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Spatial analysis of patients with multi-drug resistant pulmonary tuberculosis between 2009 and 2012 in Eastern China

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Background: China has the second highest tuberculosis (TB) burden worldwide, with approximately 1 million new cases per year. Moreover, multidrug-resistant tuberculosis (MDR-TB) poses a major threat to TB control in China. In 2008, 5.7% of newly diagnosed and 25.6% of previously treated TB patients in China had MDR-TB. This study aims to analyze the spatial distribution of patients with multi-drug resistant pulmonary tuberculosis in Zhejiang Province, eastern China, to identify hotspot that may be subject to clustering of transmission, and provide a theoretical basis for the further study of the risk factors of tuberculosis and its prevention and control strategy.

Methods & Materials: We collected the information related to notified cases of multi-drug resistant pulmonary tuberculosis patients from at county level in Zhejiang Province between 2009 and 2012, and analyzed the survey data by ArcGIS 10.0 software using geographic information system spatial analysis method.

Results: During the study period, there were a total of 647 patients with multi-drug resistant pulmonary tuberculosis of all 90 counties in Zhejiang Province, overall space distribution showed a trend of central and southwestern more gathering. Spatial clustering analysis of the cases in 2009 identified 2 clusters, the first cluster included two urban areas, the other included rural sites; spatial clustering analysis of the cases in 2010 identified 1 cluster, included 5 counties/districts; spatial clustering analysis of the cases in 2011 identified 2 clusters, the first cluster included 5 counties/districts, the other included 2 counties from mountain areas; spatial clustering analysis of the cases in 2012 identified 2 clusters, the first cluster included two urban districts in the capital of Zhejiang Province, the other included 5 counties in relatively developed areas.

Conclusion: There was a gathering phenomenon of patients with multi-drug resistant pulmonary tuberculosis in the central and southwestern of Zhejiang province between 2009 and 2012, the notifications were not randomly distributed in space, clusters did exist in Zhejiang province, and the clusters most likely existed in the region of Quzhou, Southwestern of Zhejiang, and the region of Hangzhou, central Zhejiang.

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Prevalence and characterization of group B streptococcus among pregnant women at a tertiary hospital in South Africa

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Background: Group B Streptococcus (GBS) is a significant cause of perinatal and neonatal disease. Maternal screening for GBS colonization followed by intrapartum antibiotic prophylaxis is effective in reducing invasive GBS disease in newborns. In this study we determined the prevalence of maternal GBS colonization including
Methods & Materials: Vagino-rectal swabs were collected from 284 pregnant women between 26-37 weeks gestation from November 2013 to May 2014. Swabs were cultured onto selective Granada medium and incubated at 35°C under anaerobic conditions for 18-24hrs. Characteristic orange colonies on of GBS on Granada medium were confirmed by Streptex agglutination. Antimicrobial susceptibility was tested against penicillin, erythromycin, clindamycin, vancomycin and levofloxacain by Etest using CLSI guidelines. Serotyping was performed by latex agglutination.

Results: Seventy-two (25%) pregnant women were colonized with GBS. All isolates were susceptible to penicillin (MIC<sub>90</sub> = 0.125mg/l), however, reduced MIC values (0.25mg/l, 0.7mg/l and 1 mg/l) were observed in three isolates. Reduced susceptibility to erythromycin (17%) and clindamycin (6%) was also observed. All isolates were susceptible to vancomycin and levofloxacin. The most common serotypes were Ia (54%), III (19%), and V (17%).

Conclusion: We report a high prevalence of GBS colonization amongst pregnant women. Although penicillin remains the drug of choice for treating GBS, active surveillance should be encouraged to monitor susceptibility trends in order to detect emergence of resistance. Erythromycin and clindamycin should only be used in penicillin intolerant cases after susceptibility results are available. Vancomycin or levofloxacain may be considered in a setting of high levels of macrolide resistance. Serotype Ia was found to be the commonest serotype in this study. This is consistent with local and international findings.

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Assessment of uptake of intermittent preventive therapy for malaria in pregnancy following a health facility based training approach in Akwa Ibom state, Nigeria

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Background: The Nigeria Demography and Health Survey 2013 reported only 11.6% of pregnant women attending antenatal care (ANC) received Intermittent Preventive Therapy (IPTp) with Sulphadoxine-Pyrimethamine (SP) to prevent malaria. The United States President’s Malaria Initiative funds the Malaria Action Program for States (MAPS) project to implement malaria interventions in selected states including Akwa Ibom State in Nigeria. Previous training of ANC providers on management of malaria in pregnancy in clusters where health workers were selected by their supervisors for the training outside the facility did not yield much behavior change. A change in training strategy to facility based training (FBT) was undertaken. This study assessed uptake of IPTp among ANC attendees following FBT.

Methods & Materials: A before and after study of uptake of 2 doses of IPTp was conducted in nine health facilities (HFs) selected based on history of high volume of ANC attendance and availability of SP. Two-day training on management of malaria in pregnancy was conducted in each HF using participatory and adult learning principles with national training materials including proper documentation and reporting on national registers. Total of 252 health workers were trained between May and August 2015. Data on mean percentage of ANC attendees who received 1<sup>st</sup> and 2<sup>nd</sup> doses of