UNIVERSITY OF UTAH
HEALTH CARE

Dear Sir or Madam,

Thank you for providing a thoughtful review of our manuscript. Please find the enclosed revised manuscript in Word format (file name: 4105-review.doc).

Title: Computerized Decision Support in Adult and Pediatric Critical Care.

Author: Cydni N. Williams, Susan L. Bratton, Eliotte L. Hirshberg

Name of Journal: World Journal of Critical Care Medicine

ESPS Manuscript number: 4105

The manuscript has been improved according to the suggestions of reviewers:

1. Format has been updated
    a. First author of references bolded
    b. Core tip added following keywords section

2. Revision has been made according to reviewer suggestion:
    a. Reviewer 1: Suggested addition of ICU cases to show usefulness of CDS
        i. Many of these are included in tables 1 and 2. More text was added to the section entitled "Current Applications of CDS in Adult and Pediatric Critical Care" to further clarify this point:
            1. In the prospective cohort study by Bertsche et al[19], implementation of a CDS program showed significant decreases in drug-drug interactions and in adverse events related to drug-drug interactions, including prolonged QT interval and hypokalemia.
            2. Tefaleski et al[21] demonstrated significantly increased adherence to standard care protocols for sepsis following implementation of CDS, and additionally reported a significant association between mortality and adherence to those care protocols.
            3. Mungall et al[45] found significant improvement in achieving desired anticoagulation goals when using a CDS tool for heparin dosing following tissue plasminogen activator treatment in myocardial infarction compared to the standard nomogram.
            4. Kadmon et al[18] found alert CDS tools integrated with CPOE significantly decreased dosing order errors and potential adverse events in a pediatric ICU. Similarly, use

of these tools reduced parenteral nutrition order errors in the neonatal ICU.[61]

5. Adams et al[63] found a significant reduction in pediatric blood transfusions, consistent with best practice guidelines, when CDS was added to CPOE.

b. Reviewer 2: Suggested addition of a case where CDS was not helpful, such as in polytrauma patients; we were unaware and could not find a reference citing failure of CDS in polytrauma patients, but did highlight another example.
    i. Text was added to the section entitled "Barriers to widespread acceptance of CDS in the ICU" with the following paragraph:
        1. Additionally, some failures with CDS tools have been noted in the literature. Han et al[27] reported an unexpected increase in mortality associated with implementation of a CPOE program with integrated CDS due to delays in medication ordering, dispensing, and administration to critically ill patients. These delays were linked to unanticipated delays in workflow with early implementation. The published failures highlight the importance of proper design, implementation, and deployment of CDS tools. Mitigation of changes to clinician workflow and widespread user acceptance are important to production of a successful CDS tool.

c. Reviewer 3: Suggested mention of inter-hospital communication with CDS to improve use of ICU guidelines at smaller hospitals
    i. Text was added to the section "Potential for CDS in critical care" with the following:
        1. Additionally, the adoption of CDS linked into EHR systems could identify patients presenting to small facilities with time-sensitive diagnoses and disseminate ICU protocols to providers lacking in-house critical care specialists.

d. Reviewer 3: Suggested addition of example showing improvement in care in ICU with CDS.
    i. This comment was addressed in 2a above.

3. References were corrected:
    a. Reference 7: all authors listed

We hope you will find the enclosed manuscript acceptable for publication in your journal. Thank you for your consideration.

Sincerely,

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