

The clinical trials demonstrated that the CHG dressing reduced CLABSI and/or CRBSI by approximately 60%. Standard measures of health economic benefit compared favorably to published results for a range of costs associated with CRBSI treatment.

**Conclusion:** 3M™ Tegaderm™ chlorhexidine gluconate securement dressing has been shown to reduce clinical sepsis in a cost effective manner with bio-film reducing properties.

#### OS 9-4

##### THE RISK FACTORS FOR MORTALITY IN LIVER TRANSPLANT RECIPIENTS WITH BLOODSTREAM INFECTIONS

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**Purpose:** Bloodstream infections (BSIs) are common among liver transplant recipients. Mortality rates in subjects with BSIs have been reported to range from 10% to 50%. The purpose of our study was to determine the risk factors for Mortality in Liver Transplant Recipients With Bloodstream Infections.

**Methods:** We retrospectively reviewed the data from 132 patients who underwent liver transplant recipients between January 2008 and 2013. We performed liver transplantations in 132 subjects who experienced 35 episodes of BSIs. We assessed risk factors for mortality among 26 of them using univariate and multivariate logistic regression analysis.

**Results:** The 26 recipients (19.7%) who developed BSI showed a mean age of 55 (55 ± 10). There were 9 deaths among these recipients (34.6%). The univariate analysis identified the following variables as risk factors for BSI-related mortality: LDLT ( $P = 0.32$ ), in the ICU ( $P = 0.04$ ), higher APACHE II score ( $P = 0.12$ ), septic shock ( $P = 0.04$ ), Continuous venovenous hemofiltration ( $P = 0.33$ ), lower platelet count ( $P = 0.33$ ), prolonged INR ( $P = 0.05$ ), mechanical ventilation ( $P = 0.01$ ), central vein catheter ( $P = 0.01$ ), urethral catheter ( $P = 0.01$ ). Multivariate logistic regression showed no statistically significant.

**Conclusions:** The risk factors significantly associated with increased mortality in liver transplant recipients with BSIs are higher APACHE II score, in the ICU, septic shock, lower platelet count, prolonged INR, CVVH, invasive catheter were associated with high mortality.

#### OS 9-5

##### CLINICAL AND MICROBIAL CHARACTERISTICS OF 679 EPISODES OF BLOODSTREAM INFECTIONS

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**Purpose:** The incidence of bloodstream infection (BSI) in China is increasing. The purpose of this research is to study the clinical and microbial characteristics of BSIs in order to provide guidance for future clinical practices.

**Methods:** We retrospectively collected all diagnosed cases of bloodstream infections between Jan. 2012 and Dec. 2013 in Zhongshan Hospital, a 1700-bed teaching hospital of China. Demographic, clinical, laboratory and microbial information, and outcome were documented and analyzed.

**Results:** A total of 679 episodes of BSIs were detected in 585 patients (58.3 ± 15.4y, 406 male). The departments with the most cases were cardiac surgery (21.8%), general surgery (13.8%) and liver surgery (9.4%). 32.4% of the episodes happened in ICU. Leukocytopenia were seen in 7.2% of the cases, hypoalbuminemia 34.3%, and CVC in place 44.2%. Among 613 episodes of the monomicrobial BSIs, Gram-positive bacteria caused 34.3%, Gram-negative organisms 57.6% and fungi 8.2%. The most common pathogens were *Escherichia Coli* (20.7%), *Klebsiella pneumoniae* (10.8%), *Coagulase negative staphylococci* (9.0%), *Staphylococcus aureus* (9.0%), *Enterococcus spp.* (7.8%), *Candida spp* (7.7%), and *Streptococcus spp* (7.7%). CoNS (17.5%) and *Candida spp* (15.1%) were most commonly isolated in cardiac surgery wards, whereas *E. coli* caused the most episodes in general surgery (16.3%) and hepatic surgery (34.4%). Overall 30-day mortality rate was 20.2%. It was 10.9% in common wards and 39.6% in ICU; 53.7% for organ transplant recipients; 18.8% and 33.3% for monomicrobial and polymicrobial BSIs respectively. *Acinetobacter Baumannii* (42.4%), *Candida spp* (31.9%), *S aureus* (25.5%), *Enterococcus spp* (22.9%), CoNS (21.8%) have the highest 30-day mortality rate.

**Conclusions:** BSI incidences were highest in surgical departments. *E coli*, *Klebsiella pneumoniae*, CoNS, and *S aureus* were the most common

pathogens. Microbial distributions differ greatly among clinical settings. ICU stay, organ transplantation, polymicrobial BSI, multi-drug resistant bacteria infection, and candida infection had the highest mortality rate.

#### OS 9-6

##### WHAT DO WE LEARN FROM ANTIMICROBIAL PHOTODYNAMIC THERAPY?

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**Purpose:** Infectious diseases are increasingly serious threats to global public health that requires action. Photodynamic therapy (PDT) eradicates microorganisms by generating reactive cytotoxic oxygen products after photoactivating a particular photosensitizer with certain wavelength of light in cells. The damages are non-selective. Therefore, PDT-resistant strains are less likely to induce. We described our 10 years studies and experiences in antimicrobial PDT in southern Taiwan.

**Methods:** Antimicrobial PDT on viral and bacterial infections was examined *in vitro* and *in vivo*. Enteroviruses, *Vibrio vulnificus* and oxacillin-resistant *Staphylococcus aureus* (ORSA) were used as models of viral and bacterial infections, respectively.

**Results:** Antimicrobial PDT effectively inhibits transmission of enteroviruses and kills bacteria in a relative low dose, both *in vitro* and in mice. Importantly, PDT enhanced wound healing in chronic infected ulcers in patients, probably worked through direct bactericidal effects and altering local micro-environment. Interestingly, we found ORSA become sensitive to oxacillin after one PDT treatment.

**Conclusions:** Antimicrobial PDT may have potential to become a new or an adjuvant therapy against microbial infections.

#### OS 10-1

##### CAUSES OF FATALITY ASSOCIATED WITH PROSPECTIVE ANTIMICROBIAL AUDIT WITH FEEDBACK

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**Purpose:** Previous researches had not powered adequately to demonstrate prospective antimicrobial audit with feedback have impacts on the patient's outcomes. In this study, the causes of fatality associated with prospective antimicrobial audit with feedback were analyzed.

**Methods:** Between June and September 2014, the applications for 25 target parenteral formulae which were rejected by infectious diseases specialists (IDs) were followed up until patients were either discharged or died.

**Results:** There were 292 cases included. There were 193 (66%) male patients, and their mean ages (standard deviation) were 65.5(19.3) years. Among them, 38 (13%) had history of diabetes mellitus, 12.3% had end stage renal diseases, and 11.6% had malignancies. Common reasons for rejection included 37% of dosage adjustments, 28.8% of no bacterial evidences, 18.8% of modifications by antimicrobial susceptibility, and 7.2% of target pathogens not being covered.

**Table** Factors related to case fatalities using multiple logistic regression analyses adjusted by sex

Characteristic factors	Odds ratio	95% Confidence interval	P value
Ages more than 75 years old	2.58	1.32-5.50	0.005
Urinary tract infection	0.26	0.09-0.70	0.013
Soft tissue or bone infection	0.18	0.05-0.61	0.006
Modification by ID's recommendation	0.53	0.27-1.06	0.074

**Conclusions:** On account of old age and some of them had given up aggressive treatments, antimicrobial adjustment by IDs' recommendation showed only marginal effects against fatality. Under such circumstances, it should be more prudent to prescribe antibiotics.

#### OS 10-2

##### THE ANTIMICROBIAL STEWARDSHIP PROGRAMMES REDUCE MULTIDRUG RESISTANT *ACINETOBACTER BAUMANNII* INFECTION IN THE INTENSIVE CARE UNIT (ICU) OF SILOAM HOSPITAL, TANGERANG, INDONESIA

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**Purpose:** Multidrug resistant *Acinetobacter baumannii* is one of the most common cause of hospital acquired infection (HAIs) in intensive care units (ICUs) worldwide and commonly associated with increasing mortality and length of stay. To address with the increasing of multi-drug resistant *A. baumannii* infection, antimicrobial stewardship programmes are promoted worldwide to encourage judicious antimicrobial use and prevent the emergence of resistance. The aim of this study is to determine the impact of the antimicrobial stewardship programmes in preventing the development of *A. baumannii* antimicrobial resistance.

**Methods:** During the period from June 2012 till June 2013, *A. baumannii* isolates data from sputum, wound, blood, urine, and cerebro-spinal fluid were collected and used as a baseline data. The identification of *A. baumannii* and resistant pattern was performed by using VITEK 2 Compact<sup>®</sup> according to Clinical Laboratory and Standards Institute (CLSI). Socialization and implementation of the antimicrobial stewardship programmes including; (1) determining the empirical antimicrobial drug use in the ICU, (2) using the antibiotic prescription chart to ensure antibiotic prescription based on microbiological culture and sensitivity.

**Results:** From the baseline data, *A. baumannii* found in 16 isolates and were multidrug resistant. The majority of the isolates sensitive to colistin (100%) and cefoprazone/sulbactame (77%). After the implementation of antimicrobial stewardship programmes, the incidence of *A. baumannii* finding was decreasing into 3 isolates and showed the increasing sensitivity to cefoprazone/sulbactame (89%) that use as empirical therapy for gram negative bacteria infection in the ICU. The sensitivity to the other antimicrobial; carbapenem, imipenem, meropenem, aminoglycoside were also increasing.

**Conclusions:** Our result of the antimicrobial stewardship programmes showed the improvement *A. baumannii* sensitivity to the first-line antimicrobials. To have the antimicrobial stewardship programmes helped us to decrease the rate of bacterial resistance within our hospital.

#### OS 10-3

##### EVALUATION OF LEVOFLOXACIN UTILIZATION RATIONALITY BY COMPUTERIZED PHYSICIAN ORDER ENTRY SYSTEM

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**Purpose:** Levofloxacin belongs to the third-generation Fluoroquinolones (FQs). It is not only the broad-spectrum antibiotic for G (+) and G (-) (*Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*) but also more activity to the atypical bacteria (*Chlamydia*, *Mycoplasma*). In this retrospective study, we evaluated the converting ratio between injection and oral forms. This drug utilizing evaluation (DUE) study will help to elevate the reasonable using of levofloxacin in the hospital.

**Methods:** This study is a retrospective study in a regional hospital. Cases were collected from April 2014 to June 2014 for all hospitalized patients using Levofloxacin. The reasonableness assessment of Levofloxacin prescribing included indications, doses, bacterial culture or consulted with Infectious Diseases physician. The recommendation doses for renal dysfunction followed by SANFORD GUIDE. Patient's creatinine clearance (Clcr) was

monitoring for adjusting the therapeutic dose accordingly. Descriptive statistical analysis was performed in the study.

**Results:** Total 158 cases were recruited in the study. The bacterial culture was performed in 157 cases (99.4%). Depending on bacterial culture results, considering as reasonable using levofloxacin was 86 cases (54.4%), and empirical therapy counted as 61 (38.6%), which were also consulted with Infectious Diseases physician prior to administration. In addition, 158 cases (100%) were monitored Clcr, 143 cases (90.5%) had performed dose adjustments in accordance with appropriate therapeutic doses by renal function. Moreover, 23 cases used injection form over 7 days during hospitalization period, 3 cases (13.0%) switched to oral form during hospitalization period, 12 cases (52.2%) did not switch during hospitalization period, 8 cases of them (8/23, 34.8%) did not switch during hospitalization period but took home with oral levofloxacin.

**Conclusion:** This study showed that the reasonableness of the use of Levofloxacin was counted as 86 cases (54.4%). The ratio of injection dosage form converted to oral form was not ideally. The results will provide physicians to use the build-in computerized physician order entry system reminding to improve the efficacy of levofloxacin.

#### OS 10-4

##### EVALUATION OF PIPERACILLIN/TAZOBACTAM UTILIZATION APPROPRIATENESS

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**Purposes:** The aim of this study was to evaluate the appropriateness of piperacillin/ tazobactam (Tapimycin<sup>®</sup>; YUNGSHIN, Taichung, TW) usage in a regional hospital, retrospectively.

**Methods:** This retrospective study was designed to recruit all patients admitted to the regional hospital with prescribing Tapimycin<sup>®</sup> from October, 2013 to December, 2013. The electronic medical records were reviewed and studied, respectively. We collected patient's data including demographics, empirical indication, infusion time, dose and dosing interval, culture and susceptible results, concomitant antibiotics, and de-escalation of the antimicrobial regimen. The endpoint of overall appropriateness was evaluated and dose adjustment following renal function monitoring by creatinine clearance (Clcr) calculated by Cockcroft-Gault Equation.

**Results:** During this period, 181 cases, 112 female cases and 69 male cases were obtained from 159 patients. The average age of the cases was 67.4 ± 16.59. The average administration day was 10.01 ± 4.25. The main indication for initiation administration was pneumonia (109/181; 60%). There were 41 (41/360, 11.39%) isolations as *Pseudomonas aeruginosa*; 35 (35/360, 9.72%) were *Klebsiella pneumoniae*; 21 (21/360, 5.83%) were *Escherichia coli*. Thirty-seven (20.44%) cases infusion time were longer than 60 min. There were 111 cases (61.33%) with normal renal function. Renal dysfunction with dosage adjustment was counted as 51 cases (28.18%). However, there were 13 cases (7.18%) with renal dysfunction without dose or dosing interval adjustment. At the endpoint of evaluation, 72 cases (40%) where antibiotics were changed to narrow-spectrum antimicrobials or oral antibiotics were considered as de-escalation. The overall rate of appropriateness of Tapimycin<sup>®</sup> therapy was 138/181 (76%).

**Conclusion:** Our results present the tendency toward the appropriate rate of Tapimycin<sup>®</sup> utilization at our institution was only 76%, especially, when the selection of treatment based on initial empirical therapy was inappropriate. Without dosing adjustment was given the concerns about the increasing occurrence of antibiotic adverse events. Further studies may be performed to establish guidance ideally in the future.

#### OS 10-5

##### ASSOCIATION BETWEEN ANTIMICROBIAL TREATMENT WITH FLUOROQUINOLONES VERSUS β-LACTAMASE INHIBITOR AND RISK OF PNEUMONIA-RELATED HOSPITALIZATION AMONG PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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