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PS 001

Antimicrobial prescribing in Australian hospitals; antimicrobial choice and indications for inappropriate prescribing

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Background: The Hospital National Antimicrobial Prescribing Survey is an auditing platform that enables facilities to determine the appropriateness of their antimicrobials prescribing. All Australian hospitals can participate in the survey which has been collecting prescribing data since 2011.

Methods: Data from 385 facilities and 562 surveys which were submitted between January 1st 2015 and December 31st 2016 were analysed and assessed against an appropriateness assessment guide. The top 10 antimicrobials inappropriately prescribed were determined, both as the total of all antimicrobials and percentage of each prescribed. The top 3 indications with the highest rate of inappropriate prespring were determined.

Results: There were 36,502 antimicrobial prescriptions analysed and the top inappropriately prescribed antimicrobial was ceftriaxone with 1123 prescriptions. Amoxycillin-clavulanic acid was the next most inappropriate, with 786 prescriptions, followed by piperacillin-tazobactam, with 575 prescriptions. The antimicrobials with the highest percentage of inappropriate prescribing were cefaclor (58%) Kenacomb (gramicidin-neomycin-nystatin) (56%) and dapsone (50%), although there were only small number of these antimicrobials prescribed, (26, 18 and 2 respectively).

The indications for which antimicrobials were most inappropriately prescribed were;

- **Ceftriaxone;** community acquired pneumonia (29%), infective exacerbation of chronic obstructive pulmonary disease (11%) and urinary tract infection (11%)
- **Amoxycillin-clavulanic acid;** community acquired pneumonia (31%), infective exacerbation of chronic obstructive pulmonary disease (20%) and urinary tract infection (10%)
- **Piperacillin-tazobactam;** community acquired pneumonia (14%), hospital acquired pneumonia (10%) and cellulitis/erysipelas (7%)

Table 1: The top 10 inappropriately prescribed antimicrobials by total number and percent

Antimicrobial	Total prescribed		Inappropriate	
	Number	Percent	Number	Percent
Percentage of total prescribed				
Ceftriaxone	4096	11%	1123	27%
Amoxycillin-clavulanic acid	2651	7%	786	30%
Piperacillin-tazobactam	3167	9%	575	18%
Metronidazole	2269	6%	557	25%
Cefalexin	1656	5%	432	26%
Azithromycin	1358	4%	388	29%
Doxycycline	2053	6%	366	18%
Cefazolin	1419	4%	326	23%
Amoxicillin	1281	4%	223	17%
Flucloxacillin	2004	5%	206	10%
Percentage of each prescribed				
Cefaclor	26	0%	15	58%
Kenacomb (gramicidin-neomycin-nystatin)	18	0%	10	56%
Dapsone	2	0%	1	50%
Roxithromycin	357	1%	170	48%
Clarithromycin	176	0%	53	30%
Mupirocin	107	0%	32	30%
Amoxycillin-clavulanic acid	2651	7%	786	30%
Azithromycin	1358	4%	388	29%
Ceftriaxone	4096	11%	1123	27%
Cefalexin	1656	5%	432	26%

Conclusion: The antimicrobials that have both high numbers and percentages of inappropriate prescribing are ceftriaxone, amoxicillin-clavulanic acid, cefalexin and azithromycin, which were most inappropriately prescribed for respiratory tract infections. It is evident that these are obvious targets for targeted quality improvement activities.

PS 002

Propensity-score matched analysis comparing clinical benefits of antimicrobial de-escalation and non-switch in adults with community-onset monomicrobial *Escherichia coli*, *Klebsiella* species, and *Proteus mirabilis* bacteremia

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Background: Improved outcomes after clinical implementation of the de-escalation strategies have been demonstrated in studies

of patients with critical illness, but economical and resistant impact of de-escalation strategies for bloodstream infections was rarely reported.

Methods: Patients having community-onset monomicrobial *Escherichia coli*, *Klebsiella* species, and *Proteus mirabilis* (EKP) bacteremia and empirically treated by broad-spectrum beta-lactams, including 3rd-generation cephalosporins (GC), 4th-GC, or carbapenems, were analyzed and categorized according to the antimicrobial spectrum of definitive therapy: 1st- or 2nd-GC (de-escalation group), the same agents as empirical antibiotics (no-switch group), and broader-spectrum antibiotics (escalation group). Clinical information was retrospectively collected from chart record. The propensity score was calculated by the independent predictors of 4-week mortality. Patients in the de-escalation group were matched on the 1:1 basis with those in the no-switch group by the closest individual propensity scores.

Results: The eligible 454 adults were categorized as the de-escalation (231 patients, 50.9%), no-switch (177, 39.0%), and escalation (46, 10.1%) group. In general, those with de-escalation therapy were more females, had less critical illness and less fatal comorbidity, and had a higher survival rate than the other two groups. After appropriate propensity-score matching for the de-escalation and no-switch groups, not only critical illness at onset (Pitt bacteremia score ≥ 4; 16.5% *vs.* 12.7%; $P = 0.34$) or day 3 (2.5% *vs.* 2.5%; $P = 1.00$), and fatal comorbidity (16.5% *vs.* 21.5%; $P = 0.25$), but also the time to defervescence (4.6 *vs.* 4.7 days; $P = 0.89$), hospital stays (11.5 *vs.* 10.3 days; $P = 0.13$), and 4-week (4.4% *vs.* 4.4%; $P = 1.00$) crude mortality rate were similar. However, lower antibiotic cost (mean: 212.1 *vs.* 395.6 US\$, $P < 0.001$) and less complications of bloodstream infections due to resistant pathogens (0% *vs.* 5.1%, $P = 0.004$) was observed in the de-escalation group.

Conclusion: For adults with community-onset EKP bacteremia empirically treated by appropriate broad-spectrum beta-lactams, the de-escalation to narrow-spectrum cephalosporins is safe and cost-effective.

PS 003
The establishment of auxiliary mechanisms of intimate reminders improves rational antibiotic utilization

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Background: Surgery is to have no time to lose, however, how to effectively manage the use of prophylactic antibiotics is a challenge. There is a reminder mechanism but not like the ad window so that users do not want to see the content and just want to close. To multi-oriented check can not affect the conduct of surgery. The establishment of auxiliary mechanisms intimate reminders, and more humane management, Not only can educate the use of the correct concept of antibiotics, but also to improve of rational antibiotic utilization.

Methods: First, "Time out" immediately before starting the procedure, include the antibiotic prophylaxis within 1 hour prior to incision, If not, will be asked the reason. Followed by the use of antibiotics in the half-life and surgery time to calculate, and use the music to remind the team to add antibiotics; During the operation, the amount of blood loss, When more than 1000 ml will also be the same way to remind the team to assess and prepare add antibiotics.

Results: Up to now, the antibiotic prophylaxis within 1 hour prior to incision arrivals to 98%; The proportion of antibiotics added to the drug in surgery was 80%. From here, we can see the effectiveness of management is significant.

Conclusion: At the right time to use the appropriate antibiotics to prevent the occurrence of surgical site infection, and we use the intimate reminder to achieve this goal, and improve the patient's safety.

PS 004
Should we continue to implement contact precautions and environmental cleaning for MRSA

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Background: Increased drug resistance is one of the most important issues of global concern, effective way to stop the transmission of drug-resistant strains must have antibiotics stewardship and isolation protection measures, Strains of MRSA were first found in the 1960s there is evidence that concerted efforts that include surveillance cultures, contact precautions and isolation in hospitals can reduce MRSA, but the implementation of isolation measures need to spend the manpower and costs. According to the TNIS System (Taiwan Nosocomial Infections Surveillance System) statistics reported that 51% of MRSA detection, so the implementation of the contact for the hospital Isolation is a great burden, so the policy formulation and implementation is the need for many considerations.

Methods: Our hospital for the MRSA patients with standard protection. Beginning in 2016 for the first detection of patients to implement contact isolation, cohorting, and the patient after discharge for the final disinfection. For the first isolated of MRSA patient must immediately check the use of antibiotics and related medical behavior, and the unit who isolated of MRSA to the hand hygiene audit, environment cleaning and disinfection of the joint inspection when the patient was discharged. Weekly fixed view of new cases detected distribution trends.

Results: The number of new cases isolated by MRSA was reduced from about 120 in 2013 to about 75 in 2016, while DID usage density of antibiotics (per 1000 bed-day-occupancy) has been declined 30%, the Penicillins have been declined 35%.

Conclusion: Through the continuous monitoring of the trend of drug resistance distribution at the same time prudent use of antibiotics and the use of antibiotics stewardship, the most important thing is to implement contact isolation, hand hygiene and medical environment, such as cleaning and disinfection of infection control measures, Reduce the transmission of drug-resistant bacteria.

PS 005
Pharmacy efficiency of censor inappropriate antibiotic prescriptions with pharmacist and infection specialist in a community teaching hospital

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Purpose: Overuse of antibiotics should induce increase number antibiotic resistant bacteria and its side effects, there is evidence to suggest that proper use of antibiotic helps control quality and efficiency. Build up censor mechanisms with pharmacist and infection specialist can increase clinical take care quality.

Method: Data were retrospectively collected on 36 items of controlled antibiotics of censor meeting at a community hospital from January to December 2016, A pharmacist analysis appropriate of antibiotic prescriptions within 24 hour, and an infection specialist censor the indication of clinical use.