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311 MYO MYO MON; SAW SAW; YIN THET NU OO; SAN HONE; SAN SAN AYE; PYONE THUZAR NGE; TIN ZAR AUNG **Socio-economic and health consequences among HIV/AIDS affected families and orphans in Hlinethaya Township.** *Myanmar Health Sciences Research Journal* (2011) **23** (2) 65-71 Yangon, Myanmar; Department of Medical Research, Ministry of Health [En, 10 ref.]

With the objectives of identifying the socio-economic and health consequences among HIV/AIDS orphans, a community based study was conducted employing qualitative research methods in 2009. In-depth interviews with 16 parents/guardians and 18 key informant interviews with the basic health staff, community volunteers and responsible persons from an international non-governmental organization were carried out in Hlinethaya Township, Yangon. There were 41 orphans comprised of 18 double orphans, 21 paternal orphans and 2 maternal orphans. Four orphans and eight guardians were HIV positive. Social consequences included family dispersion, effects on education and stigma/discrimination. Family dispersion was seen in three out of 18 families. There was no orphan currently under care of or stayed with non-relative guardians. About half of school going age orphans dropped out from the school because of economic hardship. Some older children had to work to help the single parents and younger siblings. Discrimination was uncommon among the extended family members. However, disclosure of HIV status affected the working opportunity of single parents. Although change in family possession was not significant, many families had difficulty in struggling for family's daily expenses along with the loss of the bread winner. Vertical transmission of HIV was seen in 4 children. Malnutrition and TB were common health problems for HIV infected orphans. All affected families have some extent of socio-economic consequences from HIV/AIDS. Sustainability and strengthening of support programs should be strongly considered since availability of these support networks could alleviate the negative consequences.

312 TAYLER-SMITH, K.; ZACHARIAH, R.; MANZI, M.; KIZITO, W.; VANDENBULCKE, A.; SITENEI, J.; CHAKAYA, J.; HARRIES, A. D. **Antiretroviral treatment uptake and attrition among HIV-positive patients with tuberculosis in Kibera, Kenya.** *Tropical Medicine and International Health* (2011) **16** (11) 1380-1383 Oxford, UK; Wiley-Blackwell [En, es, fr, 11 ref.] Medical Department, Operational Center Brussels, MSF-Luxembourg, 68 Rue de Gasperich, L-1617 Gasperich, Luxembourg. Email: zachariah@intemet.lu

Using data of human immunodeficiency virus-positive patients with tuberculosis from three primary care clinics in Kibera slums, Nairobi, Kenya, we report on the proportion that started antiretroviral treatment (ART) and attrition (deaths, lost to follow-up and stopped treatment)

before and while on ART. Of 427 ART eligible patients, enrolled between January 2004 and December 2008, 70% started ART, 19% were lost to attrition and 11% had not initiated ART. Of those who started ART, 14% were lost to attrition, making a cumulative pre-ART and ART attrition of 33%. ART uptake among patients with TB was relatively good, but programme attrition was high and needs urgent addressing.

313 LIU, C. H.; LI, H. M.; LI, L.; HU, Y. L.; WANG, Q.; YANG, N.; WANG, S.; ZHU, B. **Anti-tuberculosis drug resistance patterns and trends in a tuberculosis referral hospital, 1997-2009.** *Epidemiology and Infection* (2011) **139** (12) 1909-1918 Cambridge, UK; Cambridge University Press [En, 35 ref.] Institute for Tuberculosis Research, 309 Hospital, 17 HeiShanHu Road, HaiDian District, Beijing 100091, China. Email: cuihualiu@gmail.com. zhubaoli@im.ac.cn

Information about the changing epidemiology of drug-resistant tuberculosis (TB) in hospitals in China over the past decade remains largely unknown. This study examined the susceptibility patterns and trends of drug-resistant TB cases in the 309 Hospital in Beijing, China. *Mycobacterium tuberculosis* isolates were retrospectively identified, drug susceptibility test (DST) results and clinical data were analysed for the period 1997-2009. Of the 5523 culture-positive TB patients, 47.1% had resistance to any anti-TB drug, 14.8% had mono-resistant TB, 19.8% had poly-resistant TB, 19.4% had multidrug-resistant TB (MDR-TB), and 1.3% had extensively drug-resistant TB (XDR-TB). Drug-resistant TB was significantly associated with age group, residential situation, and TB treatment history (P<0.001). During 1997-2000, the percentage of TB patient· with any resistance, mono-resistant TB, poly-resistant TB, MDR-TB and XDR-TB all increased significantly (P<0.001). During 2000-2003, the increasing trends of MDR-TB and XDR-TB cases were reversed. During 2004-2009, the percentage of TB patients with any resistance, mono-resistant TB, poly-resistant TB, MDR-TB and XDR-TB all declined significantly (P<0.001), but the prevalence of MDR-TB and poly-resistant TB cases remained high. Our study provides evidence demonstrating that intensive TB control measures have helped reverse the increasing trends of drug-resistant TB in China, but continuous surveillance of drug-resistant TB and better case management are still needed to further reduce the remaining high prevalence of drug-resistant TB.

314 LIM HYOJEONG; PARK CHANGMIN; PARK YOUNGSIK; LEE JINWOO; LEE SANGMIN; YANG SEOKCHUL; YOO CHULGYU; KIM YOUNGWHAN; HAN SUNGKOO; YIM JAEJOON **Isolation of multiple nontuberculous mycobacteria species in the same patients.** *International Journal of Infectious Diseases* (2011) **15** (11) e795-e798 Oxford, UK; Elsevier Ltd [En] Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine and Lung Institute, Seoul National University College of Medicine, 101 Daehangno, Jongno-gu, Seoul 110-744, Korea Republic. Email: yimjj@snu.ac.k

BACKGROUND: During the observation of many patients with nontuberculous mycobacteria (NTM) infections, we have often isolated different NTM species in the same patient. In this study we elucidated the patterns of multiple NTM species isolation. METHODS: The analysis included all patients from whom more than one species of mycobacteria were cultured from a respiratory specimen at Seoul National University Hospital, a tertiary referral hospital in South Korea, between January 2002 and December 2008. The demographic characteristics and clinical and radiographic findings were reviewed retrospectively. RESULTS: Multiple NTM species were isolated from 37 patients. Four patients with *Mycobacterium gordonae, Mycobacterium terrae,* or *Mycobacterium Lentiflavum* were

excluded due to the possibility of contamination. Transition to another NTM species was observed in 23 patients (69.7%), while alternating isolation of two or three NTM species was seen in nine patients. Two species were isolated simultaneously from different sputum samples collected from one patient on the same day. CONCLUSIONS: Different NTM species were isolated from the same patients.

315 LEE SEUNGHWAN; PARK WANBEOM; SHIN KWANGHEE; AHN DONGHO; YOON SEOHYUN; CHO JOOYOUN; SHIN SANGGOO; JANG INJIN; YU KYUNGSANG **Immunogenicity and safety of a single intramuscular dose of a diphtheria-tetanus toxoid (Td) vaccine (GC1107) in Korean adults.** *Vaccine* (2011) **29** (44) 7638-7643 Oxford, UK; Elsevier Ltd [En, 23 ref.] Department of Pharmacology and Clinical Pharmacology, Seoul National University College of Medicine and Hospital, Seoul, Korea Republic. Email: ksyu@snu.ac.kr

The current study aimed to evaluate immunogenicity and safety of a newly developed diphtheria-tetanus toxoid (Td) vaccine, GCI107 (Green Cross Corporation, Yongin, Korea), in comparison with placebo and active comparator (licensed Td vaccine) in healthy Korean adults. A randomized, double-blind, placebo and active comparator-controlled study was conducted. Forty subjects were randomly administered a single intramuscular dose of GC 1107, active comparator or placebo in a ratio of 2: 1: 1. At 2 and 4 weeks after vaccination, anti-diphtheria antibody levels in the GC1107 group increased 9.2 and 9.3 times, respectively, compared to predose titers. The corresponding values were 9.3 and 8.3 times for the active comparator group. Anti-tetanus antibody levels increased 39.0 and 37.9 fold at 2 and 4 weeks, respectively, after GC1107 administration, and 12.2 and 14.7 fold after active comparator administration. No increases in tetanus or diphtheria antibody were observed for the placebo group. Adverse events in the GC 1107 and active comparator groups were more frequent than for the placebo group, but there were no significant differences between the two active treatments. In conclusion, GC1107 was well tolerated and provided significant boosts of anti-tetanus and anti-diphtheria antibodies.

316 BANG HYEEUN; PARK SANGJUNG; HWANG JOOHWAN; JIN HYUNWOO; CHO EUNJIN; KIM DAE YOON; SONG TAEK-SUN; SHAMPUTA, I. C.; VIA, L. E.; BARRY, C. E., III; CHO SANGNAE; LEE HYEYOUNG **Improved rapid molecular diagnosis of multidrug-resistant tuberculosis using a new reverse hybridization assay, REBA MTB-MDR.** *Journal of Medical Microbiology* (2011) **60** (10) 1447-1454 Reading, UK; Society for General Microbiology [En, 22 ref.] Department of Biomedical Laboratory Science, College of Health Sciences, Yonsei University, Wonju 220-710, Korea Republic. Email: hyelee@yonsei.ac.kr

Rapid diagnosis of multidrug-resistant tuberculosis (MDRTB) is essential for the prompt initiation of effective second-line therapy to improve treatment outcome and limit transmission of this obstinate disease. A variety of molecular methods that enable the rapid detection of mutations implicated in MDR-TB have been developed. The sensitivity of the methods is dependent, in principle, on the repertoire of mutations being detected, which is typically limited to mutations in the genes *rpoB, katG* and the promoter region of *inhA.* In this study, a new reverse hybridization assay, REBA MTB-MDR (M&D), that probes mutations in the *oxyR-ahpC* intergenic region, in addition to those in *rpoB, katG* and the *inhA* promoter region, was evaluated. A set of 240 *Mycobacterium tuberculosis* clinical isolates from patients receiving retreatment regimens was subjected to conventional phenotypic drug-susceptibility

testing (DST) and the REBA MTB-MDR assay. The nucleotide sequences of the loci known to be involved in drug resistance were determined for comparison. In brief, the results showed that the REBA MTB-MDR assay efficiently recognized nucleotide changes in the *oxyR-ahpC* intergenic region as well as those in *rpoB, katG* and the *inhA* promoter region with higher sensitivity, resulting in an 81.0% detection rate for isoniazid resistance. Inclusion of the *oxyR-ahpC* intergenic region in the REBA MTB-MDR assay improved the overall sensitivity of molecular DST for MDR-TB from 73.1 to 79.9%.

317 NAGARAJA, C.; SHASHIBHUSHAN, B. L.; SAGAR, C.; ASIF, M.; MANJUNATH, P. H. **Resistance pattern in drug-resistant pulmonary tuberculosis.** *Journal of Postgraduate Medicine* (2011) **57** (3) 181-183 Mumbai, India; Medknow Publications [En, 10 ref.] Department of Pulmonary Medicine, Rajiv Gandhi Institute of Chest Diseases, BMCRI, Bangalore, Karnataka, India.

BACKGROUND: Drug-resistant tuberculosis is an important issue for public health. There is a rise in the trend of drug-resistant tuberculosis, especially multi drug resistance (MDR), in different parts of world, India being one of the high burden countries. This study is undertaken to assess the various patterns of resistance among confirmed drug resistant pulmonary tubercular patients and to initiate second line anti tubercular treatment. AIMS AND OBJECTIVES: To assess various resistance patterns among confirmed drug resistant pulmonary tubercular patients and for the initiation of appropriate, drug regimens in our setup. STUDY DESIGN: An observational prospective study. MATERIALS AND METHODS: This study was conducted at Rajiv Gandhi Institute of Chest Diseases, Bangalore between January 2005 and November 2010. A total of 309 drug resistant tuberculosis cases were studied. Sputum culture and drug sensitivity were carried out at National Tuberculosis Institute. Drug sensitivity testing done for all first line drugs, except pyrazinamide, by using LJ media. RESULTS: In this study, out of 309 patients, MDR pattern was observed in 224 (72%), of which 20 (6.47%) had resistance only to isoniazid (INH) and rifampicin (RMP), 58 (18.7%) had resistance to INH, RMP, and either of the other first line drugs streptomycinor ethambutol and 146 (47.25%) had resistance to all first line drugs. Poly drug resistance pattern was observed in 72 (23.3%) and Mono drug resistance in 13 (4.2%). CONCLUSION: In the present study the most common pattern observed is MDR with predominant resistance to INH. There is a rise in the number of drug resistant tuberculosis cases, especially MDR. Hence close monitoring of drug resistant pattern is required to formulate designs of different regimens in the treatment of drug resistant tuberculosis; especially MDR-TB based on accredited laboratory reports, in a specialized center which is very much essential for the bettennent of the patients and the community.

318 NOORBAKHSH, S.; MOUSAVI, J.; BARATI, M.; SHAMSHIRI, A. R.; SHEKARABI, M.; TABATABAEI, A.; SOLEIMANI, G. **Evaluation of an interferon-gamma release assay in young contacts of active tuberculosis cases.** *Eastern Mediterranean Health Journal* (2011) **17** (9) 714-718 Cairo, Egypt; World Health Organization, Regional Office for the Eastern Mediterranean [En, ar, fr, 16 ref.] Research Centre of Paediatric Infectious Diseases, Tehran University of Medical Sciences, Tehran, Iran. Email: samIeh_noor bakhsh@yahoo.com

In a cross-sectional study in a hospital in Tehran in 2006-08 the QuantiFERON®- TB interferon-gamma release assay (QTB) was compared with the tuberculin skin test (TST) in 59 young people (aged <20 years) with close contact with immunocompetent cases of proven pulmonary tuberculosis. After 1 year follow-up 10 subjects

had progressed to tuberculosis disease and received treatment; TST was positive in 30% and QTB in 100%. Of the 49 non-progressive subjects, TST was positive in 10.4% and QTB in 16.3%. The agreement between TST and QTB assay in non-progressive subjects was poor (=0.43). False positive and false negative rates for TST were 40.0% and 9.3% respectively; positive and predictive values were 60.0% and 90.7%. We suggest adding the interferon assay to the skin test in the decision to perform chest X-ray or to start chemoprophylaxis at least in younger subjects (aged <20 years).

319 NAKANAGA, K.; HOSHINO, Y.; YOTSU, R. R.; MAKINO, M.; ISHII, N. **Nineteen cases of Buruli ulcer diagnosed in Japan from 1980 to 2010.** *Journal of Clinical Microbiology* (2011) **49** (11) 3829-3836 Washington, USA; American Society for Microbiology (ASM) [En, 36 ref.] Leprosy Research Center, National Institute of Infectious Diseases, 4-2-1 Aoba-cho, Higashimu-rayama-shi, Tokyo 189-0002, Japan. Email: nakanaga@nih.gojp

The etiology, clinical manifestations, and treatment of 19 sporadic cases of Buruli ulcer (BU) in Japan are described. The cases originated in different regions of Honshu Island, with no evidence of patient contact with an aquatic environment. The majority (73.7%) of cases occurred in females, with an average age of 39.1 years for females and 56.8 years for males. All patients developed ulcers on exposed areas of the skin (e.g., face, extremities). Most ulcers were <5 cm in diameter (category I), except in one severe progressive case (category II). Pain was absent in 10 of the 19 cases. Fourteen ulcers were surgically excised, and nine patients needed skin grafting. All cases were treated with various antibiotic regimens, with no reported recurrences as of March 2011. *Mycobacterium ulcerans-specific* IS*2404* was detected in all cases. Ten isolates had identical 16S rRNA gene sequences, which were similar to those of *M. ulcerans.* However, the *rpoB* gene showed a closer resemblance to *Mycobacterium marinum* or *Mycobacterium pseudoshottsii.* PCR identified pMUM001 in all isolates but failed to detect one marker. DNA-DNA hybridization misidentified all isolates as *M. marinum.* The drug susceptibility profile of the isolates also differed from that of *M. ulcerans.* Sequence analysis revealed *"Mycobacterium ulcerans* subsp. *shinshuense"* as the etiologic agent of BU in Japan. Clinical manifestations were comparable to those of M. ulcerans but differed as follows: (i) cases were not concentrated in a particular area; (ii) there was no suspected connection to an aquatic environment; (iii) drug susceptibility was different; and (iv) bacteriological features were different.

320 LIGTHELM, L. J.; NICOL, M. P.; HOEK, K. G. P.; JACOBSON, R.; HELDEN, P. D. VAN; MARAIS, B. J.; WARREN, R. M.; WRIGHT, C. A. **Xpert MTB/RIF for rapid diagnosis of tuberculous lymphadenitis from fine-needle-aspiration biopsy specimens.** *Journal of Clinical Microbiology* (2011) **49** (11) 3967-3970 Washington, USA; American Society for Microbiology (ASM) [En, 15 ref.] Divisions of Anatomical Pathology, P.O. Box 19063, Tygerberg, Cape Town 7505, South Africa. Email: louisligthelm@sun.ac.za

This study demonstrates the excellent diagnostic accuracy of the Xpert MTB/RIF test in patients with tuberculous lymphadenitis. The test sensitivity and specificity were 96.7% (95% confidence interval [CI], 86.6 to 100%) and 88.9% (95% CI, 69.6 to 100%), respectively, and it correctly identified 6/6 (100%) of the cytology smear-negative/culture-positive cases and 1 of 2 (50%) rifampin-resistant cases.

321 ATRE, S. R.: RANGAN, S. G.; SHETTY, V. P.; NILESH GAIKWAD; MISTRY, N. F. **Perceptions, health seeking behaviour and access to diagnosis and treatment initiation among**

previously undetected leprosy cases in rural Maharashtra, India. *Leprosy Review* (2011) **82** (3) 222-234 Colchester, UK; LEPRA (En, 16 ref.] Foundation for Research in Community Health, Pune, India. Email: fmr@fmrindia.org

OBJECTIVES: To study sociodemographic profiles, perceptions about leprosy and health seeking patterns among adult leprosy patients and parents of children with leprosy detected through a prevalence survey conducted earlier, in rural areas of Panvel tehsil in Maharashtra. METHODS: The study was cross-sectional and used mixed (qualitative and quantitative) methods. Of the 97 confirmed rural leprosy cases who had been detected through the initial prevalence survey, 58 newly detected adult leprosy cases and parents of 22 children detected with leprosy were interviewed with a semi-structured interview schedule between May 2008 and March 2009. FINDINGS: The study revealed that most of the leprosy patients belonged to the poor socioeconomic strata. Nearly 58% of the adult patients reported that they had been detected through the survey within 3 months of noticing their symptom(s) for the first time. Despite having been diagnosed and receiving treatment, only 48% of adult cases knew their condition as leprosy, reflecting their poor knowledge of the disease and lack of communication between providers and patients. The symptom 'patch on the skin' seems to have percolated in the community. Despite approaching the private or public sector for help in the first instance, many patients and children remained undiagnosed and untreated for leprosy. CONCLUSION: Active surveys for leprosy case detection should substitute the self-reporting approach until lEC measures are sufficiently effective to achieve a significant impact on transmission. Nevertheless both approaches will need the presence of staff with active diagnostic skills and optimal drug availability at PHCs.

322 PREMAL DAS; JULIUS KUMAR; KARTHIKEYAN, G.; RAO, P. S. S. **Efficacy of Temporalis Muscle Transfer for correction of lagophthalmos in leprosy.** *Leprosy Review* (2011) **82** (3) 279-285 Colchester, UK; LEPRA [En, 18 ref.] TLM Community Hospital Naini, Allahabad, Uttar Pradesh, India. Email: tlmnaini@tlmindia.org, premal.das@tlmindia.org

OBJECTIVES: Temporalis Muscle Transfer (TMT) is a surgical technique used to correct lagophthalmos in leprosy patients. We have evaluated the degree of success of TMT in achieving full lid closure, which is important in preventing damage to the cornea. SUBJECTS AND METHODS: A retrospective study was carried out on 69 patients who had TMT done, at one centre, on 101 eyes during the period of 1998-2009. Lid gaps on direct gaze and with both gentle and forced closure, as well as voluntary muscle testing of eye lid closure, were assessed using standard measuring techniques by a qualified physiotherapist. Associated problems due to lagophthalmos were recorded both pre- and post-operatively. Data were abstracted on to a special proforma and subjected to statistical analysis using SPSS. RESULTS: On completion of post-operative physiotherapy, 85% of the eyes could achieve full lid closure with no measurable gap. The mean (SD) lid gap on forced closure was 4.8 (2.8) mm pre-operatively and 0.2 (0.5) mm at the end of the inpatient stay. The mean (SD) lid gap on gentle closure was 7.9 (2.6) mm preoperatively and 24 (1.8) mm post-operatively. The mean (SD) vertical inter-palpebral distance, during straight gaze, was reduced from 12.6 (1.6) pre-operatively to 9.8 (1.2) post-operatively. Exposure keratitis cleared in 16 of 27 eyes (60%) and Epiphora cleared or improved in 31 eyes. CONCLUSIONS: It is concluded that the TMT is a successful option (cosmetically and functionally) for correction of lagophthalmos.

323 KAWUMA, H. J. S.; NABUKENYA MUDIOPE, M. G. **A study on inclusion of leprosy in the curricula of pre-service health training institutions in Uganda.** *Leprosy Review* (2011) **82** (3) 296-303 Colchester, UK; LEPRA [En, 13 ref] German Leprosy and TB Relief Association (GLRA), P. O. Box 3017 Kampala, Uganda. Email: kawuma infococom.co.ug

OBJECTIVE: To establish the categories of pre-service health training institutions in Uganda that still maintain leprosy in their curricula and how leprosy training is organised. MATERIALS AND METHODS: A structured questionnaire was administered to the heads of 42 health training institutions including universities, paramedical and nurses' training schools. RESULTS: Leprosy was included in the curricula of 33 (78%) of the institutions studied but only 50% of them had organised leprosy training in the 2 years prior to the study. In 48% of cases the training was implemented by in-house trainers; the rest depended on external trainers and staff of a leprosy training centre. Course evaluation using a variety of methods was practiced by 80% of the institutions. CONCLUSIONS: Inclusion of leprosy in the curricula of pre-service health training institutions was not always followed by actual training. It is possible and acceptable to organise leprosy training within the confines of the institutions provided arrangements are made to include interaction with patients. Local leprosy control supervisors and dermatologists can be engaged to support pre-service training. In order to derive optimal benefit from this opportunity, the National Tuberculosis and Leprosy Control Programme should develop a national plan for leprosy training, organise training of trainers and assure access to appropriate teaching and learning materials. There is a need for more comprehensive evaluation of the ongoing leprosy training in pre-service institutions.

324 ROGHIEH, G.; ELHAM, G.; RAHIM, R. S.; HAMID, G.; AIDA, M. **Diabetes mellitus and pulmonary tuberculosis, association or co-incidence?** *Pakistan Journal of Medical Sciences* (2011) **27** (4) 819-822 Karachi, Pakistan; Professional Medical Publications [En, 30 ref.] Infectious Diseases Research Center, Golestan University of Medical Sciences, Golestan, Iran. Email: s_besharat_gp@yahoo.com

OBJECTIVES: To evaluate the effect of Diabetes Mellitus (OM) on clinical and diagnostic methods and radiological features of pulmonary TB, in comparison to non diabetic pulmonary TB patients, in Golestan province, Northeast of Iran. METHODOLOGY: In this retrospective cross-sectional study during 2004-2008, medical records of patients with definite diagnosis of pulmonary TB were reviewed. Demographic data, clinical & diagnostic method and radiological findings were studied. Radiological data and lung High Resolution computed tomographic scan (lung HRCT) were done by two different radiologists. After data entry into SPSS-16, Fischer's exact test and chi-square test were used to compare the two groups (TB with DM & without it). P-value <0.05 was considered significant. RESULTS: Among 200 patients with pulmonary TB, 80 (40%) had TB and concurrent DM (PTDM group). The mean age of two groups was not significantly different. Coincidental TB and DM were seen significantly more in female (P-value <0.01). There was a significant difference between the two groups as regards fever, dyspnea, weight loss and hemoptysis. Positive sputum smear was the most frequent diagnostic method in both groups (PT, PTDM), no significant difference was shown (P-value >0.05). Multilobar cavities were significantly more reported in diabetics (p-value=0.014). No statistical differences were seen between two groups radiologically. CONCLUSION: Tuberculosis could be more invasive in diabetic patients especially females hence they should be given more attention.

691 MONTEIRO, S. A. M. G.; TAKANO, O. A.; WALDMAN, E. A. **(Evaluation of the Brazilian surveillance system for adverse events following vaccination.] Avaliação do sistema brasileiro de vigilância de eventos ad versos pós-vacinação.** *Revista Brasileira de Epidemiologia* (2011) **14** (3) 361-371 Rio de Janeiro, Brazil; Associação Brasileira de Pós-Graduação em Saúde Coletiva [pt, en, 33 ref.] Instituto de Saúde Coletiva, Universidade Federal de Mato Grosso, Av. Fernando Correia da Costa, s/n - Campus Universitário, CEP 78060-900 - Cuiabá (MT), Brazil. Email: sandramoreiramonteiro@gmail.com

OBJECTIVES: To describe and evaluate the Brazilian system of passive surveillance of adverse events following immunization (PSAEFI). METHODS: The description and evaluation of PSAEFI were undertaken using the reported cases of adverse events following immunization with DTwP-Hib vaccine (AEFI-T), during the period from 2002 to 2005, using the Centers for Disease Control methodology. RESULTS: The PSAEFI system, which provides national coverage, is designed to standardize practices in cases of adverse events following immunization (AEFI) and to identify highly reactogenic lots of vaccine. The PSAEFI system proved its usefulness, simplicity and flexibility; despite low sensitivity, overestimate the proportion of sever events, but it consistently described AEFI-T, identifying fever, convulsions and hypotonic-hyporesponsive episodes as the most common events. It showed that 49.7% of AEFI-T occur after the first dose, and that 72.8% occur within the first six hours after vaccination. It facilitates public health decisions and epidemiological investigations. It is timely, 46.1% of all AEFI-T being reported within 10 days after vaccination and its completeness ranges from 70 to 90%, depending on the item evaluated. CONCLUSIONS: The PSAEFI system proved useful for monitoring DTwP-Hib vaccine safety. We recommended the incorporation of new methodologies, such the use of sentinel cities/hospitals and computerized immunization registries in order to increase its sensitivity.

692 MAGALHÃES, M. DA C. C.; SANTOS, E. S. DOS; QUEIROZ, M. DE L. DE; LIMA, M. L. DE; BORGES, R. C. M.; SOUZA, M. S.; RAMOS, A. N. **[Migration and Hansen's disease in Mato Grosso.]** Migração e hanseníase em Mato Grosso. *Revista Brasileira de Epidemiologia* (2011) **14** (3) 386-397 Rio de Janeiro, Brazil; Associação Brasileira de Pós-Graduação em Saúde Coletiva [Pt, en, 26 ref.] Ministcrio da Saúde, SQS 205, Blow I, Apto. 606 - Asa Sul, CEP: 70295-050 Brasília (DF), Brazil. Email: mariac.magalhaes @uol.com.br

Studies on medical geography about leprosy discuss the role of the detailed report of the occupation of the territories as a basis of the permanence of leprosy focus. In Brazil, the states that present the highest rates of detection historically are in the Amazon region, which shows an uneven regional evolution of the disease. This paper analyzes the evolution of leprosy contextualizing the migratory processes that occurred in the State of Mato Grosso since the second half of the 20th century. The economic dynamism that occurred in the State in the 1970s, I980s and 1990s caused population growth rates higher than the national average. The data analyzed permitted an association between the evolution of leprosy and the process of occupation of the mato-grossense territory. However, the permanence of leprosy in the municipalities of the Baixada Cuiabana, as well as in other municipalities that lost population, seem to point to the existence of geographic contexts of different vulnerability to the social production of the disease in the tate. The migration would explain the appearance and evolution of leprosy. However, we consider that the maintenance of the endemic can be associated to contextual factors related to environment.

693 HECK, M. A.; COSTA, J. S. D. DA; NUNES, M. F. **[Tuberculosis treatment drop out prevalence and associated factors in Sapucaia do Sui County (RS), Brazil, 2000-2008.]** Prevalência de abandono do tratamento da tuberculose e fatores associados no município de Sapucaia do SuI (RS), Brasil, 2000-2008. *Revista Brasileira de Epidemiologia* (2011) **14** (3) 478-485 Rio de Janeiro, Brazil; Associação Brasileira de Pós-Graduação em Saúde Coletiva [Pt, en, 27 ref.] Vigilância Epidemiológica da Secretaria Municipal de Saúde de Sapucaia de SuI, Sapucaia do SuI (RS), Brazil. Email: episoares@terra.com.br

OBJECTIVE: To estimate the Tuberculosis treatment drop out prevalence and the variables associated in the patients registered in the Tuberculosis Control Program in Sapucaia do Sui (Brazil), between 2000 and 2008. METHOD: A cross-sectional study was conducted, which was based on the notified data in Information System for Disease Surveillance of the City Health Secretariat. RESULTS: From the 632 cases included in the study, 65 (10.3%; CI95%=7.9-12.7) were classified as treatment abandonment. Between 2000 and 2004, the prevalence of noncompliance was 12.7% (95%CI=9.1-16.2), and in the period 2005 to 2008 decreased to 7.0% (95%CI=4.0-9.9). In the crude analysis, we find association with sex, age and AIDS presence. The adjusted analysis with the Poisson regression didn't show significant differences between the independent variables. CONCLUSION: The analysis showed reduction in the prevalence of noncompliance with the creation of Tuberculosis Control Program, from 2005, although the confidence intervals are shown superimposed. Still. the prevalence of noncompliance was high and stove above the 5% target, agreed between levels of government.

694 NOGUEIRA, P. A.; ABRAHÃO, R. M. C. DE M.; GALESI, V. M. N. **[Latent tuberculosis among professionals with and without direct contact with inmates of two penitentiaries in the State of São Paulo, Brazil, 2008.]** Infecção tuberculosa latente em profissionais contatos e não contatos de detentos de duas penitenciárias do estado de São Paulo, Brasil, 2008. *Revista Brasileira de Epidemiologia* (2011) **14** (3) 486-494 Rio de Janeiro, Brazil; Associação Brasileira de Pós-Graduação em Saúde Coletiva [Pt, en, 19 ref.] Departamento de Epidemiologia, Faculdade de Saúde Pública, Universidade de São Paulo (USP), Avenida Dr. Arnaldo, 715 - Cerqueira César, CEP: 01246-904 - Sao Paulo (SP), Brazil. Email: pericles @usp.br

INTRODUCTION: For groups of persons who remain confined, mainly in prisons, tuberculosis has always been a serious health problem, due to its transmission respiratory, putting in risk the professionals that work in a prison, especially the communicants of inmates. OBJECTIVE: To know the infection prevalence for the *Mycabacterium tuberculosis* among the employees communicating and no communicating of inmates of two prisons of the State of São Paulo. METHODS: This study consisted of the application of an individual questionnaire; application and reading of the tuberculin skin testing (TST); sputum smear examination and culture; identification and drug sensitivity testing; in the period of March the June of 2008. RESULTS: 277 (48.3%) employees of the 574 existent were examined. They were applied and read 248 (89.5%) TST (PPD-RT23 - 2TU/0.1 mL); of them, 194 were in employees that worked directly with the inmates, that is, were communicants and 54 were no communicants. Among the communicants, 62.4% presented induration larger than 10 mm and among the non communicants, 38.9% presented this measure of TST. There was not positive in the sputum smear examination or in the culture, that is, tuberculosis illness case was not identified enters the professionals, at the moment of the research. CONCLUSION: This study suggests that the

communicant employees have a larger risk of if they infect for the *M. tuberculosis* and consequently of being sick of tuberculosis.

69S CONESA-BOTELLA, A.; LOEMBÉ, M. M.; MANABE, Y. C.; WORODRIA, W.; MAZAKPWE, D.; LUZINDA, K.; MAYANJA-KIZZA, H.; MIRI, M.; MBABAZI, O.; KOOLE, O.; KESTENS, L.; COLEBUNDERS, R. **Urinary lipoarabinomannan as predictor for the tuberculosis immune reconstitution inflammatory syndrome.** *JAIDS, Journal of Acquired Immune Deficiency Syndromes* (2011) **58** (5) 463-468 Hagerstown, USA; Lippincott Williams & Wilkins, Inc. [En]

BACKGROUND: Upon initiation of antiretroviral therapy (ART), 15.7% [95% confidence interval (CI): 9.7% to 24.5%] of tuberculosis (TB)-HIV-coinfected individuals experience paradoxical worsening of their clinical status with exuberant inflammation consistent with immune reconstitution inflammatory syndrome (IRIS). We investigated whether a positive urinary TB lipoarabinomannan (LAM) antigen enzyme-linked immunosorbent assay test before ART initiation was associated with development of paradoxical TB-IRIS. METHODS: In a prospective observational cohort in Mulago Hospital, Kampala, Uganda, we measured pre-ART urinary LAM concentrations in HIV-infected patients on TB treatment. Patients who developed TB-IRIS (according to the International Network for the Study of HIV-associated IRIS case definition) were compared with patients who remained IRIS free for at least 3 months. RESULTS: Twenty-six individuals with TB-IRIS and 64 without IRIS were included in the analysis. The median time to TB-IRIS was 14 days (interquartile range: 11-14 days). Univariate analysis showed that a positive pre-ART urinary LAM test [OR: 4.6 (95% CI: 1.5 to 13.8), *P*=0.006] and a CD4 count <50 cells/mL [OR: 21 (95% CI: 2.6 to 169.4), *P*=0.004] were associated with an increased risk of TB-IRIS. In multivariate analysis, only a baseline CD4 T-cell count <50 cells/mL was predictive of IRIS (P<*0.004*). Sensitivity and specificity of a positive pre-ART urinary LAM test to diagnose IRIS were 80.8% (95% CI: 60.6 to 93.4) and 52.4% (95% CI: 39.4 to 65.1), respectively. CONCLUSIONS: If CD4 T-cell count testing is available, a pre-highly active antiretroviral therapy urinary LAM test has no added value to predict TB-IRIS. When CD4 T-cell count is not available, a positive LAM test could identify patients at increased risk of TB-IRIS.

696 ASHO ALI; RUMINA HASAN; KAUSER JABEEN; NUSRAT JABEEN; EJAZ QADEER; ZAHRA HASAN **Characterization of mutations conferring extensive drug resistance to *Mycobacterium tuberculosis* isolates in Pakistan.** *Antimicrobial Agents and Chemotherapy* (2011) **55** (12) 5654-5659 Washington, USA; American Society for Microbiology (ASM) [En, 56 ref.] Department of Pathology and Microbiology, The Aga Khan University, Stadium Road, Karachi 74800, Pakistan. Email: zahra.hasan@aku.edu

The increasing incidence of extensively drug-resistant (XDR) *Mycobacterium tuberculosis* in high-tuberculosis-burden countries further highlights the need for improved rapid diagnostic assays. An increasing incidence of XDR *M. tuberculosis* strains in Pakistan has been reported, but drug resistance-associated mutations in these strains have not been evaluated previously. We sequenced the "hot-spot" regions of *rpoB, katG, inhA, ahpC, gyrA, gyrB,* and *rrs* genes in 50 XDR *M. tuberculosis* strains. It was observed that 2% of rifampin, 6% of isoniazid, 24% of fluoroquinolone, and 32% of aminoglycoside/capreomycin resistance in XDR *M. tuberculosis* strains would be undetected if only these common hot-spot regions were tested. The frequencies of resistance-conferring mutations were found to be comparable among all XDR *M. tuberculosis* strain families present, including the Central Asian Strain, Beijing, and

East African Indian genogroups and the Unique isolates. Additional genetic loci need to be tested for detection of mutations conferring fluoroquinolone, aminoglycoside, and capreomycin resistance in order to improve molecular diagnosis of regional XDR *M. tuberculosis* strains.

697 UYEL, J.; COETZEE, D.; MACINKO, J.; GUTTMACHER, S. **Integrated delivery of HIV and tuberculosis services in sub-Saharan Africa: a systematic review.** *Lancet Infectious Diseases* (2011) **11** (11) 855-867 Oxford, UK; Elsevier Ltd (En, 106 ref.] Department of Nutrition, Food Studies, and Public Health, New York University, 35 West 4th Street, 12th Floor, New York, NY 10025, USA Email: jsu205@nyu.edu

Tuberculosis is a major cause of morbidity and mortality in people with HIV and about a quarter of HIV-related deaths are attributed to tuberculosis. In this Review we identify and synthesise published evidence for the effectiveness and cost-effectiveness of eight integrated strategies recommended by WHO that represent coordinated delivery of HIV and tuberculosis services. Evidence supports concurrent screening for tuberculosis and HI V, and provision of either co-trimoxazole during routine tuberculosis care or isoniazid during routine HIV care and at voluntary counselling and testing centres. Although integration of antiretroviral therapy into tuberculosis care has shown promise for improving health outcomes for patients, evidence is insufficient to make conclusive claims. Evidence is also insufficient on the accessibility of condoms at tuberculosis facilities, the benefits of risk reduction counselling in patients with tuberculosis, and the effectiveness of tuberculosis infection control in HIV health-care settings. The vertical response to the tuberculosis and HIV epidemics is ineffective and inefficient. Implications for policy makers and funders include further investments in implementing integrated tuberculosis and HIV programmes with known effectiveness, preferably in a way that strengthens health systems; evaluative research that identifies barriers to integration; and research on integrated strategies for which effectiveness, efficiency, and affordability are not well established.

698 KATZ, I. T; ESSIEN, T.; MARINDA, E. T.; GRAY, G. E.; BANGSBERG, D. R.; MARTINSON, N. A.; BRUYN, G. DE **Antiretroviral therapy refusal among newly diagnosed HIV-infected adults.** *AIDS* (2011) **25** (17) 2177-2181 Hagerstown, USA; Lippincott Williams & Wilkins, Inc. [En, 24 ref.] Division of Women's Health and Infectious Diseases, Brigham and Women's Hospital, 3rd Floor BWH, 1620 Tremont Street, Boston, MA 02120, USA. Email: ikatz2@partners.org

OBJECTIVE: To determine rates and predictors of treatment refusal in newly identified HIV-infected individuals in Soweto, South Africa. DESIGN: It is designed as a cross-sectional study. METHODS: We analyzed data from adult clients (> 18 years) presenting for voluntary counseling and testing (VCT) at the Zazi Testing Center, Perinatal HIV Research Unit to determine rates of antiretroviral therapy (ART) refusal among treatment-eligible, HIV-infected individuals (CD4+ cell count <200 cells/μl or WHO stage 4). Multiple logistic regression models were used to investigate factors associated with refusal. RESULTS: From December 2008 to December 2009, 7287 adult clients were HIV tested after counseling. Two thousand, five hundred and sixty-two (35%) were HIV-infected, of whom 743 (29%) were eligible for immediate ART. One hundred and forty-eight (20%) refused referral to initiate ART, most of whom (92%) continued to refuse after 2 months of counseling. The leading reason for ART refusal was given as 'feeling healthy' (37%), despite clients having a median CD4+ cell count of 110

cells/µl and triple the rate of active tuberculosis as seen in nonrefusers. In adjusted models, single clients [adjusted odds ratio (AOR) 1.80, 95% confidence interval (CI) 1.06-3.06] and those with active tuberculosis (AOR 3.50, 95% CI 1.55-6.61) were more likely to refuse ART. CONCLUSION: Nearly one in five treatment-eligible HIV-infected individuals in Soweto refused to initiate ART after VCT, putting them at higher risk for early mortality. 'Feeling healthy' was given as the most common reason to refuse ART, despite a suppressed CD4+ count and comorbidities such as tuberculosis. These findings highlight the urgent need for research to inform interventions targeting ART refusers.

699 JOHNSTONE-ROBERTSON, S.; LAWN, S. D.; WELTE, A; BEKKER, L. G.; WOOD, R. **Tuberculosis in a South African prison - a transmission modelling analysis.** *SAMJ - South African Medical Journal* (2011) **101** (11) 809-813 Pretoria, South Africa; SAMA Health and Medical Publishing Group [En, 38 ref.] Desmond Tutu HIV Centre, Institute of Infectious Diseases and Molecular Medicine, University of Cape Town, Tygerberg, Cape Town, South Africa. Email: robin.wood@hiv-research.org.za

BACKGROUND: Prisons are recognised internationally as institutions with very high tuberculosis (TB) burdens where transmission is predominantly determined by contact between infectious and susceptible prisoners. A recent South African court case described the conditions under which prisoners awaiting trial were kept. With the use of these data, a mathematical model was developed to explore the interactions between incarceration conditions and TB control measures. METHODS: Cell dimensions, cell occupancy, lockup time, TB incidence and treatment delays were derived from court evidence and judicial reports. Using the Wells-Riley equation and probability analyses of contact between prisoners, we estimated the current TB transmission probability within prison cells, and estimated transmission probabilities of improved levels of case finding in combination with implementation of national and international minimum standards for incarceration. RESULTS: Levels of overcrowding (230%) in communal cells and poor TB case finding result in annual TB transmission risks of 90% per annum. Implementing current national or international cell occupancy recommendations would reduce TB transmission probabilities by 30% and 50%, respectively. Improved passive case finding, modest ventilation increase or decreased lock-up time would minimally impact on transmission if introduced individually. However, active case finding together with implementation of minimum national and international standards of incarceration could reduce transmission by 50% and 94%, respectively. CONCLUSIONS: Current conditions of detention for awaiting-trial prisoners are highly conducive for spread of drug-sensitive and drug-resistant TB. Combinations of simple well-established scientific control measures should be implemented urgently.

700 ZHANG QI; HAN FULIAN; NIE QING; REN HONG YU; ZHANG BAO-QIANG; LIU QI YONG; HE QIUSHUI; SHAO ZHUJUN **Seroprevalence of antibodies to pertussis and diphtheria among healthy adults in China.** *Journal of Infection* (2011) **63** (6) 441446 Oxford, UK; Elsevier Ltd [En] Institute for Communicable Disease Control and Prevention, State Key Laboratory of Infectious Diseases, Chinese Center for Disease Control and Prevention, P.O. Box 5, Changping, Beijing 102206, China. Email: zhangqi@chinacdc.cn, wfcdc001@vip.sina.com, nieqing0454@163.com, hongyu2690@sohu.com, wfzbq@163.com, liuqiyong@icdc.cn, qiushui.he@thl.fi, shaozhujun@icdc.cn

OBJECTIVES: Despite extensive childhood immunization, pertussis remains one of the world's leading causes of vaccine-preventable

deaths. Incidence of pertussis in adolescents and adults has increased in many countries despite high vaccination coverage. In China, booster vaccinations against diphtheria, tetanus and pertussis are not used in adults, and little is known about pertussis incidence in the age group. The aim of this study was to determine seroprevalence of IgG antibodies to pertussis toxin (PT) and diphtheria among adults in China. METHODS: Blood samples were obtained from 210 healthy adults aged 18-50 years in Weifang city, China during the period of May and June 2010. Serum IgG antibodies against PT (anti-PT IgG) and diphtheria were determined by the commercial ELISA kits, respectively. According to the kit, concentration of anti-PT IgG higher than 30 IU/mL was considered positive. An antibody concentration of $\geq$ 0.1 IU/mL was defined as evidence of seroprotection against diphtheria. RESULTS: The mean concentration of anti-PT IgG antibodies was 9.95 IU/mL (95% confidence interval (CI) 8.45-11.44). Eleven (5.24%) of the studied subjects were proved to be seropositive to pertussis. Of the 210 subjects, 161 (76.6%) had anti-diphtheria antibody concentration $\geq$0.1 IU/mL and 49 (23.3%) had the antibody concentration between 0.01 and 0.099 IU/mL. CONCLUSIONS: Our study indicated that about 5% of adults aged 18-50 years had positive anti-PT IgG antibodies, suggesting that adult pertussis is not uncommon in China. Although a high proportion of studied subjects had a protective level of immunity against diphtheria, the antibody level decreased with the increasing age of adults. Booster vaccinations against pertussis should be considered in adults in China.

701 ABIOYE, I. A.; OMOTAYO, M. O.; ALAKIJA, W. **Socio-demographic determinants of stigma among patients with pulmonary tuberculosis in Lagos, Nigeria.** *African Health Sciences* (2011) **11** (s1) S100-S104 Kampala, Uganda; Makerere University Medical School [En, 18 ref.] Department of Medicine, Lagos State University Teaching Hospital, Ikeja, Lagos, Nigeria. Email: abioyez@yahoo.com

BACKGROUND: Patients living with tuberculosis (TB) experience significant disruption of their social life and are exposed to stigma and discrimination. This situation impacts on treatment adherence by individual patients and on disease control especially in developing nations. Different aetiological propositions have been propounded, including the relationship of tuberculosis with the Acquired Immune Deficiency Syndrome (AIDS). OBJECTIVES: We sought to evaluate self-reported stigma experience among TB patients in Lagos and examine its sociodemographic determinants. METHOD: This was a descriptive cross-sectional study, recruiting 205 patients on treatment at two government-owned referral centres for tuberculosis, using self-administered questionnaires to collect each respondent's data. RESULT: Eighteen percent reported a previous stigma experience. Stigma experience was observed to be significantly determined by age, low socio-economic status, level of education below secondary level, disclosure of status, history of weight loss, previous smoking and alcohol history. Also, patients unable to work on clinic days were more likely to experience stigma. Sexs, religion, marital status and ethnicity were not significant determinants. CONCLUSION: Experience of stigma among patients with tuberculosis is common and may adversely affect treatment adherence. Healthcare workers and policy makers need to pay doser attention to the identified determinants for effective tuberculosis control.

702 NAMUKWAYA, E.; NAKWAGALA, F. N.; MULEKYA, F.; MAYANJA-KIZZA, H.; MUGERWA, R. **Predictors of treatment failure among pulmonary tuberculosis patients in Mulago hospital, Uganda.** *African Health Sciences* (2011)

11 (s1) S105-S111 Kampala, Uganda; Makerere University Medical School [En, 25 ref] Department of Medicine, College of Health Sciences, Makerere University, Kampala, Uganda. Email: nakwagala@yahoo.com

INTRODUCTION: Early identification of Tuberculosis (TB) treatment failure using cost effective means is urgently needed in developing nations. The study set out to describe affordable predictors of TB treatment failure in an African setting. OBJECTIVE: To determine the predictors of treatment failure among patients with sputum smear positive pulmonary TB at Mulago hospital. The study was carried out in the TB clinic of Mulago hospital Kampala, Uganda. This was an unmatched case control study where fifty patients with a diagnosis of TB treatment failure (cases) and 100 patients declared cured after completing anti TB treatment (controls) were recruited into the study. Cases were compared with controls to determine predictors of treatment failure. RESULTS: Significant predictors of treatment failure in this study included a positive sputum smear at 2 months of TB treatment (OR 20.63, 95%CI 5.42-78.41) and poor adherence to anti TB treatment (OR 14.59, 95%CI 3.04-70.15). CONCLUSION: This study identified a treatment related and a simple laboratory predictor ofTB treatment failure in Mulago hospital which may be used in resource limited' settings for early recognition of those at risk and early intervention.

703 HALL, F.; LATIFI, A.; SBAI, M. **[Malignant transformation of plantar ulcers in leprosy: experience of National Leprosy Center in Casablanca.]** Dégénérescence carcinomateuse des maux perforants plantaires d'origine lépreuse: expérience du Centre national de léprologie de Casablanca. *Bulletin de la Société de Pathologie Exotique* (2011) **104** (1) 6-9 Paris, France; Springer-Verlag France [Fr, en, 9 ref] Service de dermatologie vénéréologie, centre hospitalier Ibn-Rochd, Casablanca, Morocco. Email: halifouzia@yahoo.fr

Malignant degeneration is a late complication of plantar ulcers in leprosy. The objective of this study is to describe and analyze the epidemiological, clinical, and therapeutic aspects of this complication in Morocco. A retrospective study was conducted from January 2000 to December 2009 at the National Center of Leprosy (CNL) in Casablanca. All our patients had a histological confirmation. Ten patients were included in this study. There were seven men and three women, with a mean age of 58.8 years. Six patients had a multibacillary form of leprosy and four had a paucibacillary form. The average duration of the plantar ulcers was 34.4 years. Clinical appearance at diagnosis was an ulcerative and vegetative tumor. Treatment was by radical amputation. Evolution was marked by metastatic spread in six patients. One patient died of disseminated disease. In Morocco, leprosy has been on the decline since 1990, but the occurrence of late complications in the leprosy patient as carcinoma of plantar ulcers persists. Prevention of these complications should be part of the national fight against leprosy.

704 SCOTT, L. E.; GOUS, N.; CUNNINGHAM, B. E.; KANA, B. D.; PEROVIC, O.; ERASMUS, L.; COETZEE, G. J.; KOORNHOF, H.; STEVENS, W. **Dried culture spots for Xpert MTB/RIF external quality assessment: results of a phase 1 pilot study in South Africa.** *Journal of Clinical Microbiology* (2011) **49** (12) 4356-4360 Washington, USA; American Society for Microbiology (ASM) [En, 28 ref.] Department of Molecular Medicine and Haematology, Faculty of Health Sciences, School of Pathology, University of the Witwatersrand, 7 York Road, Parktown, Johannesburg, South Africa. Email: lesley.scott@nhJs.ac.za

Implementation of Xpert MTB/RIF requires quality assessment. A pilot program using dried

culture spots (DCSs) of inactivated *Mycobacterium tuberculosis* is described. Of 274 DCS results received, 2.19% generated errors; the remainder yielded 100% correct *Mycobacterium tuberculosis* detection. The probe A cycle threshold *(C_T)* variability of three DCS batches was ≤3.47. The study of longer-term DCS stability is ongoing.

705 MAEDA, Y.; TAMURA, T.; FUKUTOMI, Y.; MUKAI, T.; KAI, M.; MAKINO, M. **A lipopeptide facilitate induction of *Mycobacterium leprae* killing in host cells.** *PLoS Neglected Tropical Diseases* (2011) **5** (11) el401 San Francisco, USA; Public Library of Sciences (PLoS) (En, 42 ref] Department of Mycobacteriology, Leprosy Research Center, National Institute of Infectious Diseases. Tokyo, Japan. Email: yumi@nih.gojp

Little is known of the direct microbicidal activity of T cells in leprosy, so a lipopeptide consisting of the N-terminal 13 amino acids lipopeptide (LipoK) of a 33-kD lipoprotein of *Mycobacterium leprae,* was synthesized. LipoK activated *M. leprae* infected human dendritic cells (DCs) to induce the production of IL-12. These activated DCs stimulated autologous CD4+ or CD8+ T cells towards type I immune response by inducing interferon-gamma secretion. T cell proliferation was also evident from the CFSE labeling of target CD4+ or CD8+ T cells. The direct microbicidal activity of T cells in the control of *M. leprae* multiplication is not well understood. The present study showed significant production of granulysin, granzyme Band perforin from these activated CD4+ and CD8' T cells when stimulated with LipoK activated, *M. leprae* infected DCs. Assessment of the viability of *M. leprae* in DCs indicated LipoK mediated T cell-dependent killing of *M. leprae.* Remarkably, granulysin as well as granzyme B could directly kill *M. leprae in vitro.* Our results provide evidence that LipoK *could* facilitate *M. leprae* killing through the production of effector molecules granulysin and granzyme B in T cells.

706 LUGGA, M. C. L.; MUITA, M.; MATIRU, V.; MUCHIRI, E. **Factors associated with patient and health service delays in the management of TB in Central Equatoria State in 2008.** *South Sudan Medical Journal* (2011) **4** (4) 83-85 Juba, South Sudan; South Sudan Doctors' Association [En, 7 ref.] Ministry of Health, South Sudan, Field Epidemiology and Laboratory Training Program, Nairobi, Kenya. Email: molojong@yahoo.com

BACKGROUND: Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis.* Delays in diagnosis and treatment increase morbidity and mortality from tuberculosis, and the risk of transmission in the community. METHODS: We conducted a cross-sectional survey at three TB treatment centres in Central Equatoria State, South Sudan. Smearpositive TB patients were enrolled in three study sites and interviewed within two days of beginning treatment using a structured questionnaire. This study was conducted to investigate factors that affect patient and health service delays in diagnosis and treatment of pulmonary tuberculosis (PTB) in Central Equatoria State. RESULTS: 129 patients were enrolled in the study. The median patient's, health provider's and total pretreatment periods are 4, 10 and 16 weeks respectively. The health care provider delay for patient diagnosis and start of treatment had the greatest contribution to overall total pre-treatment delay. CONCLUSIONS AND RECOMMENDATIONS: In Central Equatoria State, health care provider delay was the most frequent type of delay observed and was a major contributor to the overall total delay. This study indicated the need for strengthening the capacity of health workers for early detection and referral of TB patients. Further research is needed to identify reasons for health provider delay.

707 LIU CHIA YING; LAL CHIHCHENG; LEE MENGRUI; LEE YICHIEH; HUANG YUTSUNG; LIAO CHUNHSING; HSUEH POREN **Clinical**

characteristics of infections caused by *Tsukamurella* spp. and antimicrobial susceptibilities of the isolates. *International Journal of Antimicrobial Agents* (2011) **38** (6) 534-537 Oxford, UK; Elsevier Ltd [En, 16 ref] Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan. Email: hsporen@ntu.edu.tw

To investigate the clinical and microbiological characteristics of infections caused by *Tsukamurella* spp., the computerised database of the Bacteriology Laboratory at National Taiwan University Hospital (Taipei, Taiwan) was reviewed retrospectively to identify patients with infections caused by this species during the period January 1997 to December 2008. All of the isolates had been initially misidentified as *Rhodococcus* spp. Identification of *Tsukamurella* isolates to species level was carried out by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) analysis of the heat shock protein gene *(hsp65)* as well as 16S rRNA gene sequencing. During the study period, a total of eight patients with *Tsukamurella* infection and two patients with *Tsukamurella* colonisation were identified. *Tsllkamurella tyrosinosolvens* (*n*=6) was the most prevalent species, followed by *Tsukamurella spumae* (*n*=3) and *Tsukamurella pulmonis* (*n*=1). Keratitis was the most common type of infection (*n*=3), followed by catheter-related bloodstream infection (*n*=2). One of the patients with *Tsukamurella* infection died due to bacteraemia; the other seven patients with *Tsukamurella* infection had favourable outcomes. The three species had different drug susceptibility patterns; *T. pulmonis* was the most resistant pathogen, with higher minimum inhibitory concentrations of clindamycin (>2 mg/L), erythromycin (2 mg/L) and tetracycline (8 mg/L) than those for the other *Tsukamurella* spp. In conclusion, strains of *Tsukamurella* spp., including *T. spwnae,* are uncommon causative agents of ocular infections and bacteraemia in cancer patients. Molecular diagnostic methods are essential to distinguish species in the *Tsukamurella* genus from species in other phylogenetically related genera such as *Rhodococcus.*

708 ZHANG XIULEI; WEI XIAOLIN; ZOU GUANYANG; WALLEY, J.; ZHANG HONGMEI; GUO XIAO YAN; ZHU LI; LIU ZHIMIN **Evaluation of active tuberculosis case finding through symptom screening and sputum microscopy of close contacts in Shandong, China.** *Tropical Medicine and International Health* (2011) **16** (12) 1511-1517 Oxford, UK; Wiley-Blackwell [En, es, fr,22 ref] Shandong Provincial Chest Hospital, Jinan, Shandong Province, China. Email: xiaolinwei@cuhk.edu.hk

OBJECTIVES: To evaluate the effect of active case finding through symptom screening and sputum microscopy of close contacts in a Fidelis (Fund for Innovative DOTS Expansion through Local Initiatives to Stop TB) project. METHODS: Secondary data from all 35 counties were collected during implementation and used. They comprised new cases identified, number of close contacts screened and their relationships. Fifty-four in-depth interviews were conducted with staff from key stakeholders. RESULTS: A total of 13 310 symptomatic contacts of 5255 index cases were screened, and 90 new smear-positive cases were detected with a yield rate of 0.7%. The yield rate of close contacts was positively associated with smear grades of the index cases (P<0.01). Close contacts of cases, such as classmates and workmates, who lived in a closed contained setting, had a higher yield rate than family members (P<0.01). Gaps in project implementation such as training, incentives and sputum collection were identified through in-depth interviews. CONCLUSIONS: The yield rate of close-contact screening of 0.7% was similar to other findings in China. There was a higher yield from

screening of close contacts in congregated settings like schools and workshops. Future active case finding projects should provide clear operational guidelines and adequate training.

709 SETIA, M. S.; SHINDE, S. S.; JERAJANI, H. R.; BOIVIN, J. F. **Is there a role for rifampicin, ofloxacin and minocycline (ROM) therapy in the treatment of leprosy? Systematic review and meta-analysis.** *Tropical Medicine and International Health* (2011) **16** (12) 1541-1551 Oxford, UK; Wiley-Blackwell [En, es, fr, many ref.] Department of Epidemiology, Biostatistics, and Occupational Health, McGill University, Montreal, QC, Canada. Email:

BACKGROUND: A combination of rifampicin, ofloxacin and minocycline (ROM) is one of the newer recommendations for treatment of leprosy. We performed a systematic review and a meta-analysis of studies that had evaluated the efficacy of ROM therapy in treatment of paucibacillary and multi bacillary leprosy patients. METHODS: Studies were identified by searching the PubMed, Embase, LILACS and Cochrane databases. Data were abstracted from all relevant studies, and fixed effects models were used to calculate the summary estimate of effect in paucibacillary and multibacillary leprosy patients. RESULTS: Six studies comparing ROM therapy to multidrug therapy and eight studies that evaluated the effect of ROM therapy alone (no comparison group) were included in the review and meta-analysis. The combined estimate for single dose ROM *vs.* multidrug therapy in paucibacillary leprosy patients suggested that ROM was less effective than multidrug therapy in these patients [relative risk: 0.91, 95% confidence intervals (CI): 0.86-0.97]. However, the combined estimate for multiple doses of ROM *vs.* multidrug therapy in multibacillary leprosy patients suggested that ROM was as effective as multidrug therapy in reducing bacillary indices in these patients (proportion change: 4%, 95% CI -31 % to 23%). No major side effects were reported in either the ROM or the multi drug treatment groups. CONCLUSIONS: Single-dose ROM therapy was less effective than multidrug therapy in paucibacillary patients. However, there are insufficient data to come to a valid conclusion on the efficacy of multidose ROM therapy in multibacillary leprosy, and additional studies with ROM therapy in multi bacillary leprosy are needed. Furthermore, multiple doses may be considered as another alternative even for paucibacillary patients, and randomised controlled trials of this therapy may be useful to understand its contribution in the treatment and control of leprosy.

710 DAGNRA, A. Y.; ADJOH, K.; HEUNDA, S. T.; PATASSI, A. A; HETSU, D. S.; AWOKOU, F.; TIDJANI, O. **[prevalence of HIV-TB co-infection and impact of HIV infection on pulmonary tuberculosis outcome in Togo.]** Prévalence de la co-infection VIH-tuberculose et impact de l'innfection VIH sur l'évolution de la tuberculose pulmonaire au Togo. *Bulletin de La Société de Pathologie Exotique* (2011) **104** (5) 342-346 Paris, France; Springer-Verlag France [Fr, en, 16 ref] Laboratoire national de référence des mycobactéries, Programme national de lutte contre la tuberculose, Lome, Togo. Email: a.dagnra@yahoo.fr

The aim of this study was to determine the prevalence of HIV infection in tuberculosis patients and its impact on the TB treatment. We enrolled 569 pulmonary TB patients in four diagnosis and treatment centres in Togo. All patients were new TB cases and received the first-line TB drugs: two months of rifampicin-pyrazinamide-isoniazid-ethambutol and six months of isoniazid-ethambutol. HIV testing was done according to the national guidelines, using rapid diagnosis tests. The CD4 lymphocyte counting was performed by Facscalibur (BD,

Sciences) for all HIV-positive patients. Of the 569 TB patients enrolled, 135 (23.7%) were HIV positive (TB/HlV+). HIV prevalence was 22.4% (76 of 339) among men and 25.6% (59 of 230) among women without statistical difference. The global rate of treatment success was 82.2%. The rate of treatment success was lower (64.3%) in TB/HIV+ patients than in TB/HIV-patients (87.5%) (p<0.01). The mortality rates were 25.6% and 11.8% in TB/HlV+ patients and TB/HIV-patients, respectively, with a statistically significant difference (p<0.01). We did not found any statistical difference between the rates of treatment success among TB/HlV- (87.5%) patients and TB/HIV+ patients who had TCD4 lymphocyte counts above 200/111 (84.4%). TB program in Togo must take into account HIV infection to improve its performance.

711 APETSE, K.; ASSOGBA, K.; KEVI, K.; BALOGOU, A. A. K.; PITCHE, P.; GRUNITZKY, E. **[Opportunistic infections of the HIV/AIDS in adults in hospital settings in Togo.]** Infections opportunistes du VIH/sida chez les adultes en milieu hospitalier au Togo. *Bulletin de la Société de Pathologie Exotique* (2011) **104** (5) 352-354 Paris, France; Springer-Verlag France [Fr, en, 5 ref.] Service de neurologie de Lome, Lome, Togo. Email: kapetse@hotmail.com

The objective of this study is to determine the main opportunistic infections (01) and those strongly linked to high death rate in hospital settings in Togo. It is a descriptive study conducted from June to November 2008 in 22 public and private settings of all medical specialties throughout the entire Togolese territory. Hospitalized patients with 01 and HIV positive data were collected. The study was started after getting patient approval. Of 7,361 hospitalized patients, 1,764 were tested, giving a screening rate of 23.7%. We registered 714 HlV-infected patients (HlVIP), 40.5% of the patients tested. The most common 01 encountered were buccal candidiasis (49.7% of HlVIP), genital candidiasis (9.1%), meningeal cryptococcosis (2.9%), bacterial infections (48.2%), cerebral toxoplasmosis (11.2%) and pulmonary tuberculosis (11.3%). 01 strongly linked to a high death rate were meningeal cryptococcosis (61.9%) and cerebral toxoplasmosis (46.3%). 01 constitute a major reason of hospitalization for HIVIP in Togo. This study allows a better orientation of strategies for screening and taking care of HlVIP in Togo.

712 DÉGUÉNONVO, L. F.; MANGA, N. M.; DIOP, S. A.; BAOIANE, N. M. D.; SEYDI, M.; NDOUR, C. T.; SOUMARÉ, M.; DLOP, B. M.; SOW, P. S. **[Current profile of HIV-infected patients hospitalized in Dakar (Senegal).]** Profil actuel des patients infectés par Ie VIH hospitalisés à Dakar (Sénégal). *Bulletin de la Société de Pathologie Exotique* (2011) **104** (5) 366-370 Paris, France; Springer-Verlag France [Fr, en, 22 ref.) Clinique des maladies infectieuses Ibrahima-Diop-Mar, CHNU de Fann, BP 5035. Dakar-Fann, Dakar, Senegal. Email: louisefortes@yahoo.fr

Ten years after the introduction of the Senegalese Antiretroviral Drug Access Initiative in 1998, we conducted a retrospective study of the epidemiological and clinical profiles and outcome of HIV-infected patients hospitalized in the Infectious Diseases Clinic of Fann Teaching Hospital in Dakar between 2007 and 2008. During these 2 years, 527 HIV-positive patients were included. The average age of the patients was 4l±10 years, and the sex-ratio (F/ M) was 1.1; 56% of patients were married. The average interval before admission was 40±57 days. Fever (83%), loss of weight (83%) and cough (54%) were the principal symptoms. Tuberculosis (40.9%) and gastrointestinal candidiasis (38.9%) were the commonest opportunistic infections. Most patients were diagnosed at the AIDS stage (88%) and the CD4+ T lymphocyte count was $\leq$200/mm3 in 86% of cases. Hospital fatality was 44%

(2311527). Tuberculosis (36%), bacterial pneumonia (18%) and encephalitis (12%) were the most frequent causes of death. Despite the availability of and free access to antiretroviral drugs in Senegal, the mortality associated with HIV infection remains very high due to late diagnosis. The population must be educated to boost early screening and care.

713 RAOBIJAONA, H. **[4th International Congress of Pediatrics Malagasy Society: paediatrics at the 21st century.]** 4e Congrés international de la Société malgache de pédiatrie: la pédiatrie au XXIe siècle. *Bulletin de la Société de Pathologie Exotique* (2011) **104** (5) 380-394 Paris, France; Springer-Verlag France [Fr] Societe malgache de pédiatrie (Somaped) Service de pédiatrie, hôpital Joseph-Raseta de Befelatanana, BP 14 bis. 101 Antananarivo, Madagascar. Email: raobijaona@yahoo.fr

This is a compilation of abstracts of 46 papers presented at the conference focusing on paediatric health and diseases in Madagascar. The topics discussed are: neonatal health, morbidity and mortality; fate of children born to HIV-positive mothers; congenital abnormalities; infant and child care; pregnancy complications and fetal death; breastfeeding; diagnosis and management of septic shock; anaesthesia and surgery; epidemiology, diagnosis and treatment of tuberculosis; malnutrition; epidemiology and progression of bronchiolitis; sputum cytology in acute pulmonary bacterial infection; clinical and bacteriological diagnosis of meningitis; antibiotic prescription in non-hospital settings; aetiologies of collodion baby; propranolol treatment of tuberous haemangioma; prehospital management of acute gastroenteritis; hospital management of haemolytic uraemic syndrome; nephrotic syndrome; nuclear medicine in paediatric uronephrology; indications of caesarean section; small bowel atresia; hypertrophic pyloric stenosis; Eisenmenger's syndrome; coronary artery disease and heart failure; learning difficulties; epidemiology and treatment of distal radius fractures; epidemiology of A (H1N1) influenza, severe burns, retinoblastoma and eye infections; and, knowledge and opinion regarding the use of closed catheter in children.

1073 VASSALL, A.; KAMPEN, S. VAN; SOHN HOJOON; MICHAEL, J. S.; JOHN, K. R.; BOON, S. DEN; DAVIS, J. L.; WHITELAW, A.; NICOL, M. P.; GLER, M. T.; KHALLQOV, A.; ZAMUDIO, C.; PERKINS, M. D.; BOEHME, C. C.; COBELENS, F. **Rapid diagnosis of tuberculosis with the Xpert MTB/RIF assay in high burden countries: a cost-effectiveness analysis.** *PLoS Medicine* (2011) **8** (11) el001120 San Francisco, USA; Public Library of Sciences (PLoS) [En, 35 ref.] Department of Global Health, and Amsterdam Institute of Global Health and Development, Academic Medical Center, Amsterdam, Netherlands. Email: f.cobelens@aighd.org

BACKGROUND: Xpert MTB/RIF (Xpelt) is a promising new rapid diagnostic technology for tuberculosis (TB) that has characteristics that suggest large-scale roll-out. However, because the test is expensive, there are concerns among TB program managers and policy makers regarding its affordability for low- and middle-income settings. METHODS AND FINDINGS: We estimate the impact of the introduction of Xpert on the costs and cost-effectiveness of TB care using decision analytic modelling, comparing the introduction of Xpert to a base case of smear microscopy and clinical diagnosis in India, South Africa, and Uganda. The introduction of Xpert increases TB case finding in all three settings; from 72%-85% to 95%-99% of the cohort of individuals with suspected TB, compared to the base case. Diagnostic costs (including the costs of testing all individuals with suspected TB) also increase: from US$28-US$49 to US$133-US$146 and US$137-US$151 per TB case detected when Xpert is used "in addition to" and "as a replace-

ment of" smear microscopy, respectively. The incremental cost effectiveness ratios (lCERs) for using Xpelt "in addition to" smear microscopy, compared to the base case, range from US$41-$110 per disability adjusted life year (DALY) averted. Likewise the ICERS for using Xpert "as a replacement of' smear microscopy range from US$52-$138 per DALY averted. These ICERs are below the World Health Organization (WHO) willingness to pay threshold. CONCLUSIONS: Our results suggest that Xpert is a cost-effective method of TB diagnosis, compared to a base case of smear microscopy and clinical diagnosis of smear-negative TB in low- and middle-income settings where, with its ability to substantially increase case finding, it has important potential for improving TB diagnosis and control. The extent of cost-effectiveness gain to TB programmes from deploying Xpert is primarily dependent on current TB diagnostic practices. Further work is required during scale-up to validate these findings.

1074 LOVEDAY, M.; SCOTT, V.; MCLOUGHLIN, J.; AMIEN, F.; ZWEIGENTHAL, V. **Assessing care for patients with TBIHIV/STI infections in a rural district in KwaZulu-NataI.** *SAMJ South African Medical Journal* (2011) **101** (12) 887-890 Pretoria, South Africa; SAMA Health and Medical Publishing Group [En, 17 ref.] Health Systems Research Unit, Medical Research Council, Tygerberg, W Cape. South Africa. Email: marian.loveday@mrc.ac.za

SETTING: Despite the prioritisation of TB. HIV and STI programmes in South Africa, service targets are not achieved, have had little effect, and the magnitude of the epidemics continues to escalate. OBJECTIVE: To report on a participatory quality improvement intervention designed to evaluate these priority programmes in primary health care (PHC) clinics in a rural district in KwazuluNatal. METHODS: A participatory quality improvement intervention with district health managers, PHC supervisors and researchers was used to modify a TB/HIV/STl audit tool for use in a rural area, conduct a district-wide clinic audit, assess performance, set targets and develop plans to address the problems identified. RESULTS: We highlight weaknesses in training and support of staff at PHC clinics, pharmaceutical and laboratory failures, and inadequate monitoring of patients as contributing to poor TB, HIV and STl service implementation. In the 25 facilities audited, 71% of the clinical staff had received no training in TB diagnosis and management, and 46% of the facilities were visited monthly by a PHC supervisor. Eighty per cent of the facilities experienced non-availability of essential drugs and supplies; polymerase chain reaction (PCR) results were not documented for 54% of specimens assessed, and the mean length of time between eligibility for ART and starting treatment was 47 days. CONCLUSION: Through a participatory approach, a TB/HlV/STl audit tool was successfully adapted and implemented in a rural district. It yielded information enabling managers to identify obstacles to TB, HIV and STI service implementation and develop plans to address these. The audit can be used by the district to monitor priority services at a primary level.

1075 MANOSUTHI, W., LUEANGNIYOMKUL, A.; MANKATITHAM, W.; THONGYEN, S.; LIKANONSAKUL, S.; SUWANVATTANA, P.; THAWORNWAN, U.; SUNTISUKLAPPON, B.; NILKAMHANG, S.; SUNGKANUPARPH, S. **Time to initiation of antiretroviral therapy between 4 weeks and 12 weeks of tuberculosis treatment in HIV-l infected patients: results from the TIME Study.** In *Proceedings of the 37th Annual Meeting of Infectious Disease Association of Thailand. Journal of Infectious Diseases and Antimicrobial Agents* (2011) **28** (3) 225-259 Bangkok, Thailand; Infectious Disease Association of Thailand [En] Bamrasnaradura Infectious Diseases Institute,

Ministry of Public Health, Nonthaburi 11000, Thailand.

A total of 156 Thai HIV-1/tuberculosis co-infected patients who had a CD4 count of < 350 cells/mm^3 were randomized to initiate a once daily regimen of tenofovir/lamivudine/efavirenz at 4 weeks (group A, n=79) versus 12 weeks (group B, n=77) of tuberculosis (TB) treatment from 2009 to 2011. Eleven (7%) mortalities occurred out of 137 patient-years of follow-up. Seven percent (6/79, 8.76 per 100 patient-years) mortality occurred in group A and 6% (5n7, 7.25 per 100 person-years) mortality occurred in group B (OR=0.845, 95% CI=0.247-2.893, P>0.99). Twenty-eight (35%) patients in group A and 25 (32%) patients in group B were hospitalized (OR=1.142, 95%CI=0.588-2.217, P=0.737). In a multivariate analysis adjusting for timing to the initiation of ART, low albumin (OR=3.717, 95%CI=1.529-9.009, P=0.004) and low baseline CD4 count (OR=1.014, 95%CI=0.999-1.029, P=0.061) were the independent predictors of all-cause mortality. In this study which was conducted in a middle income country with early antiretroviral therapy (ART) at CD4 count of <350 cells/mm^3, survival advantage associated with very early initiation of ART in HIV-infected patients with active TB was not found in any CD4 stratum. However, patients with low albumin and low baseline CD4 count were associated with higher risk of death.

1076 KUNAWARARAK, P.; PONGPANICH, S.: CHANTAWONG, S.; POKAEW, P.; TRAISATHIT, P.; SRITHANAVIBOONCHAI, K.; PLIPAT, T. **Tuberculosis treatment with mobile-phone medication reminders in northern Thailand.** *Southeast Asian Journal of Tropical Medicine and Public Health* (2011) **42** (6) 1444-1451 Bangkok. Thailand: SEAMEO Regional Tropical Medicine and Public Health Network [En, 21 ref.] The Office of Disease Prevention and Control Region 10, Department of Disease Control, Ministry of Public Health, Nonthaburi 11000, Thailand. Email: wararakpl@hotmail.com

Thailand's implementation of the Directly Observed Treatment, Short course (DOTS) strategy to increase tuberculosis (TB) control program efficacy has not achieved the World Health Organization (WHO) TB key targets. We defined two TB control models in the study. Patients in Model 1 were treated with a conventional DOTS strategy and in Model 2, patients were treated the same as Model method 1 but were given a phone call reminder to take their medication. Multi-drug resistant tuberculosis (MDR-TB) and non-MDR-TB patients were randomized into either Model 1 or 2. Treatment outcomes were given as cure rates, completion rates, failure rates or success rates at 18 months in the MDR-TB group and 6 months in the non-MDR-TB group. The sputum conversion rate at I month were evaluated for both groups. In the MDR-TB group, the sputum conversion rate was 20% (95% CI 8-45) in Model 1 and 90% (95% CI 73-98) in Model 2 (p<0.001). In the non-MDR-TB group. the sputum conversion rate was 52% (95% CI 36-70) in Model 1 and 37% (95% CI 22-56) in Model 2 although the difference was not significant (*p*=0.221). The Model 2 success rates were significantly higher (73.7%, 96.7%) in both the MDR-TB and non-MDR-TB groups (*p*<0.001, p=0.047). The MDR-TB rate in northern Thailand decreased from 4.1% during April-September 2008 to 1.8% during April-September 2009. Further study of the association between implementation of Model 2 and MDR-TB incidence reduction needs to be carried out.

1077 LOCKWOOD, D. N. J.; LAVANYA SUNEETHA; SAGILJ, K. D.; CHADUVULA, M. V.; ISMAIL MOHAMMED; BRAKEL, W. VAN; SMITH. W. C.; NICHOLLS, P.; SUJAI SUNEETHA **Cytokine and protein markers of leprosy reactions in skin and nerves: baseline results for the North Indian INFIR Cohort.** *PLoS Neglected Tropical Diseases* (2011) **5** (12) e1327 San Francisco, USA; Public

Library of Sciences (PLoS) [En, 33 ref.] Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, UK. Email: Diana.Lockwood@lshtm.ac.uk

BACKGROUND: Previous studies investigating the role of cytokines in the pathogenesis of leprosy have either been on only small numbers of patients or have not combined clinical and histological data. The INFIR Cohort study is a prospective study of 303 new multi bacillary leprosy patients to identify risk factors for reaction and nerve damage. This study characterised the cellular infiltrate in skin and nerve biopsies using light microscopic and immunohistochemical techniques to identify any association of cytokine markers, nerve and cell markers with leprosy reactions. METHODOLOGY/PRINCIPAL FINDINGS: TNF- , TGF- and iNOS protein in skin and nerve biopsies were detected using monoclonal antibody detection immunohistochemistry techniques in 299 skin biopsies and 68 nerve biopsies taken from patients at recruitment. The tissues were stained with hematoxylih and eosin, modified Fite Faraco, CD68 macrophage cell marker and S100. CONCLUSIONS/SIGNIFICANCE: Histological analysis of the biopsies showed that 43% had borderline tuberculoid (BT) leprosy, 27% borderline lepromatous leprosy, 9% lepromatous leprosy, 13% indeterminate leprosy types and 7% had no inflammation. Forty-six percent had histological evidence of a Type 1 Reaction (T 1 R) and 10% of Erythema Nodosum Leprosum. TNF- was detected in 78% of skin biopsies (181/232), iNOS in 78% and TGF- in 94%. All three molecules were detected at higher levels in patients with BT leprosy. TNF- was localised within macrophages and epithelioid cells in the granuloma, in the epidermis and in dermal nerves in a few cases. TNF- , iNOS and TGF- were all significantly associated with TlR ($p<0.001$). Sixty-eight nerve biopsies were analysed. CD68, TNF- and iNOS staining were detectable in 88%, 38% and 28% of the biopsies respectively. The three cytokines TNF- , iNOS and TGF- detected by immunohistochemistry showed a significant association with the presence of skin reaction. This study is the first to demonstrate an association of iNOS and TGF- with T I R.

1078 CHUN BYUNGCHUL **[Public policy and laws on infectious disease control in Korea: past, present and prospective.]** *Infection and Chemotherapy* (2011) **43** (6) 474-484 Seoul. Korea Republic; Korean Society of Infectious Diseases and Korean Society of Chemotherapy [Ko. en, 19 ref.] Department of Preventive Medicine, Korea University College of Medicine, 126-1, Anamdong 5-ga. SungBuk-gu, Seoul 136-705, Korea Republic. Email: chun@korea.ac.kr

The history of modern infectious disease control in Korea could be divided into 4 era by its characteristics: the Opening and Korean Empire era (1896-1910), Japanese Colonial Rule and US military government era (1910-1948), Korean government era before 2000 (1948-2000) and After 2000 (2000-present). In the Opening and Korean Empire era, the first form of communicable disease prevention act was issued in 1899, including the first 6 notifiable communicable diseases in Korea; cholera, smallpox, dysentery, diphtheria and epidemic typus. Before establishment of administrative department for infectious disease, Japanese Colonial Empire took the police power away and set the colonial sanitary police system in 1907. During the Japanese Colonial Rule, the sanitary police system was forcefully active not only to control the epidemics but also fortify the colonial governmental ism. But during the colonial era. the incidence of water-borne diseases like typhoid fever and dysentery had increased, and the respiratory diseases both diphtheria and tuberculosis also had increased. This forceful sanitary police system had influenced the

communicable prevention act and health policy for over 50 years after the colonial era. In 1954 the Korean government proclaimed the communicable prevention act. Since then the government increased the number of national notifiable diseases and refined the related acts by public needs. In 2000, the communicable prevention act was fully amended to satisfy the modern public health principles not the sanitary policy rules. And the revised act named 'Infectious Diseases Control and Prevention Act' was proclaimed in 2010. The globalization, emerging and re-emerging infectious disease, climate change. change of health behavior, development information technology, unification of Korean peninsula would be the next challenges of infectious disease control and prevention in Korea.

1079 RAHMAN, M. H.; ABHISHEK SINGH **Socio-economic inequalities in the risk of diseases and associated risk factors in India.** *Journal of Public Health and Epidemiology* (2011) **3** (11) 520-528 Nairobi, Kenya; Academic Journals [En, 31 ref.] International Institute for Population Sciences, Mumbai-88, India. Email: mhifzur rahman@gmail.com

Extant literature is full of studies on socio-economic inequalities in maternal and child health in India but studie on inequalities in risk of diseases are limited. We use data from India Human Development Survey (IHDS) conducted in 2004-05 to test two hypotheses: first, diabetes and high blood pressure are associated with affluence; and second, tuberculosis and mental illness are associated with poverty. We use rich-poor ratio, concentration curves, adjusted concentration indices, dominance test, and binary logistic regression to test the aforementioned hypotheses. The findings suggest that diabetes and high blood pressure are indeed associated with affluence. But we could not find evidence to support our second hypothesis. Also, rich and poor were equally likely to get cancer or the heart diseases. Indeed, the risk factors were disproportionately distributed, particularly to the disadvantage of the poor.

1080 PHANZU, D. M.; MAHEMA, R. L.; SUYKERBUYK, P.; IMPOSO, D. H. B.; LEHMAN, L. F.: NDUWAMAHORO, E.; MEYERS, W. M.; BOELAERT, M.; PORTAELS, F. ***Mycobacterium ulcerans* infection (Buruli ulcer) on the face: a comparative analysis of 13 clinically suspected cases from the Democratic Republic of Congo.** *American Journal of Tropical Medicine and Hygiene* (2011) **85** (6) 1100-1105 Deerfield, USA; American Society of Tropical Medicine and Hygiene [En, 48 ref.] Institut Medical Evangelique, Kimpese Hospital, Kimpese, Bas-Congo, Congo Democratic Republic. Email: portaels@itg.be, dmavingaphanzu@yahoo.fr, mahemalut@yahoo.fr, imposodesire@yahoo.fr, psuykerbuyk.acolson@gmail.com, enduwamahoro@itg.br, lehman@uaigiga.com.br, wmekmeyers@comcast.net, mboelaert@itg.be

We report our experience in managing 13 consecutive clinically suspected cases of Buruli ulcer on the face treated at the hospital of the Institut Médical Evangélique at Kimpese, Democratic Republic of Congo diagnosed during 2003-2007. During specific antibiotherapy, facial edema diminished, thus minimizing the subsequent extent of surgery and severe disfigurations. The following complications were observed: (1) lagophthalmos from scarring in four patients and associated ectropion in three of them; (2) blindne's in one eye in one patient; (3) disfiguring exposure of teeth and gums resulting from excision of the left labial commissure that affected speech, drinking, and eating in one patient; and (4) dissemination of *Mycobacterium ulcerans* infection in three patients. Our study highlights the importance of this clinical presentation of Buruli ulcer, and the need for health workers in diseaseendemic areas to be aware of

the special challenges management of Buruli ulcer on the face presents.

1081 RAKOTOSON, J. L.; RAZAFINDRAMARO, N.; RAKOTOMIZAO, J. R.; VOLOLONTIANA, H. M. D.; ANDRIANASOLO, R. L.; RAVAHATRA, K.; TIARAY, M.; RAJAOARIFETRA, J.; RAKOTOHARIVELO, H.; ANDRIANARISOA, A. C. F. **[Aspergillomas of the lung: report of 37 cases in Madagascar.]** Les aspergillomes pulmonaires; à propos de 37 cas à Madagascar. *Pall African Medical Journal* (2011) **10** (4) Kampala, Uganda; African Field Epidemiology Network [Fr, 17 ref.] Unité de soins, de formations et de recherches de Maladies Infectieuses, du Centre Hospitalier Universitaire d'Antananarivo, Antananarivo, Madagascar.

A study was carried out to define the epidemiological, clinical and therapeutic aspects of lung aspergillomas and to try to identify the contributing factors of this disease in Madagascar. A prospective, descliptive, analytical investigation was performed for 59 months among patients with a diagnosis of pulmonary aspergilloma. Thirty-seven (37) cases of pulmonary aspergilloma were identified among 8392 patients hospitalized in the Department of Pneumology (0.44%). These consisted of 29 men (78.38%) and 8 women (21.61%), with a mean age of 43 years. The predisposing factors were dominated by pulmonary tuberculosis (89.19%). The average time of appearance of aspergilloma in patients with a history of smear-positive pulmonary tuberculosis was 8 years and 6 months with a period of one month to 23 years. Haemoptysis was the most common mode of presentation (91.89%). The treatment was medical in 27 patients (72.97%) and medical and surgical in 10 patients (27.03%). The rate of postoperative mortality was 4% and 50% of patients had postoperative complications. Monitoring of sequelae of pulmonary tuberculosis lesions that are the predominant contributing factors to lung aspergilloma Madagascar requires special attention.

1082 NJUA, C. V. M.; NGUEFACK, F.; CHELO, D.; TEJIOKEM, M.; KAGO, I.; KOBELA, M. **[Vaccination reminders on EPI in two primary schools in Yaounde, Cameroon.]** Rappels vaccinaux hors programme elargi de vaccination dans deux écoles de I'éducation de base de Yaoundé, Cameroun. *Pan African Medical Journal* (2011) **10** (20) Kampala, Uganda; African Field Epidemiology Network [Fr, 50 ref.] Centre Mère et Enfant (CME) de la Fondation Chantal BIYA de Yaoundé, Yaoundé, Cameroon.

This cross-sectional descriptive study was designed to assess the rate of child immunization reminders beyond the target of the Expanded Program on Immunization (EPI). The study was performed from September to November 2009 in 2 primary schools in Yaounde, Cameroon. Subjects were students aged 2 to 7 years with vaccination cards. For consistency, vaccine reminders against hepatitis Band *Haemophilus* introduced late were not included. The study involved 310 students. Those in the ages of 2 to 4 accounted for 69%. Only 223 children (71.9%) were correctly vaccinated. As for vaccination reminders on diphtheria, pertussis and polio, the coverage was insignificant (2.7% and 0% for the first and second dose). The reasons given were lack of awareness of parents (50%), the high cost of vaccines (48.69%) and misinformation (1.31%). Health care workers should be re-oriented on EPI. Parents should be informed about the progress, the prices and locations of immunization reminders. The reduction in prices of vaccines would facilitate access to a wide segment of the population.

1083 YUMO, H. A.; KUABAN, C.; NEUHANN, F. **WHO recommended collaborative TB/HIV activities: evaluation of implementation and performance in a rural district hospital in Cameroon.** *Pan African Medical Journal* (2011) **10**, 30 Kampala, Uganda; African Field

Epidemiology Network [En, 29 ref.] National AIDS Control Committee, Ministry of Public Health, Yaounde, Cameroon.

BACKGROUND: The objective of the study was to assess the implementation and the performance of recommended collaborative TB/HIV activities in Batibo District Hospital (BDH) and to determine the prevalence of HIV in TB patients in this rural locality. METHODS: The implementation of collaborative TB/HIV activities was assessed through interviews with health workers in the hospital. The implementation score was calculated as the proportion of recommended activities effectively implemented in the hospital. The performance of implemented activities and the prevalence of HIV were determined through review in HIV and TB registers of routine data for the period 2003-2008. RESULTS: The implementation of collaborative TB/HIV activities though triggered by the existence of both TB and HIV units in the hospital was only moderate with an implementation score of 50%. All implemented activities aimed at reducing the burden of HIV in TB patients. The performance of implemented activities was in average 61% (n=179) and 82% (n=77) respectively regarding HIV testing among TB patients and antiretroviral therapy coverage in TB/HIV co-infected patients. Provision of isoniazid preventive therapy (IPT) was inexistent in this hospital due mainly to the lack of tuberculin skin test and isoniazid tablets. The prevalence ofHIV among TB patients in this rural locality was 53%. This prevalence was 55% in females and 44% in males (p=0.19). CONCLUSION: The implementation of collaborative TB/HIV activities in BDH was effective only regarding activities to reduce the burden of HIV among TB patients. There is urgent need to strengthen the capacity of this rural health facility in providing IPT services.

1084 OLU-EDDO, A. N.; OMOTI, C. E. **Diagnostic evaluation of primary cervical adenopathies in a developing country.** *Pan African Medical Journal* (2011) **10,** 52 Kampala, Uganda; African Field Epidemiology Network [En, 13 ref.] Department of Pathology, University of Benin Teaching Hospital, Benin City, Nigeria.

INTRODUCTION: To review the pathology of lymph node biopsies removed from patients with primary cervical lymphadenopathy. METHODS: A 20 (1987-2006) year retrospective study of all patients who had lymph node biopsy; in the Department of Pathology and Haematology, University of Benin Teaching Hospital, Benin City, Nigeria. RESULTS: Of 357 lymph node biopsies accessioned, 68 (19.0%) cases were in children. Granulomatous diseases constituted 128 (35.9%) cases. Tuberculosis (Tb) was the single commonest cause of cervical lymphadenopathy constituting 125 (35.0%) cases and also the commonest cause of cervicallymphadenopathy below the age of 45 years. Tuberculosis (TB) lymphadenopathy occurred predominantly in male children and young female adults. TB lymphadenopathy was rare above the age of 45 years. Neoplastic diseases constituted 173 (48.5%) cases. Of these, lymphoma predominated comprising 93 (26.1%) cases. These included 37 (10.4%) and 56 (15.7%) cases of Hodgkin?s lymphoma and non Hodgkin?s lymphoma respectively. Hodgkin?s lymphoma occurred most commonly in young male adults. Metastatic tumours constituted 80 (22.4%) cases and was the predominant cause of cervical lymphadenopathy above the age of 45 years. Non specific reactive lymphadenitis constituted 56 (15.7%) cases. CONCLUSION: Chronic lymphadenopathy in our environment has a high incidence of tuberculosis. We recommend urgent lymph node biopsy in significantly enlarged nodes not responding to treatment.