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MEDIA RELEASE

“SEPSIS KILLS” PROGRAM STUDY WINS MAJOR AWARD

A STUDY implementing and examining the impact of a statewide program for the early recognition and treatment of sepsis in New South Wales hospital emergency departments is the winner of the 2016 MJA, MDA National Prize for Excellence in Medical Research, for the best research article published in the *Medical Journal of Australia* in the previous calendar year.

The winning article, “SEPSIS KILLS: early intervention saves lives” was authored by Dr Anthony Burrell from the New South Wales Clinical Excellence Commission; Professor Mary-Louise McLaws from the School of Public Health and Community Medicine at the University of New South Wales; Ms Mary Fullick, Sepsis Program Lead at the New South Wales Clinical Excellence Commission; Ms Rosemary Sullivan, Sepsis Project Officer, from the NSW Clinical Excellence Commission; and, Dr Doungkamol Sindhusake, biostatistician at the NSW Clinical Excellence Commission.

The winning study set up a quality improvement program (SEPSIS KILLS) across 97 emergency departments in NSW hospitals. The program promoted intervention within 60 minutes of recognition, including taking blood cultures, measuring serum lactate levels, administration of intravenous antibiotics, and fluid resuscitation.

The main outcome measure was the time to antibiotics and fluid resuscitation; mortality rates and length of stay.

Data for 13 567 patients were recorded in the study’s database. The proportion of patients receiving intravenous antibiotics within 60 minutes of triage increased from 29.3% in 2009-2011 to 52.2% in 2013. The percentage for whom a second litre of fluid was started within 60 minutes rose from 10.6% to 27.5% (each $P < 0.001$). The proportion of patients classed as Australasian Triage Scale (ATS) 1 increased from 2.3% in 2009-2011 to 4.2% in 2013, and the proportion classed as ATS 2 rose from 40.7% in 2009-2011 to 60.7% in 2013 ($P < 0.001$). There was a linear decrease in mortality from 19.3% in 2009-2011 to 14.1% in 2013; there was also a significant decline in time in intensive care and total length of stay (each $P < 0.0001$). The mortality rate for patients with severe sepsis (serum lactate ≥ 4 mmol/L or systolic blood pressure [SBP] < 90 mmHg) was 19.7%. The mortality rates for patients with severe sepsis admitted to intensive care and for those admitted to a ward did not change significantly over time. The proportion of patients with uncomplicated sepsis (SBP ≥ 90 mmHg, serum lactate < 4 mmol/L) transferred to a ward increased, and the mortality rate after transfer increased from 3.2% in 2009-2011 to 6.2% in 2013 ($P < 0.05$). The survival benefit was greatest for patients with evidence of haemodynamic instability (SBP < 90 mmHg) but normal lactate levels ($P = 0.03$).

“Our work confirms the need for continued research into risk stratification tools for sepsis in the emergency department,” the researchers concluded. “In the meantime, all patients with lactate levels of 4 mmol/L or greater require intensive care unit review and admission.

“The SEPSIS KILLS program promotes early recognition and management of sepsis during the first few hours in NSW emergency departments. By focusing on the principle of “Recognise, resuscitate, refer” it is possible to reduce the time before antibiotics are administered and fluid resuscitation initiated”.

“This program could be applied in other jurisdictions and its integration with antimicrobial stewardship requirements should be considered.”

Sponsored by MDA National, this prize awards the authors \$10 000 in cash.

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