

VISUAL WEIGHT ASSESSMENT WITHIN CRITICAL CARE

How accurately do critical care nurses visually estimate adult patients' weight and what factors influence their decision?



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BACKGROUND

- Best practice for calculating the weight of adult patients is to weigh the patient using suitably appropriate and calibrated weighing scales (*Lippincott Williams & Wilkins Staff, 2007, World Health Organisation (WHO), 2007*).
- Second best practice is to ask the patient for their knowledge of their body weight (*Bes-Rastrollo et al, 2011*).
- Basing dosages from a standard of a 70 kg man and a 60 kg woman is yet another option. (*Pilsczek, 2000*)
- The remaining option for health care staff is to “guesstimate” the patient’s weight (*Hall et al, 2004*)

BACKGROUND

- Safety in LMWH (NPSA, 2010)
- 3 deaths, 23 episodes of severe harm in patients whom were not weighed, had inaccurate weights recorded and whose weight was not monitored over a period of time. (NRLS, 2010)
- Pennsylvania Patient Safety Authority (2009) reported 480 events that pinpointed medication errors from the process of obtaining, recording and reporting patient weights.

BACKGROUND

- Drugs with a narrow therapeutic range.
- Commonly used in the ED: aminophylline, digoxin, sodium valproate, carbamazepine and warfarin, amiodarone, low molecular weight heparin, phenytoin (Menon & Kelly, 2005).
- Most worrying to the prescriber is thrombolysis where dosing errors can result in severe harm or death

BACKGROUND

Healthcare professionals (HCP's) as a whole are generally unable to accurately assess the weight of adult patients through visual estimation. (Anglemyer et al 2004, Bloomfield et al 2006, Coe et al 1999, Corbo et al 2005, Goetelle et al 2009, Hall et al 2004, Khan et al 2007, Lin et al 2009, Maskin et al 2010, Menon & Kelly 2005,)

QUESTION

How accurately do critical care nurses visually estimate adult patients' weight and what factors influence their decision?

AIMS

- To evaluate the accuracy and degree of variation in visual estimates of a patient's body weight by critical care nurses.
- To gain some understanding into the factors that influences the decision made.

OBJECTIVES

- Undertake a weight estimation simulation with critical care nurses.
- To demonstrate the degree of variance in weight estimated in an appropriate format.
- Through closed questioning via a questionnaire, gain an understanding of the factors that are influential in leading to a decision on weight estimated.
- Disseminate all findings to colleagues.

METHODS

- Self complete on-line survey
- Weight estimation exercise – 6 x “patient” photo’s
- Demographic data
- Influences behind decision
- Distributed via BACCN and to post –graduate critical care students at OBU (with thanks).

RESULTS

- 124 participants accessed questionnaire
- 6 failed to complete – completion rate 95%

Patient	Range	Accurate - exact	Accurate +/- 10%	Inaccurate	Inaccurate under	Inaccurate over	Total estimations
A	58 kg	2 (1.7%)	9 (7.6%)	109 (92%)	107 (92%)	2 (2%)	118
B	33 kg	2 (1.7%)	90 (76%)	28 (24%)	8 (29%)	20 (71%)	118
C	57 kg	2 (1.7%)	13 (9.2%)	105 (89%)	102 (97%)	3 (3%)	118
D	80 kg	2 (1.7%)	12 (10%)	106 (90%)	104 (98%)	2 (2%)	118
E	45 kg	7 (6%)	32 (27%)	85 (73%)	84 (98%)	1 (1%)	117
F	30 kg	1 (0.8%)	94 (80%)	24 (20%)	18 (75%)	6 (25%)	118
Total	Mean	16	250	457	423	34	707
	50.5kg	(2%)	(35%)	(65%)	(93%)	(7%)	

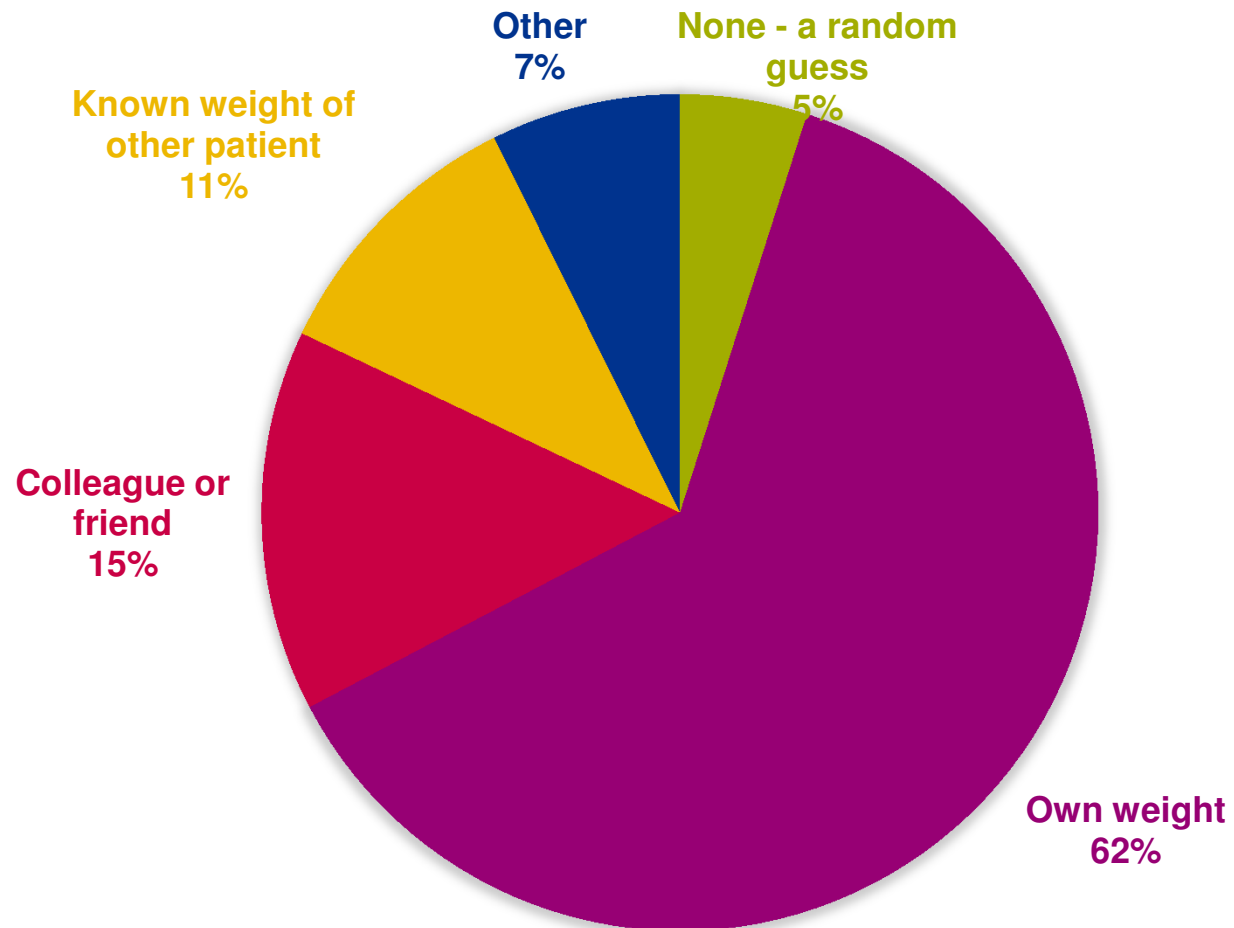
OTHER FINDINGS:

Frequency - 39% of participants reporting that they undertake the task at least weekly.

Reason – 34% report patient too unwell, 31% reported time limitations, 11% - lack of working equipment

Documentation and review – 71% recorded as an estimated weight, 68% confident a more accurate weight recorded when suitably safe and appropriate

DECISION BASED UPON:



DISCUSSION

- We are not very good at it.
- Reflected across the literature.
- Is it significant?



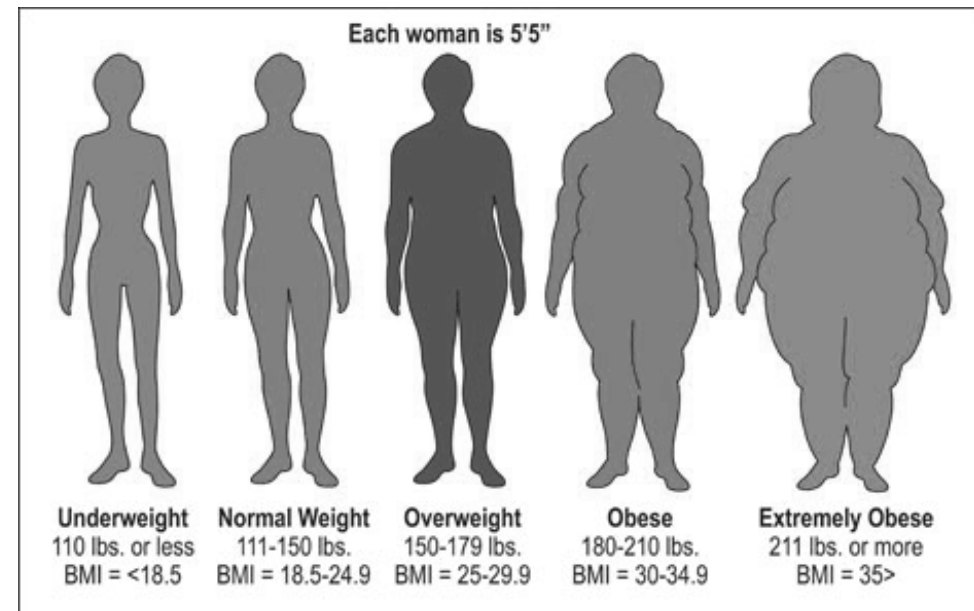
UNDER OR OVER

- Under



INFLUENCES

- We tend to estimate based on comparison with a known weight, most commonly ourselves.
- Potential for tool for future?



DOCUMENTATION

- We are not very good at “guesstimation”
- It is common practice
- On-going risk reduction – document and review

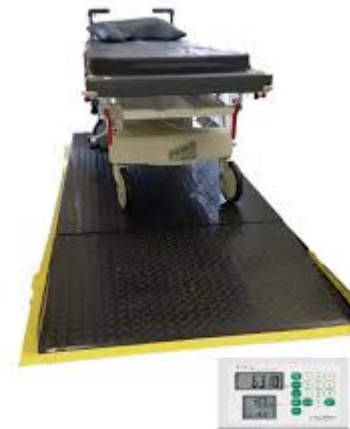


LIMITATIONS

- Small study
- Range of “patients”.
- One dimensional photo’s – “camera adds 10lb”
- Convenience sample
- Simulated exercise; is it reflective of the “heat of the moment, snapshot” decision?

RECOMMENDATIONS

- Equipment availability, maintenance and training.
- Documentation and policy
- Exploration of alternatives
- Accurate comparison tools
- Further work



WEIGHT ESTIMATION – THE SEQUEL

- Sharing
- Publication
- Further work planned considering comparison tools

ANY QUESTIONS?

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