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MEDIA RELEASE

REDUCED ANTIBIOTIC USE LINKED WITH FEWER HOSPITAL-ACQUIRED INFECTIONS

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REDUCING broad spectrum antibiotic use should be a primary goal for hospital antimicrobial stewardship programs, and research published in the *Medical Journal of Australia* today provides more evidence about why.

In 2017, an international shortage of piperacillin/tazobactam (PT) – an antibiotic used to treat pelvic inflammatory disease, intra-abdominal infection, pneumonia, cellulitis, and sepsis – prompted its replacement with intravenous amoxicillin/clavulanate (IVAC).

Two studies – one from 1996 and one from 1999 – showed that reducing the use of broad spectrum antibiotics such as PT was associated with reduced incidence of vancomycin-resistant *Enterococcus* (VRE) in hospitals.

A research team from John Hunter Hospital and the University of Newcastle, led by Associate Professor John Ferguson, an infectious diseases physician, set out to measure the impact of the PT shortage on VRE and methicillin-resistant *Staphylococcus aureus* (MRSA) acquisitions at the hospital, where there has been a sustained outbreak of VRE since 2014. They compared the incidence of hospital-onset acquisitions (hospital-wide) in the 12 months before (October 2016 – September 2017) and 12 months after (November 2017 – October 2018) the start of the PT shortage.

“Twelve-month mean PT use declined from 44 defined daily doses (DDD)/1000 occupied bed-days (OBD) before the shortage to 5 DDD/1000 OBD; IVAC usage increased from 4 to 33 DDD/1000 OBD. As IVAC is a narrower spectrum antibiotic, total broad spectrum parenteral antimicrobial use fell from 129 DDD/1000 OBD before the shortage to 91 DDD/1000 OBD,” Ferguson and colleagues wrote.

“There were 191 acquisitions of VRE and 53 of MRSA before the shortage; during the shortage, there were 101 (fall of 47%) and 31 (–42%) respectively. There were 24 sterile site detections of VRE and 49 of MRSA before the shortage, and eight (–67%) and 37 (–24%) during the shortage.

“We found that reducing broad spectrum antibiotic use was associated with reduced VRE transmission and infection,” they concluded. “PT has now been reintroduced on a restricted basis and usage remains at a much lower level than before the shortage. We will continue to observe trends in incidence and will also undertake a case–control study of VRE acquisitions.

“Reducing broad spectrum antibiotic use should be a primary goal for hospital antimicrobial stewardship programs.”

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