We may conclude that by utilizing POCUS we were able to visualize gastric contents in pediatric patients. In 73% (38/52) of cases the findings were compatible with the history of the last ingestion. On the other hand, relying on parents/self-reported history may not reliably reflect the presence or absence of gastric contents. Prolonged gastric emptying times may cause ingested contents to remain in the stomach longer than traditionally anticipated. Patient recall may also be unreliable and affect the findings. Alternatively, patients with rapid gastric emptying times may have no gastric contents despite recent ingestion. Gastric ultrasonography offers a means to assess the presence of gastric contents in pediatric patients, and this may correlate with aspiration risk. Furthermore, this method may assist anesthesiologists on predicting perceived level of aspiration risk leading to an optimal anesthetic management in elective patients who may or may not necessarily followed fasting instructions.

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Conflicts of interest

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Step right up! Healthcare provider weight estimation vs. a professional weight guesser

1. Weight estimation study

Bedside estimation of patient weight is commonly utilized in the emergency department where the patient is either too ill, obtunded, or comatose to communicate. However, there is a lack of evidence on the accuracy of visual weight estimation of the adult patient in the ED. Medications dosed based on the patient's weight introduce error. When inaccurate medication errors occur, dosing could be sub therapeutic [1].

Medications that utilize weight-based dosing include thrombolytics, steroids, and sedatives. Many have narrow therapeutic windows. An underestimation of weight may result in a lower dosage causing subtherapeutic concentrations. Overestimation can be life threatening, especially thrombolytics and anticoagulants [1].

One prospective clinical study using medical and nursing staff to perform visual estimates of patient's weight compared to actual weight. The study showed that staff estimation of weight was poor, with 47% of estimates at least 10% different from the measured weights [2].

The goal of the current study was to examine the accuracy of adult weight estimation by emergency medical professionals.

This study was conducted at a 310 bed community teaching hospital and approved by the IRB on 05/18/2017. We enrolled 15 healthcare professionals (5 attending physicians, 5 resident physicians, and 5 nurses) for estimating the weight of a sample 8 assessed subjects (120 estimates). A professional weight guesser (Carney) was included for comparison, to medical professionals' estimations.

The assessed population included adults of varied weights, both genders. Weight was recorded by single digit scale calibrated prior to the start of the study.

Weights were estimated while subjects were seated or laying on tables the same size and height of gurneys.

Subjects were in normal clothes instead of hospital gowns to emulate ill patients in an emergency department

Each estimator was blinded to other estimations.

Weights were compared with Student's *t*-test.

We used a weight of over 175 lbs for males and over 145 lbs for females as the threshold for being considered overweight. These two cutoffs were derived using the average United States male height of 5′10″ and a female height of 5′4″ and extrapolated for a BMI >25 being considered obese.

Fourteen health professionals guessed the weight of a 8 non-medical volunteers and the other 14 professionals.

The mean age was 42 years, and 61% were female. The medical measured weight was 175.1 lb. (sd:34.2).

The carney was an average 2.2 lbs under the subject's actual weight (mean 173.0 vs 175.1lbs; $p = 0.482$).

Healthcare professionals were off by 15 lbs overall (160 vs 175; $p < 0.01$) and significantly worse compared to the carney ($p < 0.001$).

Table 1
Healthcare professional comparison of mean weight by practice type.

Practice	Actual weight[a]	Weight guessed[a]	Years practice[b]	N	Range[a]	Sig.[c]
Attending	166	155	14.3	4	−45 to 0	0.033
Resident	191	173	2.6	5	−66 to 1	0.007
Nurse	160	152	8.6	5	−70 to 0	0.224

Comparison between the 3 groups did not reveal a significant difference in average weight guessed ($p = 0.37$).
Nurses found to be most accurate with average 8.83 lbs under actual weight estimation. Attendings found to be most precise with narrowest range of 45 lbs under to 0.
[a] Weight in mean lbs.
[b] Years practice averaged per provider.
[c] Paired samples test.

We further analyzed by practice type. Comparison between the 3 subgroups no difference in average weight guessed compared to actual weight ($p = 0.37$, Table 1).

Attending physicians were found to be the most precise yet farthest off by 45 lbs and nurses were found to be the most accurate (8.83 lbs average guess under bodyweight).

When assessed subjects were analyzed by body type (normal vs overweight) healthcare professionals guessed on average 7.6 lbs under actual weight ($p = 0.06$) and 19.0 lbs under actual weight ($p < 0.001$) respectively. They were most accurate at estimating the normal bodyweight females with a mean error of −1.7 lbs ($p = 0.63$, Table 2).

Healthcare professionals with <10 years of experience guessed on average 14 lbs under actual weight ($p = 0.005$) and those with >10 years guessed 8.3 lbs under actual weight ($p = 0.28$).

While we were closer to estimating for normal subjects, this poses a concern for our overweight patients. Estimates that deviate >10% from actual weight could make treatment itself life threatening [3]. One such example is with administration of alteplase. While there is a larger fear of overdosing, one study shower under dosing alteplase is associated with unsuccessful mechanical thrombectomy [4].

We found no significant difference between attending physicians, residents, and nurses or their years of experience.

However, groups with greater experience demonstrate greater accuracy and precision (Table 2).

Of note, we were nowhere near as effective at guessing weight as the trained professional. The carney had 2 seasons of training, working 8 h a day, for 2 months per season. While we could likely become more effective at guessing weight with experience, this much training would not be plausible for providers. These findings support use of emergency gurneys with built in scales. While an added expense, they may lower the risk of mis-dosing drug administration, especially in overweight patients.

A study limitation is with the calculation of BMI by applying an average US height to males and females. This inferred BMI may bias our subgroup analysis.

Our study findings do suggest that healthcare professionals are quite inaccurate at visually estimating weight thus supporting the use of more objective weight measurement in the emergency department.

Table 2
Error (accuracy) by all healthcare professionals based on weight and gender subgroups.

Body habitus	Mean error[a]	CI[a]	Sig.[b]
Overweight			
Male	−20.8	3.5–12.5	0.001
Female	−16.4	3.8–28.5	0.022
Normal weight			
Male	−15.1	8.5–21.6	0.005
Female	1.7	−12.1-8.6	0.636

[a] Weight in lbs.
[b] 2 tailed paired samples test.

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QSOFA score in identifying the septic patients according to Sepsis 1.0 or Sepsis 2.0, putting new wine into old bottles?

To the editor:

We read the interesting article by Barbara et al. [1], who conducted a retrospective chart review study and found that emergency medical services (EMS) patients with positive quick sequential organ failure assessment (qSOFA) were more likely to be septic upon admission to the emergency department (ED). Though this study sounds scientific, we still have some questions and different views after reading the article [1].

First of all, Barbara et al. [1] aimed to study whether EMS patients who qualified for all the qSOFA criteria correlated with an ED identification of sepsis, in fact, the qSOFA score is composed of 3 basic elements — respiratory rate (RR) ≧22 beats/min, altered mentation and systolic blood pressure (SBP) ≦100 mm Hg according to the Sepsis 3.0 [2], however, in the second paragraph of 'Methods' section in the commented paper [1], RR > 22 beats/min and SBP < 90 mm Hg was regarded as two components of qSOFA score, how to explain this discordance? Furthermore, Barbara et al. [1] required all the 3 basic elements of qSOFA score to be satisfied to define a positive qSOFA score, while the original Sepsis 3.0 study [2] claimed that any 2 of the 3 elements of qSOFA score were met could be defined as positive qSOFA score, thus how to interpret the difference?