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 $\leq$10 years of experience guessed on average 14 lbs under actual weight ($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

<table>
<thead>
<tr>
<th>Body habitus</th>
<th>Mean error</th>
<th>CI</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overweight</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$-20.8$</td>
<td>$3.5–12.5$</td>
<td>0.001</td>
</tr>
<tr>
<td>Female</td>
<td>$-16.4$</td>
<td>$3.8–28.5$</td>
<td>0.022</td>
</tr>
<tr>
<td><strong>Normal weight</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$-15.1$</td>
<td>$8.5–21.6$</td>
<td>0.005</td>
</tr>
<tr>
<td>Female</td>
<td>$1.7$</td>
<td>$-12.1–8.6$</td>
<td>0.636</td>
</tr>
</tbody>
</table>

* Weight in lbs.  
*b* 2 tailed paired samples test.
Secondly, in Table 2 of the commented paper [1], lactate concentration was classified as one criteria of Systemic Inflammatory Response Syndrome (SIRS), as a matter of fact, though blood lactate is vital in the diagnosing and treating of sepsis, blood lactate is not a part of SIRS [3] all the time, incorporating blood lactate as one criteria of SIRS will make it easier to achieve ≥2 SIRS criteria and thus generate more patients with ‘sepsis’. Furthermore, the percent of immature neutrophils (“bands”) is one criteria of SIRS but omitted by Table 2.

Thirdly, there had not been a golden standard for sepsis existed though the international definition for sepsis had gone through 3 versions (Sepsis 1.0 [3], Sepsis 2.0 [4] and Sepsis 3.0 [2]) from 1991 to 2016, the newest version (Sepsis 3.0) developed and recommended qSOFA score to prompt more rapid identification of sepsis, nevertheless, the commented paper [1] chose the SIRS criteria as its diagnostic criteria and investigated the ability of positive qSOFA in recognizing the ‘septic’ patients, in other words, the authors want to compare different diagnostic criteria for the same patients without golden standard existing as a reference, which just like putting new wine into old bottles, so what is the significance and value of doing like this? Our understanding of sepsis has gone further since 25 years has passed by, sepsis is now defined as life-threatening organ dysfunction caused by a dysregulated host response to infection which is associated with an in-hospital mortality ≥10% as per Sepsis 3.0 [2], while, in the article by Barbara et al. [1], ‘sepsis’ was associated with only 6.3% ED mortality per Sepsis 1.0 [3] or Sepsis 2.0 [4], thus the new criteria had an obvious superiority than the old criteria in picking out the patients who will have the highest morality, differentiating sepsis from uncomplicated infection and being in accord with the meaning of “life-threatening” [5].

Fourth, the 3 basic elements (RR, SBP and level of consciousness) of qSOFA score all can change with time, thus the time window of qSOFA score calculation is important, the original study [6] which developed qSOFA score chose the time window of ‘48 hours before to 24 hours after the onset of infection’, however, the commented study [1] had no limits in the time window of qSOFA score calculation, thus we are afraid that qSOFA score might have a biased discerning power of ‘sepsis’.

At last, we appreciate Barbara et al. for their innovative and meaningful study, but the interpretation of their work should be cautious and further rigorous studies are warranted.

**Abbreviations**

<table>
<thead>
<tr>
<th>EMS</th>
<th>emergency medical services</th>
</tr>
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<tbody>
<tr>
<td>qSOFA</td>
<td>quick sequential organ failure assessment</td>
</tr>
<tr>
<td>ED</td>
<td>emergency department</td>
</tr>
<tr>
<td>RR</td>
<td>respiratory rate</td>
</tr>
<tr>
<td>SBP</td>
<td>systolic blood pressure</td>
</tr>
<tr>
<td>SIRS</td>
<td>systemic inflammatory response syndrome</td>
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**Declarations**

**Ethical approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

**Availability of supporting data**

Not applicable.

**Competing interests**

The authors declare that they have no competing interests.

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**References**


**Emergency department utilization by newly pregnant adolescents: A community-based study**

Teen pregnancy and birth rates in the United States remain among the highest of industrialized nations, with approximately 25% of girls becoming pregnant before age 20 [1]. Early diagnosis of pregnancy in this age group is of utmost importance. Adolescents are at an increased risk for many complications during pregnancy such as high blood pressure, anemia, having low birthweight babies and premature birth, and adolescents also tend to have lower rates of prenatal care [2, 3]. Delayed or absence of prenatal care for pregnant adolescents has been shown to correlate with higher rates of preterm birth, increased infant mortality rates, and other adverse pregnancy outcomes [4, 5]. Early detection and diagnosis of pregnancy in adolescents helps to decrease perinatal risks, and teenage women presenting to the emergency department (ED) with a variety of specific or nonspecific complaints should be routinely screened for pregnancy. Some teens may present with classic pregnancy symptoms of amenorrhea, nausea, vomiting, breast tenderness and/or weight gain, while others may present with vague symptoms suggestive of other ailments such as dizziness, abdominal pain, or simply feeling unwell [5]. Given the need to better understand and diagnose teen pregnancy in the ED, the primary objective of this