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1447 PELTZER, K. **HIV-related symptoms and management in HIV and antiretroviral therapy patients in KwaZulu-Nata South Africa: a longitudinal study.** *SaharaJ: Journal of Sock Aspects of HIV/AIDS* (2013) **10** (2) 96-104 Cape Town, South Africa; SAMA Health and Medical Publishing Group [En, fr, ref.] Research Programme HIV/AIDS, STI, and TB (HAS] Human Sciences Research Council, Pretoria, South Africa. Email: kpeltzer@hsrc.ac.za

AIM: The study aimed to determine the prevalence, predictor and self-reported management of HIV- or ARV-related symptoms among HIV patients prior to antiretroviral therapy (ART) and ON three time points while receiving ART in KwaZulu-Natal, South Africa. METHOD: A total of 735 consecutive patients (29.8% m: and 70.2% female) who attended three HIV clinics complete assessments prior to ARV initiation, 519 after 6 months, 557 after 12 months, and 499 after 20 months on ART. RESULTS: The H patients reported an average of 7.5 symptoms (prior to ART), symptoms after 6 months on ART, 0.3 symptoms after 12 month on ART, and 0.2 symptoms after 20 months on ART on the day the interview, with a higher symptom frequency amongst patient who were not employed, had lower CD4 cell counts, experience internalised stigma, and used alcohol. The most common symptoms or conditions identified by the self-report include tuberculosis, diarrhoea, headaches, rash, nausea and vomiting pain, neuropathy, lack of appetite, cough, and chills. Overall, t participants reported medications as the most frequently occurring management strategy, with the second being spiritual, and the being complementary or traditional treatments. The use of all other management strategies decreased over the four different assessment periods from prior to ART to 20 months on ART. CONCLUSION: This study found a high symptom burden among HIV patient which significantly decreased with progression on antiretroviral treatment. Several symptoms that persisted over time and severe sociodemographic factors were identified that can guide symptoms management. The utilisation of different symptom management strategies (medical, spiritual, complementary, and tradition should be taken into consideration in HIV treatment.

1448 CHEN POWEN; JHENG TINGYUN IJHENG, T. Y. T. I.; SH CHINGLING; MAO CHIAHUNG [MAO, C. H. F. **Synergistic anti bacterial efficacies of the combination of bovine lactoferrin and its hydrolysate with 'probiotic secretion in curbing the growth of meticillin-resistant *Staphylococcus aureus*.** *Journal of Medical Microbiology* (2013) **62** (12) 1845-1851 Reading, UK; Soci for General Microbiology [En, 43 ref.] Department of Nursing, Mary's Junior College of Medicine, Nursing and Management, Yilan, Taiwan. Email: pwchen@smc.edu.tw, fcmao@nchu.edu.

The occurrence of multidrug-resistant or meticillin-resist *Staphylococcus aureus* (MRSA)

has become an important issue clinics. This study evaluated a combinatorial treatment approach by using the well-documented antibacterial protein apo-bov lactoferrin (apo-bLf) or its hydrolysate and specific probiotic supernatants for controlling MRSA infection. Clinical MR strains were isolated from different patient specimens. Apo-bov hydrolysate possessed stronger anti-MRSA activity than comp] bLf in that it inhibited the growth of most MRSA strains tested in vitro. Otherwise, the supernatants produced by Lactobacillus (ATCC 11739), *Bifidobacterium longum* subsp. long (ATCC 15707) and *Bifidobacterium animalis* subsp. lactis (BC 17394) inhibited the growth of various MRSA strains. Further fermentum or *B. animalis* subsp. lactis supernatant plus apo-bL bLf-hydrolysate led to partially synergistic to synergistic grov inhibitory activity against MRSA strains. However, L ferment and not *B. animalis* subsp. lactis or *B. longum* subsp. longum observed to resist the antibacterial activity of both apo-Lf and b hydrolysate. Therefore, it is suggested that L. fermentum coulc the best candidate to be used with apo-bLf or bLf-hydrolysate live supplement against MRSA infections.

1449 AGUWA, E. N.; ONWASIGWE, C. N.; CHUKWU, J. N.; OSHI, D. C.; NWAFOR, C. C.; OMOTOWO, B. I.; NDtJ, A. C.; MEKA, A. O.; EKWUEME, O. E. C.; UGWUNNA, N. C.; ANYLM, M. C. **Validation of the clinical tuberculosis screening algorithm used in Nigerian national tuberculosis control programme for screening people living with HIV.** *Health* (2013) **5** (11) 1737-1741 Irvine, USA; Scientific Research Publishing [En, 22 ref.] Department of Community Medicine, University of Nigeria, Nsukka, Nigeria. Email: enaguwa@yahoo.com

BACKGROUND: In high HIV prevalence, tuberculosis diagnosis is challenging. Some countries hence use clinical algorithms to screen for tuberculosis in People Living with HIV (PLHIV). OBJECTIVES: The aim of the study was to validate the national algorithm for clinical tuberculosis screening of persons living with HIV who attend comprehensive HIV clinics. METHODS: A cross-sectional study of PLHIV who presented with cough of at least 2 weeks duration between 2009 and 2011 at St Patrick's Hospital, Ebonyi State, Nigeria. Sputum smear microscopy for acid fast bacilli was obtained from the participants. RESULTS: Three hundred and twelve PLHIV were studied. 146 (46.8%) males and 166 (53.2%) females. Only 55 (17.6%) of the participants had smear positive pulmonary tuberculosis. Weight loss (x2=2.33; P=0.127), hemoptysis (x2=0.03; P=0.864), night sweats (x,2=1.52; P=0.218), fever (x2=3.49; P=0.06), anorexia (x,2=0.49; P=0.484), chest pain (x2=2.48; P=0.115), breathlessness (x2=0.63; P=0.426) were not significant in PLHWA with/without pulmonary tuberculosis. Cough, fever, night sweat and weight loss combined gave a sensitivity of 97.0%, specificity of 10.9%, negative predictive value (NPV) of 93.3% and positive predictive value (PPV) of 21.8%. Conclusion: Findings suggest that though national screening algorithm is a valid tool to screen for tuberculosis in PLHIV, it will lead to many false positive results.

1450 DAVIDSON, R.M.; HASAN, N.A.; MOURA, V.C.N. D.E.; DUARTE, R. S.; JACKSON, M.; STRONG, M. **Phylogenomics of Brazilian epidemic isolates of *Mycobacterium abscessus* subsp. bolletii reveals relationships of global outbreak strains.** *Infection, Genetics and Evolution* (2013) **20**, 292-297 Amsterdam, Netherlands; Elsevier B.V. [En, 38 ref.] Integrated Center for Genes, Environment, and Health, National Jewish Health, Denver, Colorado, USA. Email: StrongM@NJHealth.org

Rapidly growing, non-tuberculous mycobacteria (NTM) in the *Mycobacterium abscessus* (MAB)

species are emerging pathogens that cause various diseases including skin and respiratory infections. The species has undergone recent taxonomic nomenclature refinement, and is currently recognized as two subspecies, *M. abscessus* subsp. abscessus (MAB-A) and *M. abscessus* subsp. bolletii (MAB-B). Thy recently reported outbreaks of MAB-B in surgical patients in 'Brazil from 2004 to 2009 and in cystic fibrosis patients in the United Kingdom (UK) in 2006 to 2012 underscore the need to investigate the genetic diversity of clinical MAB strains. To this end, we sequenced the genomes of two Brazilian MAB-B epidemic isolates (CRM-0019 and CRM-0020) derived from an outbreak of skin infections in Rio de Janeiro, two unrelated MAB strains from patients with pulmonary infections in the United States (US) (NJH8 and NJH11) and one type MAB-B strain (CCUG 48898) and compared them to 25 publically available genomes of globally diverse MAB strains. Genome-wide analyses of 27,598 core genome single nucleotide polymorphisms (SNPs) revealed that the two Brazilian derived CRM strains are nearly indistinguishable from one another and are more closely related to UK outbreak isolates infecting CF patients than to strains from the US, Malaysia or France. Comparative genomic analyses of six closely related outbreak strains revealed geographic-specific large-scale insertion/deletion variation that corresponds to bacteriophage insertions and recombination hotspots. Our study integrates new genome sequence data with existing genomic information to explore the global diversity of infectious *M. abscessus* isolates and to compare clinically relevant outbreak strains from different continents.

1451 HASHEMI-SHAHRAKI, A.; BOSTANABAD, S. Z.; HEIDARIEH, P.; TITOV, L. P.; KHOSRAVI, A. D.; SHEIKHI, N.; GHALAMI, M.; NOJOUMI, S. A. **Species spectrum of nontuberculous mycobacteria isolated from suspected tuberculosis patients, identification by multi locus sequence analysis.** *Infection, Genetics and Evolution* (2013) **20,** 312-324 Amsterdam, Netherlands; Elsevier B.V. [En, 49 ref.] Infectious and Tropical Disease Research Center, Ahvaz Jundishapur University of Medical Sci-ence, Ahvaz, Iran. Email: saeedzaker20@yahoo.com, saeid1976@mail.ru

Identification of Mycobacterium species is difficult due to a complex and rapidly changing taxonomy, the failure of 16S rRNA to discriminate many closely related species and tlir. 01 phenotypic testing. We investigated a collection of nontiihm mycobacteria (NTM) strains isolated from suspected I(11),-Iciih s patients at Tuberculosis Reference Centre (Ali vai, 11;in) and Masoud Laboratory (Tehran, Iran) during 2008-2012 (0 eval Elate the species spectrum of NTM isolates. Based on phenotypic tests, the isolates were identified up to species or complex level; however they were heterogonous by hsp65-PCR restriction fragment I engt h polymorphism analysis (PRA) method. Representative isolates from each hsp65-PRA pattern, were subjected to identification using single locus and multi locus sequence analysis (M LSA) based on 16S rRNA, rpoB, hsp65 and 16S-23S internal transcribes spacer (ITS) fragments to determine their taxonomic affiliations. All 92 NTM isolates from different clinical specimens were considered as etiological agents causing disease according to American Thoracic Society (ATS) guideline. Phenotypic evaluation alone assigned 66 (72%) isolates to a species or complex level and consequently 76 (82%) isolates showed previously reported hsp65-PRA patterns. Although sequence base identification using single locus such as 16S rRNA, rpoB, hsp65 or ITS identified the isolates up to species level, MLSA correctly identified 16 different species of NTM

from clinical isolates. In summary, four-locus MLSA is a reliable method for elucidating taxonomic data and reliable species identification of Mycobacterium isolates and therefore, would be more feasible for routine use in Tuberculosis (TB) reference laboratory.

1452 NYABADZA, F.; WINKLER, D. **A simulation age-specific tuberculosis model for the Cape Town metropole.** *South African Journal of Science* (2013) **109** (9/10) 50-56 Lynnwood Ridge, South Africa; Academy of Science of South Africa (ASSAf) [En, 23 ref.] Department of Mathematical Sciences, Stellenbosch University, Stellenbosch, South Africa. Email: nyabadzaf@sun.ac.za

Tuberculosis (TB) continues to present an insurmountable health burden in the Western Cape Province of South Africa. TB dynamics in adults is different from that in children, with the former determining the latter. Because the dynamics of TB are largely dependent on age, planning for interventions requires reasonable and realistic projections of the incidence across ages. It is thus important to model the dynamics of TB using mathematical models as predictive tools. We considered a TB compartmental model that is age dependent and whose parameters are set as functions of age. The model was fitted to the TB incidence data from the Cape Town metropole. The effective contact rate, a function of both age and time, was changed to fit the model to the notification rates of active TB disease cases. Our simulations illustrate that age structure plays an important role in the dynamics of TB. Projections on the future of the epidemic were made for each age group. The projected results show that TB incidence is likely to increase in the lower age groups of the population. It is clearly evident that even very simple models when applied to limited data can actually give valuable insights. Our results show that the age groups who have the highest incidence rates of active TB disease have the highest contribution in the transmission of TB. Furthermore, interventions should be targeted in the age group 25-34 years.

1453 LYU BING; PAN QILIN; SUN GUIZHI; YANG BAOCAI; WANG JINFENG; LIU JIAO; WAN KANGLIN **[Evaluation of application of *Mycobacterium tuberculosis* antibody detection kit: Trustline TB IgM/IgG rapid test kit.]** *Disease Surveillance* (2013) **28** (10) 861-865 Beijing, China; Editorial Board of Disease Surveillance [Ch, en, 19 ref.] Institute for Communicable Disease Control and Prevention, Chinese Center for Disease Control and Prevention, State Key Laboratory for Communicable Diseases Prevention and Control, Beijing 102206, China. Email: wankanglin @ icdc.cn

OBJECTIVE: To evaluate the application of a newly approved serological diagnostic kit for tuberculosis (TB) diagnosis: Trustline TB IgG/IgM rapid test kit. METHODS: In this multiple center study, 1009 serum specimens were collected from three hospitals and tested with Trustline TB IgG/IgM rapid test kit and a commercial TB Ab (IgG) colloid gold test kit (control test). Among the 1009 specimens, 628 were from TB patients and 381 were from non TB individuals. By gold standard bacteriological tests, 308 of the 628 specimens were positive and 320 were negative. RESULTS: The sensitivity, specificity, positive predict value, negative predict value and Youden index on the 1009 specimen detection by the Trustline TB IgG/IgM rapid test kit was 61.3%, 79.8%, 83.3%, 55.6% and 0.411 respectively, and 53.7%, 89.0%, 88.9%, 53.8% and 0.426 by the control test kit. The differences in sensitivity and specificity between the two tests were statistically significant ($P<0.01$). Further analysis showed that the detection rate of Trustline IgG/IgM test kit was 77.6% for positive specimens

and 44.7% for negative specimens, while the related detection rates of the control test kit were 67.9% and 40.0% respectively; there was significant difference in positive specimen detection between the two kits. In addition, this study showed that 35 of the 1009 specimens were IgM positive by Trustline test kit, in which 30 (4.8%) were from TB patients, and 5 (1.3%) were from non. TB individuals CONCLUSION: Trustline TB IgG/IgM rapid test kit is more sensitive in the detection of TB antibody in serum specimens compared with control test kit. The Trusline TB IgG/IgM test kit can detect both IgG and IgM in one test. It is recommended to be sued as TB screening test kit.

1454 UKWAJA, K. N.; ALOBU, I.; IFEBUNANDU, N. A.; OSAKWE, C.; IGWENYI, C. **Trend in case detection rate for all tuberculosis cases notified in Ebonyi, Southeastern Nigeria during 1999-2009.** *Pan African Medical Journal* (2013) **16,** 11 Kampala, Uganda; African Field Epidemiology Network [En, 8 ref.] Department of Internal Medicine, Ebonyi State University Teaching Hospital, P.O Box 06, Abakaliki, Ebonyi State, Nigeria. Unlike previous annual WHO tuberculosis reports that reported case detection rate for only smear-positive tuberculosis cases, the 2010 report presented case detection rate for all tuberculosis cases notified in line with the current Stop TB strategy. To help us understand how tuberculosis control programmes performed in terms of detecting tuberculosis, there is need to document the trend in case detection rate for all tuberculosis cases notified in high burden countries. This evidence is currently lacking from Nigeria. Therefore, this study aimed to assess the trend in case detection rate for all tuberculosis cases notified from Ebonyi state compared to Nigeria national figures. Reports of tuberculosis cases notified between 1999 and 2009 were reviewed from the Ebonyi State Ministry of Health tuberculosis quarterly reports. Tuberculosis case detection rates were computed according to WHO guidelines. 22, 508 patients with all forms of tuberculosis were notified during the study. Case detection rate for all tuberculosis rose from 27% in 1999 to gradually reach a peak of 40% during 2007 to 2008 before a slight decline in 2009 to 38%. How-ever, the national case detection rate for all tuberculosis cases in Nigeria rose from 7% in 1999 and progressively increased to reach a peak of 19% during 2008 and 2009. Since the introduction of DOTS in Ebonyi, the programme has achieved 40% case detection rate for all tuberculosis cases - about 20% better than national figures. However, with the current low case detection rates, alternative mechanisms are needed to achieve the current global stop- TB targets in Nigeria.

1455 AKASBI, N. TAHIRI, L.; HOUSSAINI, G. S.; HARZY, T. **[Factors associated with infection in rheumatoid arthritis] Les facteurs associes a l'infection au cours de la polyarthrite rhumatdide.** *Pan African Medical Journal* (2013) **16**, 35 Kampala, Uganda; African Field Epidemiology Network [Fr, 22 ref.] Service de Rhumatologie CHU Hassan II, Fes, Morocco.

Infectious complications are formidable in rheumatoid arthritis (RA). The aim of our study was to estimate their frequency and to determine the factors associated with infection in these patients. This is a retrospective study of cases of established RA recorded between 2007 and 2011 the Department of Rheumatology at the University Hospital Hassan H of Fez in Morocco. We included 164 patients with RA; the mean age of patients was 47.9 years, with a female predominance (137 F). The incidence of infection in our series was 26.2%, dominated by urogenital infections (22 cases), pleural lung (11 cases), 2 cases of pulmonary tuberculosis and one case of H1N1 infection, 3 cases of skin infections and 4

cases of septic arthritis. In our series 127 patients were on oral corticosteroids, 147 patients were treated with methotrexate, 25 patients were treated with rituximab and 8 patients were treated with tocilizumab. In our study, factors associated with the occurrence of infection were older age (P=0.02), high CRP (P=0.04) and a dose of steroids at 7.5 mg/d (P=0.03). Our study has highlighted some factors associated with the occurrence of infection in RA. By knowing these factors, we must introduce a special monitoring to improve the quality of care.

1456 NOUBOM, M.; NEMBOT, F. D.; DONFACK, H.; MFIN, P. S. K.; TCHASSE, F. **[Features of TB patients in west Cameroon: 2000-2009.] Caracterisitiques des patients tuberculeux a l'ouest earner-oun: 2000-2009.** *Pan African Medical Journal* (2013) **16**, 39 Kampala, Uganda; African Field Epidemiology Network [Fr, 21 ref.] Departement des Sciences Biomedicales, Universite de Dschang, Dschang, Cameroon.

Tuberculosis (TB) remains a major public health problem in developing countries. It becomes increasingly important because of HIV infection. A study was carried out to characterize the patients admitted in the largest Centre for Diagnosis and Treatment of Tuberculosis (CDT) in West Cameroon between 2000 and 2009. Patients 15 years and older admitted to the CDT Baleng during 1 January 2000 to 31 December 2009 were included. The data has been collected through a pre-designed grid. The calculation of frequencies, means and group comparisons were made to highlight the characteristics of the participants. 2556 patients were included in the study. 64.8% were male and the median age was 33 years old. 2141 (83.7%) of patients were smear-positive, 319 (12.5%) showed on TPM-96 and (3.8%) on a PET scan. 64.7% of patients resided outside the district implementation TDC health. 79.16% of TB patients were tested for HIV and HIV prevalence among those tested was 26.06%. The different evolutions at the end of follow-up period of each patient were as follows: favourable (cured plus completed treatment), 1954 (76.6%) lost to follow-up, 231 (9.0%), 230 deaths (9.0 %) transferred 92 (3.6%) and failure 49 (1.9%). A significant proportion of patients was living far from TDC which would increase the defaulters and transfers during treatment. In addition to popularizing other CDT in the region, it is necessary to strengthen the transfer system to avoid lost sight between CDT.

1457 ANDOIABA, J. B.; BARROTRAORE, F.; YAMEOGO, T.; DIALLO, B.; ITORSAGASOME, N.; TRAORE, A. **[Cutaneous tuberculosis: observation of six confirmed CHU Souro SANOU (chuss) Bobo-Dioulasso (Burkina Faso).] La tuberculose cutanee: observation de six cas confirm & au CHU Souro SANOU (CHUSS) de Bobo-Dioulasso (Burkina Faso).** *Pan African Medical Journal* (2013) **16,** 50 Kampala, Uganda; African Field Epidemiology Network [Fr, 6 ref.] Service de dermatologie, Centre Hospitaller Universitaire Souro Sanou, Bobo-Dioulasso, Burkina Faso.

Cutaneous localization of tuberculosis remains a rare entity and represents only 2.1% of locations. The purpose of this study is to report the ganglion subcutaneous epidemiological and clinico-pathological changing profile of TB cases diagnosed in a university hospital in Burkina Faso. The frequency of cutaneous tuberculosis is very low. Six cases were diagnosed between 2004 and 2010, a rate of one per year. The time evolution of the cases ranged from two to ten years before their diagnosis. The lesions observed were: three scrofuloderma three gums, testicular tuberculosis associated with Pott's disease, a case of polyadenopathies and atrophoretractable in most cases scars. On the pathological level,

tuberculoid granulomas were identified in all cases with a strong tuberculin reaction in IDR. On TB for six months, the evolution was good in all cases, but at the cost of unsightly skin scarring sequelae. Its extent is perhaps unknown. Strengthening the technical platform CHU and good interdisciplinary collaboration help to better diagnosis and management of this condition.

1458 VOUKING, M. Z.; TAKOUGANG, I.; M.B. A.M., L. M.; MBUAG-BAW, L..; TADENFOK, C. N.; TAMO, C. V. **The contribution of community health workers to the control of Buruli ulcer in the Ngoantet area, Cameroon.** *Pan African Medical Journal* (2013) **16,** 63 Kampala, Uganda; African Field Epidemiology Network [En, 27 ref.] Catholic University for Central Africa School of Health Sciences, Yaounde, Cameroon.

INTRODUCTION: Buruli ulcer (BU) is a skin disease caused by *Mycobacterium ulcerans*. It is the third most common mycobacterial infection after tuberculosis and leprosy. Community Health Workers (CHWs) hold the potential to support patients and their families at the community level. METHODS: We conducted a cross-sectional descriptive study to assess the participation of CHWs in the early diagnosis and treatment of BU in Ngoantet, Cameroon. The CHWs performance was measured using: the number of cases referred to the Ngoantet Health Centre, the percentage of accomplished referrals, the percentage of cases referred by CHWs confirmed by the staff of Ngoantet Health Centre. Data was analyzed using Epi-info version 3.4.1. and Microsoft Office Excel 2003. The study focused on 51 CHWs in the Ngoantet health area. RESULTS: The referral rate was 95.0%. Most of the suspicious cases (91.5%) referred were confirmed by health workers. Most CHWs (78.4%) declared that they had identified at least one presumptive case of BU infection. CONCLUSION: We conclude that the CHWs can play a key role in scaling up BU control activities using a referral system. This study confirms the role of home visits and inspections in the early detection and treatment of BU.

1459 LAABADI, K.; ALAOUI, F.Z.F.; JAYI, S.; CHAARA, H.B.H.; MELHOUF, M.A. **[Tuberculous endometritis: report of a case and review of the literature.] Endometrite tuberculeuse: a propos d'un cas et revue de la litterature.** *Pan African Medical Journal* (2013) **16,** 94 Kampala, Uganda; African Field Epidemiology Net-work [Fr, 15 ref.] Service de gynecologie obstetrique II, CHU Hassan II, Universite Mohamed Ben Abdellah, Fes, Morocco.

Tuberculosis remains a serious health concern, more in developing countries than in developed countries, partly because of the outbreak of the global epidemic of infection by the human immunodeficiency virus. In rare genital location (6-10% of tuberculous locations), tuberculosis poses diagnostic problems. Symptoms commonly encountered are non-specific, which contribute to the therapeutic delay and increases the risk of infertility, which remains almost as the inevitable sequelae. Through a case of tuberculous endometritis in a 27-year-old patient [Morocco; date not given] and a review of the literature, we studied the epidemiological, clinical aspects, treatment and prognosis of endometrial tuberculosis.

1460 MUKUKU, O.; RUHINDIZA, B. M.; MUPEPE, A. K.; SAWADOGO, M. **[TB among health personnel in the public sector in Burundi: frequency and risk factors.] Tuberculose chez le personnel de sante du secteur public au Burundi: frequence et facteurs de risque.** *Pan African Medical Journal* (2013) **16,** 140 Kampala, Uganda; African Field Epidemiology Network [Fr, 26 ref.] Faculte de Medecine, Universite de Lubumbashi, Lubumbashi, Congo Democratic Republic.

The aim of this study was to determine the incidence of tuberculosis (TB) among health personnel in the public sector in charge of TB patients and to assess risk factors for TB among such personnel in Burundi. This is a cross-sectional study conducted among 300 workers in 30 testing centers and TB treatment (CDT) in Burundi from 16 October to 15 November 2012. Sociodemographic and occupational variables and the history of BCG vaccination of workers who have been affected by TB were analysed and compared to those workers who have not been. The significance level was set at P<0.05. The incidence of TB in health personnel is 15%. The risk of TB is nearly 4 times older workers at least 50 years (OR=3.73, 1.53 to 9.08) among those who have never received vaccine BCG (OR=3.73, 1.24 to 11.03) for those who do not have a BCG scar (OR=3.80, 1.67 to 8.62) and among those who have worked at least 6 years in a CDT (OR=3.79, 1.44 to 9.96), this risk is 9 times those who are married (OR=9.42, 1.26 to 70.23) 8-fold among those who do not ventilate their work rooms (OR=8.20, 1.48 to 48.23) and 6 times in those profession as a cleaner or carer (OR=6.12, 2.92 to 12..82). By cons, no statistically significant cor-relation was observed between the fact of suffering from TB and gender but also the number of contact hours of a worker with a TB patient (P>0.05) Age, history of BCG vaccination and most professional settings associated with TB disease of CDT workers. Hence, control of risk factors is important to cope with the burden of TB among hospital staff.

1816 SHIM TAESUN; J.O. KYUNGWOOK **Medical treatment of pulmonary multi-drug-resistant tuberculosis.** *Infection and Chemotherapy* (2013) **45** (4) 367-374 Seoul, Korea Republic; Korean Society of Infectious Diseases and Korean Society of Chemotherapy [En, 37 ref.] Department of Pulmonary and Critical Care Medicine, Asan Medical Center, University of Ulsan College of Medicine, 88 Olympicro 43-gil, Songpagu, Seoul 138-736, Korea Republic. Email: shimts@amc.seoul.kr

Treatment of multidrug-resistant tuberculosis (MDR-TB) is challenging because of the high toxicity of second-line drugs and the longer treatment duration required compared with drug-susceptible TB. The efficacy of treatment for MDR-TB is poorer than that for drug-susceptible TB. The selection of drugs in MDR-TB is based on previous treatment history, drug susceptibility results, and TB drug resistance patterns in the each region. Recent World Health Organization guidelines recommend the use of least 4 second-line drugs (a newer fluoroquinolone, an injectable agent, prothionamide, and cycloserine or para-aminosalicylic acid) in addition to pyrazinamide. The kanamycin is the initial choice of injectable durgs, and newer fluoroquinolones include levofloxacin and moxifloxacin. For MDR-TB, especially cases that are extensively drug-resistant, group 5 drugs such as linezolid, clofazimine, and amoxicillin/clavulanate need to be included. New agents with novel mechanisms of action that can be given for shorter durations (9-12 months) for MDR-TB are under investi-gation.

1817 KURUP, R.; GEORGE, C. **Detection of drug resistant *Mycobacterium tuberculosis* among patients with and without HIV infection in a rural setting.** *West Indian Medical Journal* (2013) **62** (2) 122-126 Kingston, Jamaica; University of the West Indies [En, es, 23 ref.] Faculty of Health Sciences, University of Guyana, Guyana. Email: kuruprajini@yahoo.com

OBJECTIVE: To analyse the sensitivity of *Mycobacterium tuberculosis* by nitrate reductase assay (NRA) and the Hain molecular line probe assay (LPA) in sputa of tuberculosis (TB)/HIV co-infected patients in Guyana. DESIGN: Sputum

samples were collected from known TB patients at Georgetown Chest Clinic and were analysed at the Reference Laboratory, Guyana, over the period April 2010 to April 2011. RESULTS: Both methods recorded greater sensitivity for rifampin (RIF) than of isoniazid (INH). Both methods detected four RIF resistant, two INH resistant and two multi-drug resistant (MDR) strains and they had greater negative agreemendndices than positive agreement indices. CONCLUSION: k' vas established that the sensitivity of *Mycobacterium tuberculosis* by the NRA and Hain LPA in TB/ HIV co-infected patients has acceptable correlation and that HIV infection does not affect drug susceptibility testing.

1818 HOFMANN-THIEL, S.; HOFFMANN, H. **Evaluation of Fluorotype MTB for detection of *Mycobacterium tuberculosis* complex DNA in clinical specimens from a low-incidence country.** *BMC Infectious Diseases* (2014) **14** (59) (5 February 2014) London, UK; BioMed Central Ltd [En, 22 ref.] Synlab MVZ Gauting, IML red, WHO Supranational Reference Laboratory of Tuberculosis, Robert-Koch-Allee 2, 82131 Gauting, Germany. Email: sabine.hofmann-thiel@synlab.com

BACKGROUND: With Fluorotype MTB (FT MTB, HAIN Lifesciences, Germany) a new semi-automated assay for detection of *M. tuberculosis* complex (MTBC) in clinical specimens has been introduced. In a prospective study, we evaluated the diagnostic performance of FT MTB in a routine diagnostic setting in a low-incidence country. METHODS: A total of 1039 respiratory specimens received for routine mycobacteriology diagnostics were analysed by FT MTB. Results were compared to those of culture, microscopy and clinical diagnosis. 61 specimens were excluded from further analysis due to bacterial contamination of cultures. RESULTS: FT MTB detected 52 of 59 TB specimens (45 culture-positive with MTBC, 7 with clinical diagnosis of TB). With 902 of 912 non-TB specimens (884 culture-negative, 18 with growth of non-tuberculous mycobacteria) FT MTB was negative; discrepant positive FT MTB results were found with 10 specimens. Overall sensitivity, specificity, positive and negative predictive values were 88.1%, 98.9%, 83.8% and 99.2%. Sensitivity rates for smear-positive and smear-negative TB specimens were 100% and 56.3%, respectively. Seven of 978 samples (0.7%) yielded invalid FT MTB results. CONCLUSIONS: FT MTB is a new accurate, half automated assay for rapidly diagnosing TB and suitable for larger series of samples. Performance characteristics were found to be similar to those of other commercial NAATs. Its sensitivity in pauci-bacillary, smear-negative specimens and its utility for TB diagnostics in high-incidence settings needs to be addressed in further studies.

1819 JIA ZHONGWEI; CHENG SHIMING; M.A. YAN; ZHANG TIAN-HAO; BAI LIQIONG; XU WEIGUO; HE XIAOXIN; ZHANG PEIRU; ZHAO JINKOU; CHRISTIANI; D. C. **Tuberculosis burden in China: a high prevalence of pulmonary tuberculosis in house-hold contacts with and without symptoms.** *BMC Infectious Diseases* (2014) **14** (64) (6 February 2014) London, UK; BioMed Central Ltd [En, 22 ref.] National Institute of Drug Dependence, Peking University, Beijing 100191, China. Email: smcheng@chinatb.org

BACKGROUND: In the context of decreasing tuberculosis prevalence in China, we examined the effectiveness of screening household contacts of tuberculosis patients. METHODS: A tuberculosis survey was conducted in 2008. All 3,355 household contacts of notified tuberculosis cases were examined with a questionnaire interview, chest X-ray and three sputum smear tests. The effectiveness was examined by comparing the prevalence of pulmonary tuberculosis in household contacts with or

without presenting clinical symptoms against the respective notification rates. Regression models were used to evaluate the factors associated with pulmonary tuberculosis. RESULTS: Of the 3,355 household contacts, 92 members (2.7%f had pulmonary tuberculosis, among which 46 cases were asymptomatic. The prevalence of pulmonary tuberculosis and smear positive cases in household contacts without symptoms were 20 and 7 times higher than the notification rates in 2008, while those in household contacts with symptoms were 247 and 108 times higher than notification rates, respectively. The patients detected were mainly Index Cases' spouses, sisters/broth-ers and those who were in contact with female Index Cases. CONCLUSIONS: The present study provides convincing evidence that household contacts of notified tuberculosis cases are at higher risk of developing tuberculosis. Routine screening for household contacts without any symptoms is recommended for sustained tuberculosis control in China as well as in the world.

1820 WANG WEI; CHEN LIPING; ZHOU RUI; WANG XIAOBING; 'SONG LU; HUANG SHA; WANG GE; XIA BING **Increased proportions of Bifidobacterium and the Lactobacillus group and loss of butyrate-producing bacteria in inflammatory bowel disease.** *Journal of Clinical Microbiology* (2014) **52** (2) 398-406 Washing-ton, USA; American Society for Microbiology (ASM) [En, 47 ref.] Department of Gastroenterology/ Hepatology, Zhongnan Hospital of Wuhan Univer-sity, Wuhan, China. Email: bingxiawh@gmail.com

Dysbiosis in the intestinal microbiota of persons with inflammatory bowel disease (IBD) has been described, but there are still varied reports on changes in the abundance of Bifidobacterium and Lactobacillus organisms in patients with IBD. The aim of this investigation was to compare the compositions of mucosa-associated and fecal bacteria in patients with IBD and in healthy controls (HCs). Fecal and biopsy samples from 21 HCs, 21 and 15 Crohn's disease (CD) patients, and 34 and 29 ulcerative colitis (UC) patients, respectively, were analyzed by quantitative real-time PCR targeting the 16S rRNA gene. The bacterial numbers were transformed into relative percentages for statistical analysis. The proportions of bacteria were uniformly distributed along the colon regardless of the disease state. Bifidobacterium was significantly increased in the biopsy specimens of active UC patients compared to those in the HCs (4.6% versus 2.1%, P=0.001), and the proportion of Bifidobacterium was significantly higher in the biopsy specimens than in the fecal samples in active CD patients (2.7% versus 2.0%, P=0.012). The Lactobacillus group was significantly increased in the biopsy specimens of active CD patients compared to those in the HCs (3.4% versus 2.3%, P=0.036). Compared to the HCs, Faecalibacterium prausnitzii was sharply decreased in both the fecal and biopsy specimens of the active CD patients (0.3% versus 14.0%, P<0.0001 for fecal samples; 0.8% versus 11.4%, P<0.0001 for biopsy specimens) and the active UC patients (4.3% versus 14.0%, P=0.001 for fecal samples; 2.8% versus 11.4%, P<0.0001 for biopsy specimens). In conclusion, Bifidobacterium and the Lactobacillus group were increased in active IBD patients and should be used more cautiously as probiotics during the active phase of IBD. Butyrate-producing bacteria might be important to gut homeostasis.

1821 ZHANG ZHIJIAN; WANG YUFENG; PANG YU; KAM KAIMAN **Ethambutol resistance as determined by broth dilution method correlates better than sequencing results with embB mutations in multidrug-resistant *Mycobacterium tuberculosis* isolates.** *Journal of Clinical Microbiology* (2014) **52** (2) 638-641 Washington,

USA; American Society for Microbiology (ASM) [En, 18 ref.] Respiratory Diseases Department of Nanlou, Chinese People's Liberation Army General Hospital, Beijing, China. Email: pangyu@chinatb.org, kmkaml@gmail.com

We evaluated the correlation of phenotypic ethambutol (EMB) susceptibility as determined by two drug susceptibility methods with embB mutations in multidrug-resistant (MDR) *Mycobacterium tuberculosis* strains. The concordance rate for EMB resistance between broth dilution method and sequencing results (83.6%) was significantly higher than between the proportion method and sequencing results (61.7%) (P=0.004). Of the embB mutants, 75A% (46/61) possessed a mutation at embB306. Our results demonstrated that ethambutol resistance determined by broth dilution method reveals better correlation with embB mutations than the proportion method in MDR isolates.

1822 MPAGAMA, S. G.; NDUSILO, N.; STROUP, S.; KUMBURU, H.; PELOQUIN, C. A.; GRATZ, J.; HOUPT, E. R.; KIBIKI, G. S.; HEYSELL, S. K. **Plasma drug activity in patients on treatment for multi-drug-resistant tuberculosis.** *Antimicrobial Agents and Chemotherapy* (2014) **58** (2) 782-788 Washington, USA; American Society for Microbiology (ASM) [En, 28 'a] Kibong'oto National Tuberculosis Hospital, Kilimanjaro, Tanzania. Email: skh8r@virginia.edu

Little is known about plasma drug concentrations relative to quantitative susceptibility in patients with multidrug-resistant tuberculosis (MDR-TB). We previously described a TB drug activity (TDA) assay that determines the ratio of the time to detection of plasmacocultured *Mycobacterium tuberculosis* versus control growth in a Bactec MGIT system. Here, we assess the activity of individual drugs in a typical MDR-TB regimen using the TDA assay. We also examined the relationship of the TDA to the drug concentration at 2 h (C2) and the MICs among adults on a MDR-TB regimen in Tanzania. These parameters were also compared to the treatment outcome of sputum culture conversion. Individually, moxifloxacin yielded superior TDA results versus ofloxacin, and only moxifloxacin and amikacin yielded TDAs equivalent to a -2-log killing. In the 25 patients enrolled on a regimen of kanamycin, levofloxacin, ethionamide, pyrazinamide, and cycloserine, the C2 values were found to be below the expected range for levofloxacin in 13 (52%) andikanamycin in 10 (40%). Three subjects with the lowest TDA result (<1.5, a finding indicative of poor killing) had significantly tower kanamycin C2/MIC ratios than subjects with a TDA of ?_1.5 (. 8 -,L-8 . 7 versus 27.0±19.1; P=0.04). The mean TDAs were 2.52±0.7.4 subjects converting to negative in months and 1.88±0.57 in subjects converting to negative in >2 months (P=0.08). In Tanzania, MDR-TB drug concentrations were frequently low, and a wide concentration/MIC range was observed that affected plasma drug activity ex vivo. An opportunity exists for pharmacokinetic optimization in current MDR-TB regimens, which may improve treatment response.

1823 PHILLIPS, R. O.; SARFO, F. S.; ABASS, M. K.; ABOTSI, J.; WILSON, T.; FORSON, M.; AMOAKO, Y. A.; THOMPSON, W.; ASIEDU, K.; WANSBROUGH-JONES, M. **Clinical and bacteriological efficacy of rffampin-streptomycin combination for two weeks followed by rifampin and clarithromycin for six weeks for treatment of *Mycobacterium ulcerans* disease.** *Antimicrobial Agents and Chemotherapy* (2014) **58** (2) 1161-1166 Washington, USA; American Society for Microbiology (ASM) [En, 37 ref.] Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana. Email: rodamephillips@gmail.com

Buruli ulcer, an ulcerating skin disease caused by *Mycobacterium ulcerans* infection, is common in

tropical areas of western Africa. We determined the clinical and microbiological responses to administration of rifampin and streptomycin for 2 weeks followed by administration of rifampin and clarithromycin for 6 weeks in 43 patients with small laboratory-confirmed Buruli lesions and monitored for recurrence-free healing. Bacterial load in tissue samples before and after treatment for 6 and 12 weeks was monitored by semi-quantitative culture. The success rate was 93%, and there was no recurrence after a 12-month follow-up. Eight percent had a positive culture 4 weeks after antibiotic treatment, but their lesions went on to heal. The findings indicate that rifampin and clarithromycin can replace rifampin and streptomycin for the continuation phase after rifampin and streptomycin administration for 2 weeks without any apparent loss of efficacy.

1824 SHU WEN; CHEN WEI; ZHU SHIYU; HOU YONGCHUN; MEI JIAN; BAI LIQIONG; XU WEIGUO; ZHOU UN; Nlli SHAOFA; CHENG SHIMING; XU YIHUA **Factors causing delay of access to tuberculosis diagnosis among new, active tuberculosis patients: a prospective cohort study.** *Asia-Pacific Journal of Public Health* (2014) **26** (1) 33-41 London, UK; Sage Publications Ltd [En, 30 ref.] Department of Epidemiology and Biostatistics, School of Public Health, Tongji Medical College, Huazhong University of Science and Technology, Hangkong Road 13#, Wuhan, China. Email: xuyihua_6@hotmail.com

Few studies have examined, in a prospective cohort study, factors causing delay of access to tuberculosis (113) diagnosis among new, active TB patients. A prospective cohort study (2009-2011) was carried out among 408 889 Chinese. Data on known/potential influencing factors were obtained from baseline questionnaires. We used stepwise logistic regression models to analyze the association between several known/potential influencing factors and diagnosis delay, assessed the current situation, and explored deter-minants of diagnosis delay. During follow-up and final visits, 202 new, active TB patients were found. Median patient delay was 5.4 (quartile 2.7-26) weeks, health system delay was 0 (quartile 0-1.6) weeks, and diagnosis delay was 9.9 (quartile 3.1-28.1) weeks. The influencing factors on patient delay were age and duration of symptoms. Smoking and sputum smear status were influencing factors for health system delay, and duration of symptoms was one of the factors for diagnosis delay. These findings provide information on the current situation of diagnosis delay and evidence for specific strategy development for TB control in China.

1825 CAPEDING, M. R. Z.; JICA, C.; MACURA-BIEGUN, A.; RAUSCHER, M.; ALBERTO, E. **Interchangeability of quinvaxem during primary vaccination schedules: results from a phase IV, single-blind, randomized, controlled, single-center, non-inferiority study.** *Vaccine* (2014) **32** (7) 888-894 Oxford, UK; Elsevier Ltd [En, 28 ref.] Research Institute for Tropical Medicine, Muntinlupa City 1781, Philippines. Email: lerosecap@yahoo.com.ph, lerosecap@gmail.com, cjica@its.jnj.com, amacura@its.jnj.com, mrausche@its.jnj.com, edisonalberto@rocketmail.com

Combination vaccines against diphtheria, tetanus and pertussis (DTP) represent the core of childhood vaccination programs. Quinvaxem, a fully-liquid, pentavalent combination vaccine containing inactivated hepatitis B (HepB), Haemophilus influenzae type b (Hib) and whole-cell pertussis (wP) antigens, and tetanus and diphtheria toxoids, has been shown to be suitable for boosting children primed in infancy with another DTwP-HepB-Hib vaccine. This single-blind, randomized, controlled study was designed to demonstrate non-inferiority of a primary vaccination course (6-10-14 week schedule) of

Tritanrix HB+Hib (first dose) and Quinvaxem (second/third doses) versus three doses of Quinvaxem with respect to the seroprotection/ seroconversion rates for all antigens one month after vaccination course completion. Four hundred healthy subjects eligible for the local Expanded Program on Immunization were enrolled and equally randomized to the two treatment regimens. All subjects achieved seroprotection for tetanus and Hib, all except one for diphtheria, and all except two achieved seroconver-sion against Bordetella pertussis. Seroproaktion against hepatitis B was achieved by 97.4% of Tritanrix HB+Hib followed by Quinvaxem and 94.9% of Quinvaxem subjects. Therefore, one month after vaccination course completion, seroprotection rates (seroconversion rate for B. pertussis) of Tritanrix HB+Hib followed by Quinvaxem were non-inferior to those elicited by Quinvaxem only, thus meeting the primary objective. Adverse events were comparable between the groups and were in line with the safety profile of the vaccines. The switch of vaccine had no apparent effect on safety endpoints. Our results support the use of Quinvaxem inter-changeably with Tritanrix HB+Hib in a primary vaccination course and provides further evidence for the interchangeability of pentavalent vaccines (Clinical Trials.gov registry: NCT01357720).

1826 HUANG SHA; YI FENGMING; ZHOU RUI; CHEN MIN; LEI YUAN; ZHAO JUNZHANG; ZHANG HENG; XIA BING. **The utility of platelet, mean platelet volume and red cell distribution width in the diagnosis of active Crohn's disease and intestinal tuberculosis.** *Saudi Medical Journal* (2013) **34** (11) 1161-1166 Riyadh, Saudi Arabia; Saudi Medical Journal Prince Sultan Military Medical City [En, ar, 20 ref.] Department of Gastroenterology, Zhongnan Hospital of Wuhan University School of Medicine, Donghu Road 169, Wuhan 430071, China. Email: bingxia@aliyun.com

OBJECTIVES: To evaluate the diagnostic utility of platelet count (PLT), mean platelet volume (MPV), and red cell distribution width (RDW) in patients with active Crohn's disease (CD) and intestinal tuberculosis (ITB). METHODS: This study was conducted in the Department of Gastro-enterology, Zhongnan Hospital of Wuhan University, Wuhan, China. Sixty-eight patients with active CD, 35 with ITB, and 22 as control group were recruited. Blood routine test including white blood cell, red blood cell, PLT, MPV, RDW, and so forth was investigated. RESULTS: Patients with active CD and ITB have increased PLT and RDW (both $p>0.001$), and decreased MPV ($p=0.002$). The RDW performed preferably in predicting both active CD (odds ratio [OR]=2.390, $p=0.007$), and ITB (OR=2.338, $p=0.017$), and had better diagnostic value (area under the receiver operating characteristics curve [AUC] - 0.812; $p<0.001$) than CRP (AUC-0.716; $p=0.007$) and ESR (AUC - 0.804; $p<0.001$) in ITB diagnosis. CONCLUSION: Among the laboratory markers, RDW not only possessed the favorable capability to predict active CD, but also showed outstanding predicting capability, and good diagnostic value in ITB.

1827 KAKCHAPATI, S.; CHOONPRADUB, C.; LIM, A. **Spatial and temporal variations in tuberculosis incidence, Nepal.** *Southeast Asian Journal of Tropical Medicine and Public Health* (2014) **45** (1) 95-102 Bangkok, Thailand; SEAMEO Regional Tropical Medicine and Public Health Network [En, 20 ref.] Department of Mathematics and Computer Science, Faculty of Science and Tech-nology, Prince of Songkla University, Pattani Campus, Mueang, Pattani 94000, Thailand. Email: cchamnein@bunga.pn.psu.ac.th

Tuberculosis (TB) is an important public health problem in Nepal. The aim of this study was to

investigate the spatial and temporal variations in TB incidence in Nepal. Data regarding TB cases were obtained from the Nepal National Tuberculosis Center (NTC) for 2003-2010 and analyzed. Models were developed for TB incidence by gender, year and location using linear regression of log-transformed incidence rates. Apart from a relatively small number of outliers, these models provided a good fit, as indicated by residual plots and the r-squared statistic (0.94). The overall incidence of TB was 1.31 cases per 1,000 population with a male to female incidence rate ratio of 1.83. There were trends of increasing incidence in TB for recent years among both sexes. There were marked variations by location with higher rates occurring in the Terai region and relatively moderate and low rates of TB in the Hill and Mountain regions, respectively. TB incidence was also higher in the capital city Kathmandu and other metropolitan cities. A log-linear regression model can be used as a simple method to model TB incidence rates that vary by location and year. These findings provide information for health authorities to help establish effective prevention programs in specific areas where the disease burden is relatively high.

1828 MORRIS, A.; GOZLAN, R.; MARION, E.; MARSOLLIER, L.; ANDREOU, D.; SANWEZA, D.; R1UFFINE, R.; COUPPIE, P.; GUEGAN, J. F. **First detection of *Mycobacterium ulcerans* DNA in environmental samples from South America.** *PLoS Neglected Tropical Diseases* (2014) g (1) e2660 San Francisco, USA; Public Library of Sciences (PLoS) [En, 21 ref.] School of Applied Sciences, University of Bournemouth, Dorset, UK. Email: amorris@bournemouth.ac.uk

The occurrences of many environmentally-persistent and zoonotic infections are driven by ecosystem changes, which in turn are underpinned by land-use modifications that alter the governance of pathogen, biodiversity and human interactions. Our current understanding of these ecological changes on disease emergence however remains limited. Buruli ulcer is an emerging human skin disease caused by the mycobacterium, *Mycobacterium ulcerans*, for which the exact route of infection remains unclear. It can have a devastating impact on its human host, causing extensive necrosis of the skin and underlying tissue, often leading to permanent disability. The mycobacterium is associated with tropical aquatic environments and incidences of the disease are significantly higher on floodplains and where there is an increase of human aquatic activities. Although the disease has been previously diagnosed in South America, until now the presence of M. ulcerans DNA in the wild has only been identified in Australia where there have been significant outbreaks and in western and central regions of Africa where the disease is persistent. Here for the first time, we have identified the presence of the aetiological agent's DNA in environmental samples from South America. The DNA was positively identified using Real-time Polymerase Chain Reaction (PCR) on 163 environmental samples, taken from 23 freshwater bodies in French Guiana (Southern America), using primers for both IS2404 and for the ketoreductase-B domain of the *M. ulcerans* mycolactone polyketide synthase genes (KR). Five samples out of 163 were positive for both primers from three different water bodies. A further nine sites had low levels of IS2404 close to a standard CT of 35 and could potentially harbour *M. ulcerans*. The majority of our positive samples (8/14) came from filtered water. These results also reveal the Sinnamary River as a potential source of infection to humans.

1829 SINGH, S. V.; NAVEEN KUMAR; SOHAL, J. S.; SINGH, A. V.; SINGH, P. K.; AGRAWAL, N. D.;

SAURABH GUPTA; CHAUBEY, K. K.; RAJIB DEB; KULDEEP DHAMA; RAWAT, K. D. **First mass screening of the human population to estimate the bio-load of *Mycobacterium avium* subspecies paratuberculosis in North India.** *Journal of Public Health and Epidemiology* (2014) **6** (1) 20-29 Nairobi, Kenya; Academic Journals [En, many ref.] Microbiology Laboratory, Animal Health Division, Central Institute for Research on Goats, Makhdoom, PO-Farah, Pin-281 122, Dist-Mathura, Uttar Pradesh, India. Email: shoorvir.singh@gmail.com, shoorvir_singh@rediffmail.com

Bio-load of *Mycobacterium avium* subspecies paratuberculosis (MAP) was estimated in the first mass screening of human population in Mathura region of South Uttar Pradesh. 48,919 samples were collected between December, 2010 and March, 2013 from Pathology laboratories, 26,390 were screened by indigenous ELISA kit, 1S900 blood and stool PCR, 1S1311 PCR_RE and stool microscopy. From 23,196 serum samples screened by indigenous ELISA, 34.0% were positive for MAP infection (Mathura - 35.4% and Agra 14.2%). Percent prevalence of MAP infection was 28.3, 41.8, 37.4, 29.5, 41.1, 40.7, 42.5, 36.5 and 51.2 in patients suspected for diabetes, liver disorders, anaemia, thyroid, tuberculosis, typhoid, abdominal disoiders, inflammatory illness and ion imbalance, respective/3093, blood samples screened by IS900 PCR, 8.4% were positive (Mathura - 9.2% and Agra - 7.9%). Percent prevalence of MAP was 4.8, 7.0, 20.0, 4.9, 17.8, 7.6 and 12.7 in patients suspected for diabetic, liver disorder, skin disorders, anaemia, Malaria, typhoid and apparently normal individuals, respectively. 101 stool samples screened by microscopy, 5.9% were positive and of these 2.9% were confirmed by IS900 PCR. 1S1311 PCR_RE bio-typing showed 'Indian Bison Type was the most prevalent biotype. The study indicated large scale exposure of human population to MAP in the Mathura region of South Uttar Pradesh and 'Indian Bison Type' biotype was most prevalent.

1830 NSAGHA, D. S.; KAMGA, H. L. F.; BISSEK, A. C. Z. K.; ASSOS, J. C. N.; NJUNDA, A. L.; TABAH, E. N.; BAMGBOYE, E. A.; OYEDIRAN, A. B. 0. O.; OBAMA, M. T. O.; MUNA, W. F.; NJAMNSHI, A. K. **The use of chart review to elucidate the epidemiology of leprosy in the Mbingo leprosarium of Cameroon.** *Journal of Public Health and Epidemiology* (2014) **6** (1) 30-40 Nairobi, Kenya; Academic Journals [En, 43 ref.] Department of Public Health and Hygiene, Faculty of Health Sciences, University of Buea, Buea, Cameroon. Email: dsnsagha@gmail.com, nsaghads@hotmail.com

The WHO introduced MDT for the treatment of leprosy in 1982 because dapsone monotherapy was lifelong and resistant. "The objective of this study was to determine the impact of MDT on leprosy control and its epidemiology in Mbingo leprosarium". Patients who attended the Mbingo leprosarium from 1961 to 1998 were identified through a thorough manual review of hospital records in 2002. A structured data collection form containing information on sex, age, type of disease, province of origin, date of admission and whether it was a new case, transferred, relapsed, readmission, discharged, absconded or defaulted. Patients with incomplete data Were dropped from the investigation. The review was carried out before and after the introduction of MDT in 1982. 1045 case files comprised of 271 for the period 1961 to 1967 and 774 for 1982 to 1998 were reviewed. The epidemiological trend of leprosy showed peak values in 1964, 1984, 1986 and 1991 and a decrease in 1967, 1982 and 1998. In the pre-MDT period, admissions increased from 4 (0.4%) in 1961 to 70 (10.9%) in 1964 and decreased to zero in 1982. Since MDT implementation, admissions increased to 39

(6.1%) in 1986 and a continuous gradual drop till 1998. Immediately after (MDT) T implementation many patients were cleared from the registers with peak values in 1984, 1986, 1991 and 1993. 283 (27.1%) new admissions, 60 (5.7%) transfers, 10 (1.0%) readmissions, 20 (1.9%) relapses, 15 (1.4%) defaulters, 14 (1.3%) deaths and 373 (35.7%) of discharges were reported from 1992 to 1998.

1831 SILVA, B. D. S.; TANNUS-SILVA, D. G. S.; RABAHI, M. F.; KIP-NIS, A.; JUNQUEIRA-KIPNIS, A. P. **The use of *Mycobacterium tuberculosis* HspX and G1cB proteins to identify latent tuberculosis in rheumatoid arthritis patients.** *Memorias do Instituto Oswaldo Cruz* (2014) **109** (1) 29-37 Rio de Janeiro, Brazil; Instituto Oswaldo Cruz [En, 37 ref.] Departamento de Microbiologia, Imunologia, Parasitologia e Patologia, Instituto de Patologia Tropical e Sailde Publica, Universidade Federal de Goias, Goiania, GO, Brazil. Email: apkipnis@gmail.com.

Rheumatoid arthritis (RA) is an autoimmune disease characterised by the destruction of articular cartilage and bone damage. The chronic treatment of RA patients causes a higher susceptibility to infectious diseases such as tuberculosis (TB); one-third of the world's population is latently infected (LTBI) with *Mycobacterium tuberculosis* (Mtb). The tuberculin skin test is used to identify individuals LTBI, but many studies have shown that this test is not suitable for RA patients. The goal of this work was to test the specific cellular immune responses to the Mtb malate synthase (GlcB) and heat shock protein X (HspX) antigens of RA patients and to correlate those responses with LTBI status. The T-helper (Th)1, Th17 and Treg-specific immune responses to the GlcB and HspX Mtb antigens were analysed in RA patients candidates for tumour necrosis factor-et blocker treatment. Our results demonstrated that LTBI RA patients had Thl-specific immune responses to GlcB and HspX. Patients were followed up over two years and 14.3% developed active TB. After the development of active TB, RA patients had increased numbers of Th17 and Treg cells, similar to TB patients. These result% demonstrate that a GlcB and HspX antigen assay can be used as a diagnostic test to identify LTBI RA patients.

1832 KONOWSM, A. G.; CARNEIRO, M. A. DOS S.; MATOS, M. A. D. DE; TELES, S. A.; ARAI-JJO FILHO, J. A.; OTSUKI, K.; VICENTE, A. C. P.; MARTINS, R. M. B. **Prevalence and genetic characterisation of HTLV-1 and 2 dual infections in patients with pulmonary tuberculosis in Central-West Brazil.** *Memorias do Institute Oswaldo Cruz* (2014) **109** (1) 118-121 Rio de Janeiro, Brazil; Instituto Oswaldo Cruz [En, 23 ref.] Instituto de Patologia Tropical e Satide Pilblica, Universidade Federal de Goias, Goiania, GO, Brazil. Email: rbringel.iptsp.ufg@gmail.com Human

T-cell lymphotropic virus (HTLV) may impact the clinical course of tuberculosis (TB). Both infections are highly endemic in Brazil. The aim of this study was to assess the prevalence of HTLV-1/2 in TB patients in Central-West Brazil and to perform a genetic characterisation of the respective isolates. Of the 402 patients, six (1.49%) were positive for anti-HTLV and five (1.24%; 95% confidence interval: 0.46-3.05) were infected with HTLV-1/2. Genetic characterisation demonstrated that the four HTLV-1 isolates belonged to the Transcontinental subgroup A of the Cosmopolitan subtype a and that the HTLV-2 isolate belonged to subtype a (HTLV-2a/c). The prevalence of HTLV infection observed in this study is higher than that observed in local blood donors and the HTLV-1 and 2 subtypes identified are consistent with those circulating in Brazil.

1833 TWFA'A, H.; BEN-SMITH, A.; KALULU, M.; JAHN, A.; NG'AMBI, MKANDAWIRE, E.; GABRIEL,

L.; PHIRI, S. **Timing of antiretroyipl therapy and regimen for HIV-infected patients with tubercvlosis: the effect of revised HIV guidelines in Malawi.** *BMC Public Health* (2014) **14** (183) (20 February 2014) London, UK; BioMed Central Ltd [En, 23 ref.] The International Union Against Tuberculosis and Lung Disease, Paris, France. Email: h_tweya@lighthouse.org.mw

BACKGROUND: In July 2011, the Malawi national HIV program implemented the integrated antiretroviral therapy (ART) and prevention of mother-to-child transmission (PMTCT) guidelines. Among the principle goals of the guidelines were increasing ART uptake among TB/HIV co-infected patients and treating TB/HIV patients with a different drug regimen. We, therefore, assessed the effects of the new guidelines on ART uptake, the factors associated with ART uptake and the frequency of ARV-related adverse events in TB/HIV co-infected patients. METHODS: This was an observational cohort study using routine program data. All ART-naive adult TB/HIV co-infected patients starting TB treatment over the six months preceding and following implementation of 2011 integrated ART/PMTCT guidelines were included. RESULTS: A total of 685 adult TB/HIV co-infected patients were registered in the study; 377 (55%) before and 308 (45%) after the implementation of the new guidelines. ART uptake increased from 70% (240/308) before implementation of the new guidelines to 78% (262/377) after the inception of the new guidelines (P=0.013). The proportion of TB patients initiating ART within two weeks of starting TB treatment increased from 30% before implementation of the new guidelines to 46% after implementation of the new guidelines (p<0.001). The median time from the start of TB treatment to ART initiation dropped from 16 days (IQR 14-31) before the new guidelines to 14 days (IQR 9-20; p=0.004) after implementing the new guidelines. Factors associated with ART uptake were enrolment in HIV care before starting TB treatment and being a retreatment TB patient. The overall frequency of ARV-related adverse events was higher in patients on d4T/3TC/NVP (35%) than those on TDF/3TC/EFV (25%) but not significantly different (P=0.052). CONCLUSION: Implementation of the 2011 Malawi Integrated ART/PMTCT guidelines was associated with an overall increase in ART uptake among TB/HIV patients and with an increase in the number of patients initiating ART within two weeks of starting their TB treatment. However, the reduction in time between initiating TB treatment and starting ART was small suggesting that further measures must be implemented to facilitate ART uptake. Early enrolment in HIV care provides opportunities for timely ART initiation among TB patients.

1834 LOCKWOOD, D. N. J.; VANAJA SHETTY; PENNA, G. O. **Hazards of setting targets to eliminate disease: lessons from the leprosy elimination campaign.** *BMJ* (2014) **348** (G1136) (7 February 2014) London, UK; BMJ Publishing Group [En, 34 ref.] London School of Hygiene and Tropical Medicine, London WC 1E 7HT, UK. Email: Diana.Lockwood@lshtm.ac.uk

Elimination of a disease sounds attractive, but as the recent re-emergence of polio has shown, it is difficult to accomplish. As part of its roadmap for reducing the burden of neglected tropical diseases, the World Health Organization has identified five diseases for elimination by 2015 and a further eight by 2020. Although set-ting these ambitious targets has the potential to focus money and resources, unless the targets are realistic they can have unforeseen consequences. This report used the experience of the 1991 campaign to eliminate leprosy to show how targets can end up causing harm to patients.