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**EFFECTIVE EXPERIENCE SHARING FOR IMPLEMENTATION REVIEW MECHANISM OF ANTI-TB DRUGS SHARE**

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**Purpose:** Tuberculosis is contagious diseases due to air-borne droplet. If the patient has not administered properly complete treatment, not only delay the patient’s condition, but also increase the chances of the spread of tuberculosis bacteria. Drug medication treatment is still the main treatment for tuberculosis. Standard regimen is included drug treatment for at least six months in four anti-tuberculosis drug treatment regimens.

**Methods:** Kaohsiung Chang Gung Memorial Hospital is the largest medical center in southern Taiwan; there are approximately 600 to 800 newly diagnosed TB patients every year. To facilitate the standardization of patients receiving anti-TB drugs prescribed, the tuberculosis patients control group developed an anti-TB drugs review mechanism. First, Chest and Infection specialist physician will hospital-widely review all tuberculosis cases of anti-TB drugs medication; if there were doubt about medication recommendations, the patient’s attending physician is invited to discuss in tuberculosis control group meetings; such as meeting the suspect again raised to disease management department will review cases. Also features a two-way feedback mechanism.

**Results:** After this review mechanism, court of TB diagnosis and treatment of drug use in line with the guidelines from 2011 to 2013 increased from 69% to 88%.

**Conclusions:** The use of the drug test and two-way feedback mechanism, provide immediate diagnosis and treatment of physician reference standardized treatment, provided TB proper medical treatment, not just treat patients, and reduce the chance of spread of TB.

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**FALSE-POSITIVE RESULT OF QUANTITATIVE PCR (XPERT MTB/RIF) FOR MYCOBACTERIUM KANASII PNEUMONIA: A CASE REPORT**

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**Purpose:** Mycobacterium kansasii causes serious pulmonary disease usually in patients with human immunodeficiency virus (HIV) infection. Xpert MTB/RIF is an automated real-time PCR system that detects tuberculosis (TB) and resistance to rifampicin. We report a non-HIV patient with M. kansasii pneumonia who had false-positive Xpert MTB tests.

**Case Report:** The 68 y/o man has past history of old TB post thoracotomy and chemotherapy about 7-8 years ago. He had cough, whitish sputum and dyspnea for one month. Fever episode was noted. There was no chest pain, nausea or vomiting. Upon emergency room, his consciousness was clear and the vital signs showed a body temperature of 37.9 degree Celsius, a heart rate of 112 bpm, a respiratory rate of 28 breaths per minute and a blood pressure of 117/73 mmHg. On physical examination, the breath sounds were bilateral coarse rales. Laboratory data showed elevated C-reactive protein. CXR showed airspace infiltration at bilateral lower lung fields with compensatory emphysematous change at right lower lung, in favor of chronic infectious process. He was admitted on December 5, 2013. For pneumonia treatment, empiric antibiotics with piperacillin-tazobactam and minocycline were given followed by pipercillin and levofoxacin when pneumonia improved. The sputum acid-fast stains were positive and the sputum Xpert MTB/RIF test showed a positive TB finding (102–103 CFU/mL) without rifampin resistance. Thus, he was transferred to the isolation room and received anti-TB treatment with Rifater and ethambutol. His condition slowly improved. However, the TB cultures yielded M. kansasii for sputum specimens obtained on December 5, 9 and 12, 2013.

**Conclusions:** Unlike other nontuberculous mycobacteria, M. kansasii is believed to rarely represent colonization or an environmental contaminant. PCR with specific nucleic acid probes is useful for early identification of growing M. kansasii colonies. However, M. kansasii pneumonia can present a false-positive Xpert MTB test in a non-HIV patient.

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**EVALUATION OF NON-TUBERCULOUS MYCOBACTERIAL SPECIES DISTRIBUTION TO ENHANCE INFECTION CONTROL**

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**Purpose:** Since the policy of “Halving TB in 10 years program” was promoted by Taiwan CDC in 2005, tuberculosis has been closely monitored, but the trend of prevalence about non-tuberculosis mycobacterium (NTM) associated diseases increases gradually. The course of anti-NTM treatment which usually needs 18 months, is longer than that (6-9 months) of anti-TB regimens. Besides, anti-dNTM therapy panels vary with each infected NTM species, which differs from the direct application of treatment guideline for TB. Therefore, laboratory accurate NTM identification reports and species distribution analysis could decrease the events of misdiagnosed TB and help the clinicians make adequate anti-NTM regiments.

**Methods:** 7621 clinical specimens (from Jun., 2013 to Jun., 2014) were collected and examined, according to the guidelines of Manual for Laboratory Mycobacterial Diagnosis (Taiwan CDC, 2004); isolated mycobacteria were further differentiated between MTB and NTM by Immuno-­­-chromatography. The distribution of NTM species was analyzed (single NTM / different kinds of NTM/combined with TB).

**Results:** Among 320 specimens with positive acid-fast-stain, about 20.6% showed NTM at final culture reports, meeting quality requirements (19%–36.7%; Taiwan CDC, 2014). Total 221 NTM strains were isolated from 120 patients, with 7.5% co-cultured with MTB strains, 9.2% combined with 2 NTM species, and 11.7% converted-cultured after anti-TB regimens. The top three identified NTM species, followed with respective isolation rate: MAC (43.9%), M. kansasii (19%), M. abscessus (15.4%), accounting for 78.3% of all NTM.

**Conclusions:** The water supply system of hospital is usually the main source of transmission of certain NTM species. By analysis of NTM species identification & distribution, not only the clinicians could in-time exclude the cases suspected as tuberculosis, but it would be of great benefit on effective treatment, medical resource utility, public health implementation and infection control of NTM diseases.

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**MEASLES SEROEPIDEMICITY AND REVACCINATION EFFICACY AMONG HEALTHCARE WORKERS IN SOUTHERN TAIWAN**

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**Purpose:** Measles is a serious infectious disease globally despite the existence of effective vaccines. Waning measles immunity in healthcare workers (HCWs) poses new challenges in infection control. This study aimed to determine the current measles seroepidemiology and revaccination efficacy amongst HCWs in southern Taiwan.

**Methods:** A measles seroepidemiology survey on all newly recruited HCWs at a university hospital in southern Taiwan between 2007 and 2013 was conducted using enzyme-linked immunosorbent assays (Enzygnost(R) test kit,
INCREASED FLU VACCINATION RATE DUE TO UTILIZE OF MOBILE CART OF VACCINATION

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Purpose: Flu is a contagious respiratory illness caused by influenza viruses. The best way to prevent the flu is by getting vaccinated each year. In the past few years, the vaccination rate in our hospital has been low. We implement a plan to elevate the influenza vaccination rate.

Methods: In October 2012, the physician, nursing staff and infection control nurse brought the mobile medication cart to the offices, the nursing stations and the places of conference or employee education. All the equipments of vaccination were within this medication cart. Thus healthcare workers instantly got vaccinated after appropriate evaluation. We called this medication cart as "mobile cart of vaccination". In the past, we offered the healthcare workers collective vaccination at the fixed time and location. We assessed the change of the flu vaccination rate after the use of the mobile cart of vaccination. In addition, we compared the incidence of influenza of healthcare workers from Oct 2011 to Sep 2012 with Oct 2012 to Sep 2013.

Results: The flu vaccination rate in 2011 and 2012 were 73.6% and 87.6%, respectively. There was a significantly increased vaccination rate from 2011 to 2012 (p < 0.0001). Fifteen healthcare workers got influenza from Oct 2011 to Sep 2012. But, only three health worker got influenza from Oct 2012 to Sep 2013. The incidence of influenza significantly differed within above two periods (p = 0.0037).

Conclusions: In addition to provide the collective vaccination at the fixed time and place, the busy healthcare workers could have more flexible time to get vaccinated due to utilize of mobile cart of vaccination. Thus, fewer healthcare workers got flu.

RETROSPECTIVE ANTIMICROBIAL AUDIT FOR COMMON REASONS OF INAPPROPRIATENESS

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Purpose: Although prospective antimicrobial audit is considered more effective than retrospective review in antibiotic stewardship program strategy, retrospective audit could understand the comprehensive reasons of inappropriate prescriptions. In this study, the 5-year results of retrospective audit were reviewed.

Methods: Between 2010 and 2014, 430 medical records were randomized selected and reviewed by 3 infectious diseases specialists (IDs). The reasons of inappropriateness were analyzed.

Results: There were 1696 prescriptions analyzed. Among them, 59.4% were used prudently, and 76.3% of cefazolin, 75.9% of Ampicillin/subactam, 74.2% of cefuroxime were top 3 adequate regimes. However, 50.0% of ciprofloxacin, 49.6% of piperacillin/tazobactam, 46.2% of vancomycin, were not appropriate. The common reasons of inappropriateness were: 23.5% of cefazidine, 23.3% of piperacillin/tazobactam and 16.5% of vancomycin, respectively. In the retrospective audit, there were 26.1% of ciprofloxacin and 9.8% of ceftriaxone did not cover target pathogens; 17.1% of cefepime were prescribed without any bacterial evidences; 26.1% of imipenem could be modified according to the antimicrobial susceptibility; 31.2% of gentamicin and 22.6% of metronidazole were not suitable for target infection sites.

CONCLUSIONS: Common reasons for inappropriate antimicrobial prescriptions.

ANTIBIOTIC STEWARDSHIP: EDUCATION AND COMMUNICATION

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There have been antibiotic prescribing audit in our hospital for 6 years. However, the prescriptions of antibiotics rose notably in the second half of 2013. Therefore, an advanced antibiotic stewardship has been implemented since Jan. 2014.

Methods:
1. Public announcement:
   - Declaring the severity of upward cost of antibiotics and trend of bacterial resistance to all doctors in the monthly hospital meeting. The administrators supported antibiotic stewardship openly.
   - Displaying posters to illustrate antibiotic stewardship at every ward.

2. Education:
   - Conducting several hospital speeches which highlighted how to prescribe antibiotics, prophylactic uses and clinical pitfalls.

3. Communication:
   - Inviting a prestigious infectious specialist or pulmonologist from another hospital as the counselor of case conference every month.
   - Participation of the infectious specialist in the internal meetings and ward rounds of ICU.

Results: The growth rate of antibiotic cost had positively increased since March, 2013 until April, 2014 (Fig). Afterward, it has showed the reverse trend till the end of study.