VALIDITY OF ICD CODING METHODOLOGIES IN ESTIMATING SEPSIS EPIDEMIOLOGY: A SCOPING REVIEW

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Introduction: The data on the validity of various sepsis International Classification of Disease (ICD) coding methods are limited with disagreement on the recommended method.

Objective: To provide an overview of available ICD coding methods for sepsis case identification and their diagnostic accuracy.

Methods: A systematic scoping review was undertaken in MEDLINE, EMBASE, Scopus, and the Cochrane Database of Systematic Reviews between 1991 and 2020. The search strategy included concepts of ‘sepsis’, ‘coding’ and ‘epidemiology’. All studies reporting the validity of a sepsis ICD coding method compared to a reference standard were included. Two research team members extracted data on explicit (only sepsis-specific ICD codes) and implicit (infection and organ dysfunction ICD codes; including Angus and Martin Criteria) methods. Methodological quality was assessed with The Joanna Briggs Institute critical appraisal tool.

Results: Of 1235 identified studies, 24 were included in our review. Hospital administrative data was used in 50% of studies for sepsis identification and 79% used medical chart review as the reference standard. The most common diagnostic accuracy parameters reported were sensitivity and Positive Predictive Value (PPV), each in 17 (70.8%) studies. Amongst explicit methods, narrow (up to three sepsis codes) criteria showed lower median sensitivity (36.3% vs. 44.0%) but higher median PPV (82.6% vs 59.6%) than wide (seven to 85 sepsis codes) criteria respectively. For implicit methods, Angus criteria had lower median sensitivity (50.3% vs. 74.7%) and PPV (40.0% vs. 75.9%) compared to Martin criteria respectively. All methods showed >90% median specificity as well as Negative Predictive Value (NPV) except Martin which showed a median NPV of <80%. Most studies had low risk of bias and applicability concern across domains.

Conclusions: Between various sepsis ICD coding methods, Martin criteria showed best predictive ability. However considerable heterogeneity in the various studies makes the interpretation difficult.

BEHAVIOUR OF CONCERN MANAGEMENT IN ADULT INTENSIVE CARE

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Introduction: Behaviours of concern (BOC) are actions that cause harm to patients or staff. Research focuses on BOC in emergency departments. Intensive care is a unique setting regarding staffing, acuity and interventions therefore BOC events may differ in an ICU.

Objectives: To describe the management of BOC in an adult ICU, identify variation in management between patient cohorts and establish compliance with unit policy.

Methods: A one-month, prospective, audit of an ICU was conducted to identify BOC. If an episode was identified, a questionnaire was completed. Additional data were taken from eMR. Data were described by management using chi-square and T tests.

Results: One-hundred forty-six BOC events were recorded during the study period. BOC were more common among male patients (74%) than female patients (26%). Most BOC patients were English speaking (99%) and 46% were ventilated. Management strategies were categorised as verbal reassurance, person-to-person restraint, mechanical restraint and chemical restraint, with the majority of patients managed by a combination of strategies (90%). Verbal reassurance (50%) and chemical restraint (48%) were the most commonly implemented strategies. Verbal reassurance was provided to 93% of events involving females and 77% of events involving males. Males were more likely to be managed with chemical or physical restraint than females. Patients with recorded substance abuse were more likely to receive verbal reassurance or chemical restraint than physical restraint. The Confusion Assessment Method for the ICU completion rates averaged 74%. Alcohol withdrawal screening (AWS) was under-utilised, 16% of patients with a history of alcohol abuse had AWS recorded.

Conclusions: Male patients are more likely to be involved in a BOC event. BOC were commonly managed with a combination of strategies. Gender influenced the management strategy. Screening was under-utilised which may have contributed to initial and recurring BOC events.

PRONE POSITIONING IS A SAFE STRATEGY IN THE MANAGEMENT OF VENTILATED PATIENTS WITH COVID-19

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Introduction: Prone positioning is known to be an effective strategy to improve outcomes in patients with acute respiratory distress syndrome. During the COVID-19 pandemic the frequency of prone positioning interventions has increased substantially.

Objectives: To describe the prone positioning activity of mechanically ventilated patients in an Australian tertiary ICU and determine the safety.

Methods: A multi-faceted clinical training program of ICU nursing, medical, allied health and clinical support staff was introduced in a tertiary hospital in Victoria, Australia. The staff were trained in the use of a specific technique for prone positioning, assisted by bedside visual mediums and the use of pre-prepared support packs for each intervention. A retrospective analysis of the patients’ medical records was undertaken. Adverse events were identified from incident reporting software and a survey of senior clinicians involved in department quality.

Results: Between August 2021 and November 2021, 148 ventilated patients were admitted to ICU (median age 53, 38% females, median body mass index 33). A total of 67 (45%) patients received at least one prone episode, with 32 patients greater than one. There was a total of 121 prone episodes, equalling 2141 hours of prone ventilation with a median duration of 17 hours per episode. There were 17 adverse events in 14 individual patients (median events per person was 0, range (0–2)) at a rate of 0.79 incidents per 100 hours of prone ventilation. Adverse events were predominantly stage one and two pressure injuries sustained on the face associated with airway securement devices. There were no documented sentinel or serious adverse events, tube or line dislodgement, or nerve or ocular injuries.

Conclusion: With the use of a multi-disciplinary team and the implementation of a clinical training program with bedside support tools, prone position ventilation strategy was achievable and safe.