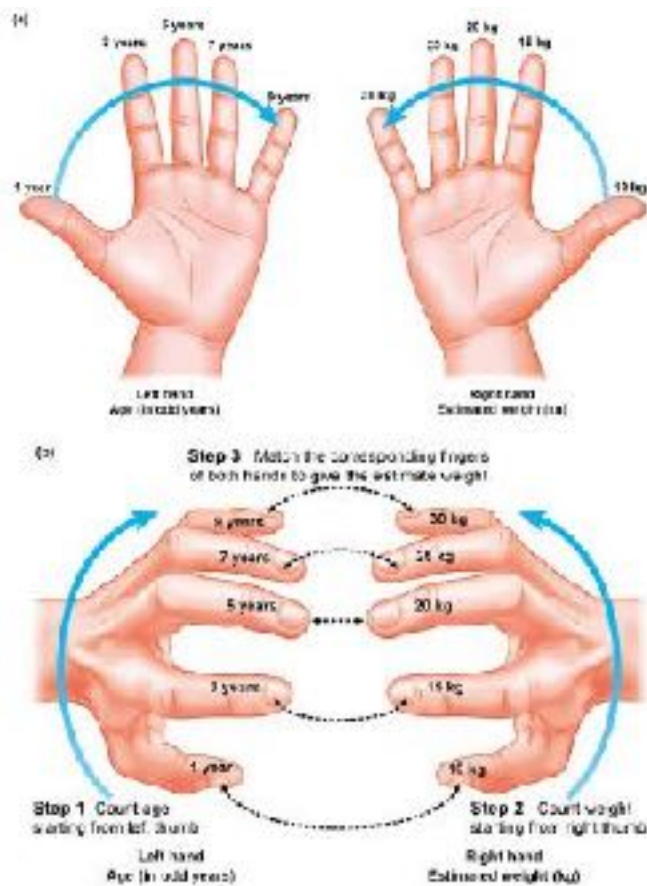
You can use the Broselow chart or use one of the age based weight estimating formulae such as the APLS , Best Guess or one that I hadn't heard of the “Finger Counting Method”.

TABLE 1.1. Age-based weight estimation formulas

Weight estimation formula	Estimated weight (kg)
Original APLS formula ¹	$(\text{age (years)} - 1) \times 2$ for 1–12 years
Updated APLS formula ¹⁰	$0.5 \times \text{age (months)} + 4$ for 1–12 months $2 \times \text{age (years)} - 5$ for 1–5 years $2 \times \text{age (years)} - 7$ for 6–12 years
Lawrence formula ²	$1 \times \text{age (years)} - 1$ for 1–16 years
Best Guess formula ³	$(\text{age (months)} + 7) / 2$ for 1–12 months $2 \times (\text{age (years)} - 5)$ for 1–4 years $4 \times \text{age (years)}$ for 5–14 years
Finger counting method ¹¹	$2.5 \times \text{age (years)} + 7.5$ for age 1–9 years†

† Although the use of the finger counting method does not rely on practitioner recollection of a mathematical formula, it effectively gives a weight estimation formula as stated above. APLS, Advanced Paediatric Life Support.

The Finger Counting Method is shown below – years in odd numbers on one hand (1,3,5,7,9)- ages in years on the other hand with corresponding digits indicating weights –starting at 10kg and increasing by 5 years for each digit.



The study looked at 4178 children aged 1-9 who presented to a tertiary ED in Hong Kong and compared their actual weight to that estimated by each formula.

They found that the Finger Counting method gave the closest estimate of the true weight.

TABLE 3. Proportions of weight estimates within 10%, 15% and 20% (factorial weight) of the finger counting method and age-based weight estimation formulae

Weight estimation formulae	Proportion of weight estimates					
	≤10%	P value ^a	≤15%	P value ^a	≤20%	P value ^a
Finger counting method	48.6%	-	66.7%	-	79.7%	-
Original APLS formula	47.4%	0.283	65.2%	0.310	79.9%	0.828
Updated APLS formula	44.0%	<0.001	61.2%	<0.001	76.0%	<0.001
Luscombe formula	40.5%	<0.001	56.4%	<0.001	70.6%	<0.001
Best Guess formula	29.4%	<0.001	55.4%	<0.001	69.4%	<0.001

^aχ² test was performed to compare the percentage difference between the finger counting method and age-based weight estimation formulae (the original APLS, updated APLS, Luscombe and Best Guess formulae).

Note that:

- they did not check heights so could not compare the Broselow
- At best ~ 80% were within 20% of the actual weight so they are guesstimates only
- The original APLS underestimated their weights, the Luscombe overestimated weights, the updated APLS underestimated weights in the 1-5 yo and overestimated older kids. The finger counting method was “just right”- it was consistent across all ages.

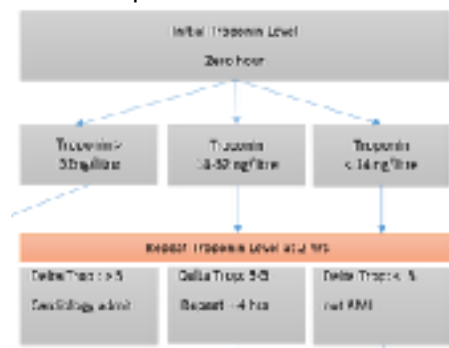
Interesting in a recent study based in Auckland (with a relatively large Polynesian and Maori kids) they found that when using the updated APLS formula, using 'Weight=2(age+4)' underestimated children's weights by a mean of 33.4% (95% CI 33.2% to 33.6%) over the age range 1-16 years whereas the formula 'Weight=3(age)+7' provided a mean underestimate of 6.9% (95% CI 6.8% to 7.1%). They suggested that 'Weight=3(age)+7' remains applicable from 1 to 13 years inclusive (for their patient group).

Take Home Point – try using the technique and compare the estimate to the true weight whenever you are seeing your next paediatric patient!

Ref - So J et al, Finger Counting method is more accurate than age based weight estimation formulae in estimating the weight of Hong Kong Children presenting to the ED *Emergency medicine Australasia* 2016; 28: 691-697

VINDALOO and TROPONINS- VHOT STUDY

It's good to see every so often an article that comes out of “left field” (takes the....). This one looked at the practice of how we repeat troponins and look for a change or delta value, those relative or absolute increases in order to determine rise of ACS- see the below algorithm from another hospital as an example.



Alan Tankel and others have looked at troponins and how this variation is “normal” and can be affected by many inconsequential things including a hot curry.

Method: - Two test phases took place. The first session involved a mild butter chicken , which served as their baseline, whereas the second session 2 weeks later involved a “ seriously hot” lamb vindaloo. They specified that they also included rice, naan bread and mango lassi as they were “standard accompaniments to any quality curry”.

They use a high sensitivity trop I assay – normal range 1.2-26ng/L

They assessed pre-curry tolerance “using a previously non-validated 10 point scale (the VHOT scale)” which ranged from 0 (‘Looking at chilli makes me break out into palpitations’) to 10 (‘I can eat a plate of raw chilli and it has no effect on me’).

Evaluation of curry hotness ranged from 0 (‘This curry had chilli in it?’) to 10 (‘It was so hot that all my mucosal surfaces were still burning a week later’).

They used VHOT scale as “the Scoville scale .. requires a panel of trained testers..” and ASTA pungency units.. “require the availability of high-performance liquid chromatography, which we felt would be just a bit over the top and was not available to us anyway”.

Results

No participants had hsTnI above the 99th percentile before or after either curry.

In the butter chicken phase,

- 5/22 (**23%**, 95% CI 10–44%) had a relative change **>20%** and
- 5/22 (**23%**, 95% CI 10–44%) had a relative change **>50%** at 4 h.

In the vindaloo phase,

- 8/22 (**36%**, 95% CI 20–57%) had a relative change **>20%**,
- 5/22 (**23%**, 95% CI 10–44%) had a relative change **>50%** at 4 h.

When comparing troponins pre-curry over the 2 week period :

- 15/22 (**68%**, 95% CI 47–84%) had a relative change of **>20%**, and
- 11/22 (**50%**, 95% CI 31–69%) had a relative change of **>50%**

Limitations

They recognise that they “ did not formally measure the amount of mango lassi, rice or naan bread ingested by each participant, and it is possible that this may have reduced the amount of any elevation in troponin due to the vindaloo.”

Discussion / Conclusions

- “Curry eaters may enjoy a seriously hot vindaloo safely, with the knowledge that their myocardium will remain intact”.
- Many activities of normal life can cause such relative changes in troponin levels and as such it is difficult to justify using relative change of >20% or >50% (when these lie within normal limits).
- ? role of absolute changes in troponin levels .

NEXT WEEK'S CASE

A 32yo lady with known L5S1 disc disease presents ~ 3 weeks post nerve root injection with urinary incontinence , L5S1 + perianal hypoaesthesia. On examination- T 38C - normal power – L5S1 and perianal hypoaesthesia- hyporeflexic AJ

UA – nitrites – bladder scan post void 130ml . What is going on ?

JOKE / QUOTE OF THE WEEK

A local initiative which may reduce ‘dodgy’ ED presentations or is this a missed fund raising opportunity?



Please forward any funny and litigious quotes you may hear on the floor (happy to publish names if you want)

THE WEEK AHEAD

Tuesdays - 14:30 – 15:30 Intern & JMO teaching -Thomas & Rachel Moore

Wednesday- 0800-0900 Critical Care Journal Club. ICU Conf Room / 14:30 – 15:30 Intern & JMO teaching -Thomas & Rachel Moore

Thursday 0730-0800 Trauma Audit. Education Centre / 0800-0830 MET Review Education centre / 1300-1400 Medical Grand Rounds. Auditorium.