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Dear colleagues

Clinical Excellence Commission statement regarding the new international sepsis definitions (Sepsis-3)

In February 2016, the Third International Consensus Definitions on Sepsis and Septic Shock (Sepsis-3) were published in the Journal of the American Medical Association[1-3].

In response to these new definitions the Clinical Excellence Commission (CEC) has undertaken broad consultation with clinical experts within and external to NSW and provides the following advice: a summary of the key concepts of SEPSIS-3; clarification on the implications of the new sepsis definition statements for the SEPSIS KILLS program; and recommendations for NSW public healthcare facilities caring for patients with sepsis.

The purpose of this statement is to communicate the Clinical Excellence Commission's recommended approach to the recognition and management of adults with sepsis in light of the recent changes to the international definition of sepsis.

Key concepts of Sepsis-3

- Sepsis is defined as 'life-threatening organ dysfunction caused by a dysregulated host response to infection'.
- Septic shock is defined as 'a subset of sepsis where underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality' requiring vasopressors to maintain a mean arterial pressure of 65mmHG or greater AND serum lactate greater than 2mmol/L despite adequate fluid resuscitation.
- The term 'severe sepsis' is redundant and is now defined as the 'sepsis' cohort.
- Organ dysfunction due to infection is identified by an increase in the Sequential [sepsis related] Organ Failure Assessment (SOFA) score of 2 points or more.
- Quick SOFA (qSOFA) has been proposed as a tool to identify patients in hospital wards or the ED with infection who are at increased risk of in hospital death or treatment in an intensive care unit for 3 or more days.
- A qSOFA score includes respiratory rate of 22/minute or greater, altered mentation, or systolic blood pressure of 100mmHg or less.
- Measurement of serum lactate is not included in qSOFA but this should not limit monitoring of lactate as an indicator of illness severity or guide to therapeutic response.
- The task force emphasise that neither qSOFA nor SOFA is intended to be a stand-alone definition of sepsis and failure to meet 2 or more qSOFA or SOFA criteria should not lead to deferral of investigation or treatment of infection or to a delay in any other aspect of care deemed necessary by the treating practitioners.
- The task force stress that SIRS criteria still remain useful for the identification of infection.

Locked Bag 8 HAYMARKET NSW 1240
p. +61 2 9269 5500 f. +61 2 9269 5599
cec-info@health.nsw.gov.au | www.cec.health.nsw.gov.au

- qSOFA was derived through interrogation of large clinical datasets of patients with suspected infection in the USA and one hospital in Germany and the taskforce strongly encourages prospective validation in multiple healthcare settings to confirm the robustness of qSOFA and SOFA and potential for incorporation into future iterations of the definitions.

Implications for the SEPSIS KILLS program

- The Sepsis-3 definitions are not without controversy internationally; however they do not change the primary focus of early sepsis identification and initiation of timely treatment for adult patients.
- The new definitions have no impact on the paediatric or newborn infant sepsis pathways.
- The SEPSIS KILLS adult and maternal sepsis pathway criteria are based on identification of risk factors, signs and symptoms of sepsis plus abnormal vital signs in the *Between the Flags* Red and Yellow Zones.
- Use of qSOFA alone will limit the identification of early sepsis to those with a high risk of death.
- The elements of qSOFA are present in the Yellow and Red Zones within the current iteration of the adult and maternal sepsis pathway (respiratory rate, cognitive changes and systolic blood pressure).
- Serum lactate measurement will remain as a key indicator in the sepsis pathways.

Recommendations

- The CEC continues to endorse the current adult and maternal sepsis pathways as the recommended method of identifying deteriorating patients with sepsis.
- The CEC will continue to promote the synergies between the SEPSIS KILLS program and *Between the Flags* which provides a statewide safety-net for recognising and responding to deteriorating patients in NSW public health facilities.
- The CEC will undertake prospective validation of qSOFA using existing NSW sepsis databases to inform future iterations of the adult and maternal sepsis pathways.
- The CEC will monitor ongoing international responses to the Sepsis-3 definitions and the resulting implications for best practice management of sepsis.

Should you have any enquiries, please contact Mary Fullick, Sepsis Program Lead on 9269 5542 or email Mary.fullick@ health.nsw.gov.au

Yours sincerely

Dr Harvey Lander
Director Systems Improvement

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3. Shankar-Hari M, Phillips GS, Levy ML. Developing a new definition and assessing new clinical criteria for septic shock: For the third international consensus definitions for sepsis and septic shock (sepsis-3). JAMA 2016;315(8):775-787.