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Ventilator-associated events in children: A review of literature

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Abstract

Background: The complexity and variation in ventilator associated pneumonia (VAP) definitions in paediatrics may pose threats to the reliable identification of VAP. The revision of the surveillance definition to ventilator-associated event (VAE) has been mandated in adult populations, to overcome these issues. However, the evidence for application of the definition is unknown in children.

Objectives: To review the evidence on the application of the new VAE surveillance definition in paediatric population and examine the potential challenges in clinical practice.

Review methods: A systematic approach was used to locate and synthesise the relevant paediatric literature. Studies were appraised according to epidemiological appraisal instrument (EAI) and the grades of evidence in the National Health Medical Research Council (NHMRC) guidelines.

Results: Seven studies met the inclusion criteria. Quality of study methods was above 50% on the EAI. The overall grade of evidence was assessed as C (satisfactory). The incidence of VAE in children ranged from 1.1 to 20.9 per 1000 ventilator days as a result of variations in surveillance criteria across included studies. There is little agreement between the new VAE and PNU/VAP surveillance definition in the identification of VAP. Challenges in the application of VAE surveillance were related to; the difference in modes of ventilation used in children versus adults, inconclusive criteria tailored to paediatric samples and a lack of data that support for automatic data extraction applied in paediatric studies.

Conclusion: This review demonstrated promising evidence using the new VAE surveillance definition to define the VAE in children, but the level of the evidence is low. Before the possibility of real implementation in clinical settings, challenges related to VAE paediatric specific criteria and the value of automated data collection need to be considered. (c) 2018 Australian College of Critical Care Nurses Ltd. Published by Elsevier Ltd. All rights reserved.

Keywords

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