Diseases specialist and aggregating clean surgical antibiotic prophylaxis type, method and duration, 3. To construct a computer program to monitor control programs, including during the inquiry, divisions, surgeon physicians, types, wounds (anesthesia) classification and antibiotic use and so on.

B. Processes: 1. To handle clean surgical antibiotic prophylaxis education and training. 2. To regularly review medical and surgical teams of the related operations, 3. Monthly summary of the monitoring results of feedback and improvement in every specialist.

Results: 1. Clean surgical wound prophylactic antibiotic drug utilization I increased from 74% to 90%. 2. Use clean surgical wounds consistent with prophylactic antibiotics ≤ 1 day rate increased from 35% to 86%. 3. Surgery within 60 minutes before the draw knife prophylactic antibiotic usage increased from 77% to 98%. 4. Ratio greater than 4 hours operating time using a second dose of prophylactic antibiotics increased from 20% to 92%.

Conclusions: After working through the implementation of the above, the monitor the results of surgical site infection rates dropped from 0.7 ± 0.3 in 2000 to 0.2 ± 0.3 in 2013 at our institution.

PS 1-007

CHARACTERISTICS OF PATIENTS INFECTED BY MEROPENEM RESISTANT EXTENDED-SPECTRUM β-LACTAMASE PRODUCING KLEBSIELLA PNEUMONIAE IN A TAIWAN REGIONAL HOSPITAL

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Purpose: The emergence of extended-spectrum β-lactamase (ESBL) producing pathogen resulted in carbapenem usage. Then, resistance to carbapenem emerged. We investigated the characteristics of meropenem resistant ESBL producing Klebsiella pneumoniae (ESBL-KP) cases.

Methods: A retrospective study was conducted to obtain information including specimen category, gender, age and ward units of ESBL-KP cases in a regional hospital in Taiwan.

Results: The proportion of meropenem resistance among ESBL-KP in five years (5.7%, 7.3%, 6.5%, 6.1% and 7.5%), respectively, 2009 – 2013) did not significantly increased (P = 0.33). Among 54 ESBL-KP infected cases, the pathogens were from specimens including sputum (42.6%), urine (22.2%), and other specimens (35.2%). Thirty-six were male (66.7%) and 18 were female (33.3%), the average age was 74.83 ± 16.61. With regard to the four meropenem resistant of ESBL-KP cases, two were over 80 years old (50.0%) and two are aged from 61 to 80 (50.0%). For their wards, all four cases were in respiratory care ward, medical and surgical intensive care unit, while none was from out-patient clinic and emergency. The specific ward unit was significantly associated with meropenem resistant ESBL-KP with regression coefficient being 0.105 (95% CI: 0.02–0.19, P = 0.02). However, the association of meropenem resistant ESBL-KP with specimen types, gender and age groups did not reach statistical significance (P = 0.87, 0.84 and 0.68, respectively).

Conclusions: Meropenem resistance of ESBL-KP was significantly related to Respiratory care unit and ICUs. Empirical coverage of meropenem resistant ESBL-KP should be considered in the specific units in the study hospital.

PS 1-008

POSITIVE CORRELATION BETWEEN THE AMOUNT OF CARBAPENEM PRESCRIBING AND CARBAPENEM RESISTANT ACINETOBACTER BAUMANNII IN A REGIONAL HOSPITAL

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Purpose: The rate of carbapenem resistant Acinetobacter baumannii (CRAB) in the regional hospitals raised from 34% in 2004 to 79% in 2013 according to Taiwan Nosocomial Infections Surveillance System. We also found the higher rate of CRAB in our hospital. The aim of this article was to assess the correlation between the amount of carbapenem prescribing and isolated CRAB.

Methods: We conducted this 5-years study by the hospital information system. We retrospectively reviewed the quarterly amount of carbapenem prescription and isolated CRAB from 2009 to 2013. The amount of carbapenem consumption was expressed as defined-daily-dose per 1000 patient-days (DDD/1000 patient-days).

Results: The mean of quarterly carbapenem prescribing and quarterly isolated CRAB were 182 DDD/1000 patient-days and 84 isolates, respectively. The amount of isolated CRAB showed significant correlation to the amount of carbapenem prescribing (Pearson correlation coefficient = 0.603, p = 0.002).

Conclusions: This study showed the positive correlation between the amount of carbapenem prescription and isolated CRAB. Antimicrobial stewardship program should include the strategy of restriction of broad-spectrum antibiotics prescription (e.g. carbapenem), thus emergence of antibiotic resistant bacteria may be decreased.

PS 1-009

COMPUTORIZED SYSTEMS TO ASSIST ANTIMICROBIAL STEWARDSHIP PROGRAM IMPLEMENTATION IN A TAIWANESE HOSPITAL

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Purpose: The antimicrobial stewardship program (ASP) has been implemented since 2010 in Taipei Medical University Shuang-Ho Hospital in Taiwan. Challenging tasks include identifying inappropriate prescriptions, communicating with prescribers and increasing workload for staff. Thus the aim of this study is to improve ASP by computerized systems and to analyze the outcomes.

Methods: First, a computerized antimicrobial audit system was incorporated with the computerized physician order entry (CPOE) system to check orders for hospitalized patients. Through the computerized antimicrobial audit system, orders for antimicrobials are screened for appropriateness. Interventions and feedbacks can be given to physicians immediately if needed. On the other hand, the duration of antimicrobial treatment for outpatients was restricted by the CPOE system: seven days for general infections and fourteen or thirty days for specific infections. And an alert system was developed when antimicrobial agents were prescribed for upper respiratory infections. Moreover, a report system including blood culture results and surgical prophylaxis was developed to assist in monitoring antimicrobial orders. Finally, another report system was utilized to analyze the impacts of ASP with indicators such as the antimicrobial defined daily dose per 1000 patient days (DDD) and antimicrobial cost ratio.

Results: The total DDD for hospitalized patients was declined by 14% from the first half of 2012 to the first half of 2014 (659 vs. 566). The antimicrobial cost ratio of inpatients reduced from 42.55 % in 2009 to 22.03 % in 2013. The ratio received disapproval of reimbursement by the National Health Insurance (NHI) decreased from 31.19 % in 2009 to 16.89 % in 2013.

Conclusions: Computerized systems not only reduced workload for staff but also improved ASP outcomes. We will continue to follow up the impacts of the computerized systems on ASP and revise them as appropriate.

PS 1-010

MODIFIED COMPUTERIZED ANTIBIOTIC AUDIT SYSTEM FOR ANTIBIOTIC STEWARDSHIP PROGRAM (ASP) – EXPERIENCE FROM A REGIONAL TEACHING HOSPITAL IN SOUTHERN TAIWAN

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Purpose: In response to the Antibiotics Stewardship Program (ASP), we setup and modified the interface of computerized antibiotic audit system between pharmacist and physician, to improve audit efficiency and improve the quality of antibiotic medication.

Methods: Integration of potient’s Laboratory data (height, weight, liver and kidney function, bacterial culture results, etc.) on the same screen, promote rigorous integrity audited.
Build the new Pull-down menus for pharmacist to improve pharmacist audit efficiency. Intergrade the screen of computerized antibiotic audit system for ASP pharmacy, communication and pharmacists’ evaluation, which will help two-way communication, immediate feedback, and improve the quality of antibiotics usage.

Result: The rate of “pharmacists audit within 24 hours” during ASP promoting period was 100% in ICU, and more than 40% in total hospital; it was improved significantly. We plan to raise the rate up to 50% next year.

Conclusion: Antibiotics Stewardship Program (ASP) need teamwork and coordination between healthcare workers and information technician, by modified computerized antibiotic audit system, the physician and pharmacist can provide more rapid and accurate recommendation for clinician, which will improve the antibiotic usage and patient safety.

DECREASING MULTI-DRUG RESISTANT ORGANISMS CROSS-INFECTION RISK BY ANTIBIOTIC STEWARDSHIP PROGRAM

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Purpose: Due to increasing multidrug-resistant pathogens, our hospital started to join 3 years’ program of CDC of Taiwan Surveillance of Antimicrobial Resistance in year 2013. Team of hospital antimicrobial control of our hospital is formed. Our strategies are mainly focused on two points: the appropriateness of using antibiotic and infection control policy. The infection control policy is included: hand hygiene, standard precautions of multi-drug-resistant organisms, standard environmental cleaning.

Methods: Linking nurses system is formed. Regular schedule meeting is arranged to ensure the implementation of hand hygiene policy and feedback with incentive by the end of year. Using the computer alarm system to remind staff to take standard precautions for patients infected with multi-drug-resistant organisms. Environmental surveillance is done by isolating culture of multidrug-resistant organisms and using ATP.

Results: The rate of hand hygiene compliance was >95%, implementation rate for standard precaution for patients infected with multidrug-resistant organisms was 100%. The rate for environmental cleaning was >90%. In year 2012 the hospital acquired infection density rate was 6.3% and ICU was 27.5%. After an effort making in 2013, the result was much improved, the former was 1.5%, and the latter was 3.7%. The rate of multidrug-resistant organisms in year 2012 was CRAB 23.3%, CRE.coli 1.6%, CRKP 13.5%. In year 2013, the cases number was reduced, 64.2%, 27.3%, 14%, respectively. Conclusion: Our study revealed that participating the Taiwan Surveillance of Antimicrobial Resistance program was able to use antibiotic appropriately and reduce cases of multidrug-resistant organisms.

EXPERIENCES SHARE OF ANTIBIOTIC PRESCRIPTION CONSULTATION, DE-ESCALATION AND FEEDBACK MECHANISM TO ENHANCE THE EFFICACY OF ANTIBIOTICS STEWARDSHIP

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Purpose: Antibiotic stewardship is one of the most important issues for the hospital infection control. The rule and regulation of the stewardship system has been operated for years. However, facing up to the constantly detection of the various multi drug resistance microorganisms, brings out that the rigor examinations and the control execution effectiveness of the antibiotic needs to be reviewed and improved all the time.

Methods: Our hospital has utilizing the database systems to assist executing in the antibiotic medication control since 2004. When antibiotics was prescribed via every medical system, the database system will assist to check the culture reports and consultation records in seven days. The infectious disease specialist would follow the “laboratory reports”, “current medical orders”, “nursing records” and “IPR” at the analysis systems to examine then provide the professional commend for the upgrade or downgrade. For example, before the report of the blood culture, it could only approved three days of antibiotics. And the infectious disease specialist doctors will control the using of the categories and days then permit to use. The system also provided “antibiotic adjustment proposals” in order to make the communications and feedbacks between the clinicians and infectious disease doctors.

Results: The infection control team also performed the statistical analysis regularly according to this information and most of the clinicians can identify to list the proper prescription by the infectious disease specialist professional advices. Antibiotics appropriate ratio increased from 30% to 60%.

Conclusions: The infectious disease specialist, the infection control and antibiotic teams working so hard for the execution and declaration for the antibiotic. The clinicians can use antibiotics correctly via ASP. We wish the antibiotics stewardship effectiveness and experiences can be shared with the partner hospital and take this as a reference to carry out the policy.

ANTIMICROBIAL STEWARDSHIP: A REVIEW OF AUDIT AND FEEDBACK SYSTEMS AND EVALUATION OF OUTCOMES IN A MEDICAL CENTER IN TAIWAN

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Purpose: Antimicrobial stewardship (ASP) is an emerging field currently defined by a series of strategies and interventions aimed toward improving appropriate prescription of antibiotics in all healthcare settings. To estimate the effectiveness of professional interventions that, alone or in combination, are effective in antibiotic stewardship for hospital inpatients, to evaluate the impact of these interventions on reducing the incidence of antimicrobial-resistant pathogens and their impact on clinical outcome.

Methods: We developed a hospital-wide computerized antimicrobial approval system (HCAAS) to guide the use of antimicrobial agents in late 2004 in a 2700-bed medical center in Taiwan. Three strategies for improving antimicrobial stewardship were implemented: education, clinical infection specialists-based intervention, and regular audit and feedback interventions. The steering panel of the program was a committee composed of infection specialists, attending physicians, clinical pharmacists, infection control nurses, and medical laboratorists.

Results: Outcomes were to evaluate the impacts of HCAAS on the hospital from 2000 to 2012. Analysis of the rate approval to audit physicians and clinicians recommend acceptance rate in order to enhance communication between different divisions physicians and establish partnerships. This antibiotic management mechanisms by subsequent statistical analysis showed a significant reduction in the use of regulatory antibiotics and healthcare-associated infections rate, total mortality, length of stay, patient was discharged 14 days after returning to rate the quality of patient outcomes indicators are showing positive to reduce the tendency.

Conclusions: The results show that interventions to reduce excessive antibiotic prescribing to hospital inpatients can reduce hospital-acquired infections, and interventions to increase effective prescribing can improve clinical outcome. This update provides more evidence about unintended clinical consequences of interventions and about the effect of interventions to reduce exposure of patients to antibiotics.

PHARMACISTS IN AN ANTIMICROBIAL STEWARDSHIP PROGRAM

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Purpose: The Antimicrobial Stewardship Program (ASP) is an innovative and intensive practice-based activity for pharmacists focusing on the pharmacist’s role in the area of appropriate use of antimicrobial agents.