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1455 LEE YUMI; KIM SUNMI; PARK SUJIN; LEE SANGOH; CHOI SANGHO; KIM YANGSOO; WOO JUNHEE; KIM SUNGHAN **Factors associated with a strong response to the T-SPOT.TB in patients with extrapulmonary tuberculosis.** *Infection and Chemotherapy* (2014) **46** (4) 248-252 Seoul, Korea Republic; Korean Society of Infectious Diseases and Korean Society of Chemotherapy [En, 10 ref.] Department of Infectious Diseases, Asan Medical Center, University of Ulsan College of Medicine, 88 Olympic-ro 43-gil, Songpa-gu, Seoul 138-736, Korea Republic. Email: kimsunghanmd@ hotmail.com

Limited data are available on which factors are associated with strong immunologic responses to T-SPOT.TB. We investigated the factors associated with strong positive responses in patients with extrapulmonary tuberculosis (E-TB). Of 173 patients with E-TB who gave positive results on T-SPOT.TB, 26 (15%) with a strong positive response (defined as 1,000 spot-forming units (SFU)/ 2.5x 105 PBMC to ESAT-6 or CFP-10) and 71 (41%) with a low positive response (99 SFU (6-99. SFU)/2.5 x 105 PBMC) were further analyzed. Miliary TB was independently associated with a strong positive response to T-SPOT.TB, while advanced age and immunosuppression were independently associated with weak positive T-SPOT.TB responses.

1456 ERRAMI, N.; BENJELLOUNB, A.; HEMMAOUIA, B.; NADOURA, K.; BENARIBA, F. **Association of tuberculous thyroiditis and papillary carcinoma of the thyroid: a rare coincidence.** *Part African Medical Journal* (2014) 19, 118 Kampala, Uganda; African Field Epidemiology Network [En, 10 ref.] ENT Unit, Mohammed V Military Hospital, Rabat, Morocco.

We report the case of a 25 year-old patient with no medical history, admitted to our unit for nodular goiter of the right lobe without clinical or laboratory signs of hyperthyroidism. We carried out a right lobo-isthmectomy revealing the association of tuberculosis and thyroid papillary carcinoma. A left lobectomy has, therefore, been performed in a second stage. The patient underwent a six-month antituberculosis treatment with a good clinical out \rile. We discuss this rare association and its best diagnostic and the therapeutic support, with a review of the literature.

1457 BAKOUH, O.; ANIKED, S.; BOURKADI, J. **[Tuberculous pneumonia: a new series of 27 cases.] La pneumonie tuberculeuse: une nouvelle serie de 27 cas.** *Pan African Medical Journal* (2014) **19**, 122 Kampala, Uganda; African Field Epidemiology Network [Fr, 13 ref.] Service de Pneumo-Phtisiologie, Hopital Moulay Youssef, CHU Rabat, Rabat, Morocco. In order to study the clinical, radiological and evolutionary aspects of tuberculous pneumonia (PT) in Morocco, countries with high prevalence of tuberculosis, a retrospective study ranging from January to September 2013 was conducted at the Moulay

Youssef Hospital in Rabat. 27 cases of PT were diagnosed, of which 2 were HIV-seropositive. Fever and poor general condition were reported in all patients with respiratory signs such as cough and dyspnoea. Haemoptysis was reported in 7 cases. Often diagnosed late, due to the non-specificity of its signs, 14 of 27 had cavitation pneumonia, with predominance of lesions in the right upper lobe. TB treatment was effective in most cases. There were 2 deaths. The initiation of TB treatment decision even in the absence of bacteriological certainty must be taken within a reasonable period of 15 days to the seriousness of the presentation and persistent sequelae.

1458   ALAMI, S. E.; HAMMI, S.; BOURKADI, J. E. **[Serious immunoallergic reactions to anti-tuberculous agents: about 10 cases.] Reactions immunoallergiques graves aux antibacillaires: a propos de 10 cas.** *Pan African Medical Journal* (2014) **19**, 152 Kampala, Uganda; African Field Epidemiology Network [Fr, 17 ref.] Hopital Moulay Youssef, CHU, Rabat, Morocco. Hyper-sensitivity to antituberculous agents is one of the unpredictable side effects that appears in 4-5% of the exposed population and in 25% of HIV-positive subjects. In our study (Morocco), among 39 patients with immunoallergic reactions, 10 had severe forms. The mean time to onset of symptoms was 23 days. Immunoallergic reactions observed were 5 cases of febrile generalized drug eruption, neutropenia, a case of pancytopenia and 2 cases of thrombocytopenia. All patients clinically and bacteriologically evolved after the adoption of a therapeutic regimen excluding the offending drugs. In practice, if the adverse event attributed to antituberculous drugs is serious, it is imperative to stop it, to treat the incident and to associate another molecule in some cases. Our study showed a significant incidence of serious complications probably underestimated, espe-cially in areas highly affected by HIV infection.

1459   HAMZAOUI, G.; AMRO, L.; SAJIAI, H.; SERHANE, H.; MOUMEN, N.; ENNEZARI, A.; YAZIDI, A. A. **[Lymph node tuberculosis: epidemiological, diagnostic and therapeutic aspects, in connection with 357 cases.] Tuberculose ganglionnaire: aspects epidemio-logiques, diagnostiques et therapeutiques, a propos de 357 cas.** *Pan African Medical Journal* (2014) **19**, 157 Kampala, Uganda; African Field Epidemiology Network [Fr, 8 ref.] Service de Pneumologie, CHU Mohammed VI, Laboratoire PCIM, FMPM, Universite Cadi Ayyad, Marrakech, Morocco.

Lymph node tuberculosis is the most common extrapulmonary location in Morocco. It is still a diagnostic and therapeutic problem. The aim of this study was to investigate the epidemiology, diagnosis and treatment of lymph node tuberculosis. This was a retrospective study of new cases of lymph node tuberculosis followed at a specialized centre for tuberculosis in Marrakech, Morocco, between January 2011 and December 2012. It included 357 lymph node tuberculosis cases from a total of 1717 tuberculosis cases, with an incidence of 20.8%. The average age was 29.1 years with a sex ratio of 0.6 (62.5% were women). Diabetes, tuberculosis and HIV infection were found in 9, 14.6 and 3.6% of the cases, respectively. The lymph nodes were cervical in 95%, mediastinal in 5.1%, abdominal in 3.7%, axillary in 2.8%, and inguinal in 0.3% of cases. The x-ray (performed in 96.4% of the cases) findings were abnormal in 8.1%. The diagnosis was confirmed in 97.2% of the cases. The regimen was 2 RHZE/4RH [2 months of rifampicin, isoniazid, pyrazinamide and ethambutol followed by 4 months of rifampicin and isoniazid] in 88% of cases. At follow-up, the evolution was marked by disappearance of lymph nodes in 95.2% and by increase in lymph node volume in 4.8%; 1.4% of patients were lost to follow-up. Relapse of

lymph node tuberculosis was noted in 3.1%. Lymph node tuberculosis is still common and occupies second place after lung injury and poses a diagnostic and therapeutic problem.

1460   KEFLIE, T. S.; AMENI, G. **Microscopic examination and smear negative pulmonary tuberculosis in Ethiopia.** *Pan African Medical Journal* (2014) **19**, 162 Kampala, Uganda; African Field Epidemiology Network [En, 25 ref.] Ethiopian Society of Tropical and Infectious Diseases, Addis Ababa, Ethiopia.

INTRODUCTION: tuberculosis causes illness among millions of people each year and ranks as the second leading cause of death from infectious disease worldwide. The aim of this study was to investigate the detection rate of microscopic examination and estimate risk of transmission of TB by smear negative pulmonary TB patients. METHODS: a cross-sectional study and retrospective data analysis on TB were undertaken in Northwest Shewa, Ethiopia. Microscopic examination, bacterial culture and PCR were performed. The statistical analysis was made by using STATA software version 10. RESULTS: a total of 92 suspected TB cases were included in the study. Of these, 27.17% (25/92) were positive for microscopic examination and 51% (47/92) for culture. The sensitivity and specificity of microscopic examination with 95% CI were 48.94% (34.08% to 63.93%) and 95.56% (84.82 to 99.33%), respectively. The positive and negative predictive values were 92% (73.93% to 98.78%) and 64.18% (51.53% to 75.53%), respectively. Of 8150 pulmonary TB cases in the retrospective study, 58.9% was smear negative. The proportion of TB-HIV co-infection was 28.66% (96/335). CONCLUSION: the sensitivity of microscopic examination was 48.94% which was very low. The poor sensitivity of this test together with the advent of HIV/AIDS elevated the prevalence of smear negative pulmonary TB. This in turn increased the risk of TB transmission.

1461   TOUATI, M. M.; DAROUASSI, Y.; CHIHANI, M.; LAKOUICHMI, M.; TOURABI, K.; AMMAR, H.; BOUAITY, B. **[Primitive extranodal tuberculosis of the ENT: a report of 15 cases.] La tuberculose extra-ganglionnaire primitive de la sphere ORL: a pro-pos de 15 cas.** *Pan African Medical Journal* (2014) **19**, 179 Kampala, Uganda; African Field Epidemiology Network [Fr, 13 ref.] Service d'Oto-rhino-laryngologie et Chirurgie Cervico-Faciale, Hopital Militaire Avicenne, Marrakech, Morocco.

The ENT extranodal localizations of tuberculosis are rare. The clinical symptoms and diagnostic tests are often misleading, posing the problem of differential diagnosis with tumour pathology. We report 15 cases of extra-nodal locations of tuberculosis from the ENT and CCF departments of the Avicenne Military Hospital, Marrakech, Morocco, between 2009 and 2013. The average age of the patients was 33 years. The topographic study showed 6 nasopharyngeal cases, a case of pharyngeal miliary tuberculosis and 4 laryngeal cases, 2 atrial locations, one parotid and one maxillary location. The diagnosis was pathological in all cases. All patients received antituberculosis treatment with good evolution.

1462   JANAH, H.; SOUHI, H.; KOUISSMI, H.; MARC, K.; ZAHRAOUI, R.; BENAMOR, J.; SOUALHI, M.; BOURKADI, J. E. **[Pulmonary tuberculosis and smoking: a report of 100 cases.] La tuberculose pulmonaire et le tabac: a propos de 100 cas.** *Pan African Medical Journal* (2014) **19**, 202 Kampala, Uganda; African Field Epidemiology Network [Fr, 24 ref.] Service de Phtisiologie de l'Hopital Moulay Youssef, CHU Rabat, Morocco.

Smoking and tuberculosis are 2 major public health problems worldwide, especially in emerging countries. To determine the clinical, radiological, bacteriological and therapeutic aspects of pulmonary tuberculosis among tobacco users, we conducted a prospective

study in the phthisiology service of Moulay Youssef Hospital, Morocco, over a period of 10 months, covering 100 new cases of pulmonary tuberculosis. The patients were divided into 2 groups: 50 smoking patients (Group A) and 50 non-smoking patients (Group B). All patients were male, the mean age was 41±12 years in group A and 36±16 years in group B. The consultation period was longer in smokers, the median was 60 days (30; 98) against 40 days (30; 60). The clinical symptoms were variable in both groups, dominated by sputum in 96% of smokers as against 60%. Radiological lesions were similar in both groups and the bacillary load. All patients were started on antituberculosis treatment. After one month of treatment, smear was negative in 50% of group A against 66% in group B. Regression of radiological lesions was similar in both groups. Diagnostic delay and delayed smear negativity are the main features of pulmonary tuberculosis in smokers. Smoking cessation should be an integral part of the care of patients with tuberculosis.

1463   DENUE, B. A.; KWAYABURA, S. A.; NGADDA, H. A.   **Ovarian tuberculosis masquerading as ovarian cancer in HIV infected patient: a plea to avoid unnecessary surgery.** *Pan African Medical Journal* (2014) **19**, 210 Kampala, Uganda; African Field Epidemiology Network [En, 14 ref.] Department of Medicine, College of Medical Sciences, University of Maiduguri, PMB 1069, Maiduguri, Nigeria.

Female patients who present with adnexial mass and weight loss should not be presumed to have ovarian carcinoma until after extensive investigation. This is to avoid the mistake of radical surgery with its attendant morbidity and mortality. An important disease to consider in our environment is ovarian TB that respond well to medication. A 35 year old HIV-1 positive house wife presented with fever, persistent vomiting, progressive weight loss, vague abdominal pain and swelling. Patient occasionally ingest unpasteurized milk since childhood but had no sustained contact with adult with chronic cough. She had no menstrual abnormality. Imaging studies revealed right ovarian mass measuring 11.8 cm x 10 cm. Right ovarian malignancy was highly suspected, for which she underwent exploratory laporotomy. Histopathology result was consistent with tuberculous granuloma. Chest radiograph was normal. Her CD4 count was 541 cells/ul. Patient was commenced on anti tuberculotic therapy based on the Nigerian National TB control and she responded well. Tuberculosis of the ovary can masquerade as ovarian cancer, especially among HIV patients in regions where TB-HIV co infections is endemic, it should be ruled out before performing extended surgery.

1464   BRAHIM, H. B.; KOOU, I.; AOUAM, A.; TOUMI, A.; LOUSSAIEF, C.; KOUBAA, J.; CHAKROUN, M.   **[Diagnostic and therapeutic management of lymph node tuberculosis in Tunisia.] Prise en charge diagnostique et therapeutique de la tuberculose ganglionnaire en Tunisie.** *Pan African Medical Journal* (2014) **19**, 211 Kampala, Uganda; African Field Epidemiology Network [Fr, 24 ref.] Service de Maladies Infectieuses, CHU Fat-touma Bourguiba, 5000 Monastir, Tunisia.

Lymph node tuberculosis (TB) is the most common extrapulmonary tuberculosis. We propose in this work to study diagnostic modalities, treatment and results of this location. This was a retrospective study of 100 cases of lymph node TB in Tunisia. The mean age was 35±15 years (15-85 years). No patient was HIV positive. The cervical area was the most affected (93 cases). Intradermal tuberculin test was positive in 76/91 cases (83.5%). Bacteriological examination of samples from the affected nodes had

revealed acid-fast bacilli on direct examination in 2/31 cases (6.4%) and culture had isolated *Mycobacterium tuberculosis* in 1/31 cases (3.2%). Lymph node aspiration cytology (FNAC) was suggestive of tuberculosis in 35/42 cases (83.3%). Lymph node biopsy was performed in 69 cases and allowed to retain the diagnosis of tuberculosis in all cases. The FNAC, compared with biopsy, helped to significantly shorten the time of the treatment (15.1 vs. 22.8 days; P=0.001) and hospital stay (17.3 vs. 24.6; P=0.004). The average duration of TB treatment was 9.8±4.6 months (7-44 months). The initial surgical treatment had significantly shortened the duration of medical treatment. It had no impact on the cure rate. We noted 10 cases of paradoxical response to TB, 4 cases of clinical resistance and relapse in 2 cases. Lymph node TB poses a diagnostic and therapeutic problem. Microbiology is a low intake. FNAC is a very useful diagnostic tool in endemic countries with scarce resources. One medical treatment avoids the disadvantages of surgery.

1465   KHARRASSE, G.; SOUFI, M.; BEREKHLI, H.; INTISSAR, FL.; BOUZIANE, M.; ISMATU, Z. **Primary tuberculoma of the liver: a case report and literature review.** *Pan African Medical Journal* (2014) **19**, 321 Kampala, Uganda; African Field Epidemiology Network [En, 16 ref.] Department of Gastroenterology, Faculty of Medicine Oujda, University Mohammed First, Bp 4847 Oujda Universite 60049, Morocco.

We report the case of an immunocompetent patient with an isolated tuberculoma of the liver, which was diagnosed by percutaneous US-guided liver biopsy. The patient received an anti-tubercular therapy, and there has been no relapse to date.

1466   JANAH, H.; SOUHL H.; KOMMT, H.; MARK, K.; ZAHRAOUI, R.; BENAMOR, J.; SOUALHI, M.; BOURKADI, J. E.   **[Risk factors for mortality in pulmonary tuberculosis.] Facteurs de risque de mortalite par tuberculose pulmonaire.** *Pan African Medical Journal* (2014) **19**, 347 Kampala, Uganda; African Field Epidemiology Network [Fr, 17 ref.] Service de Phtisiologie de l'Hopital Moulay Youssef, CHU Rabat, Rabat, Morocco. Tuberculosis is an infectious disease caused by the *Mycobacterium tuberculosis* bacilli. Based on WHO estimates, it accounts for more than 1 million deaths per year worldwide. To determine risk factors for mortality in smear-positive pulmonary tuberculosis (PTB) cases, we conducted a retrospective study of all PTB cases who had died during their hospitalization. This study included 1803 PTB patients hospitalized over a period of two and a half years, of whom 46 died. Mortality rate was 2.55%. These mortality cases included 32 men and 14 women, with mean age of 53±17 years. Smoking was noted in half of these mortality cases. Comorbidity was found in 43%, with 17% being diabetic. Diagnosis period had a median of 60 days (30-105 days). Symptoms were dominated by cough, dyspnoea and sputum, seen in 97.8%, 69.6% and 67.4% of the cases, respectively. Radiologically, the lesions were diffuse and bilateral in 76.1% of the cases. All patients were put under SRHZ. 11% presented with antibacillary toxicity (liver-type in 3 cases and neurological in 2 cases). Median time to death was 8.5 days (5-17 days). Causes of death were fulminant hepatitis (3 cases), ketoacidosis decompensation (3 cases), ARDS (2 cases), and lightning haemoptysis (2 cases). This study suggests that delay in diagnosis and treatment, as well as anti-Koch's side effects, are main risk factors for mortality in patients hospitalized for PTB.

1467   KABORE, A.; HIEN, H.; SANOU, A.; ZINGUE, D.; DANEAU, G.; GANAME, Z.; NOUCTARA, M.; OUEDRAOGO, M.; OUEDRAOGO, O.; KOUTOU, F.; GOMGNIMBOU, M.; MEDA, N.; NEVEU, D.; GODREUIL, S.; SANGARE, L.

Impact of pre-analytical factors on mycobacterium cultures contaminations rates in Burkina Faso, West Africa. *Pan African Medical Journal* (2014) **19**, 396 Kampala, Uganda; African Field Epidemiology Network [En, 17 ref.] Department of transmissible diseases, Centre Muraz, Bobo-Dioulasso, Burkina Faso.

INTRODUCTION: for a high quality level diagnosis, mycobacterium culture must comply with the pre-analytical and analytical conditions recommended by the WHO and the country National Tuberculosis Program (NTP). In this study, we determined whether temperature and duration of sputum storage were associated with culture contamination in Burkina Faso. METHODS: sputa were collected in 5 districts labs in Burkina Faso. Temperature and duration of sputum storage were recorded. After the collection, sputa were decontaminated using Petroff modified method, and the pellet was inoculated on LJ media and LJ media supply with 2% sodium pyruvate. Risk of culture contamination associated with temperature and duration of sputum storage was measured by Chi2 test and logistic regression. RESULTS: out of 404 specimens, 61% (246/404) were stored between 2 and 8°C, and 15% (61/404) were processed within three days. The global contamination rate was 24%, with only 8% for samples respecting WHO recommendations, up to 35% for others. Storage at room temperature was associated with a significantly higher risk of contamination compared to storage at 2 - 8°C (OR 2.24, p=0.001, IC 95%). CONCLUSION: the recommendations about the temperature and the duration of sputum storage before cultures are not completely respected. This leads to high contamination rate of mycobacterium culture. It will be necessary to take logistics measures in peripherals health services or to develop more selective medium for mycobacterium culture in low income countries.

1468   SCHMID, K. B.; SCHERER, L.; BARCELLOS, R. B.; KUHLEIS, D.; PRESTES, I. V.; STEFFEN, R. E.; COSTA, E. R. DALLA; ROSSETO, M. L. R.   **Smear plus Detect-TB for a sensitive diagnosis of pulmonary tuberculosis: a cost effectiveness analysis in an incarcerated population.** *BMC Infectious Diseases* (2014) **14** (678) (16 December 2014) London, UK; BioMed Central Ltd [En, 38 ref.] Centro de Desenvolvimento Cientifico e Tecnologico (CDCT), Fundacao Estadual de Producao e Pesquisa em Satide (FEPPS), Av. Ipiranga 5400, 3o andar, Porto Alegre, CEP 90610-000, Rio Grande do Sul, Brazil. Email: mrossett@terra.com.br

BACKGROUND: Prison conditions can favor the spread of tuberculosis (TB). This study aimed to evaluate in a Brazilian prison: the performance and accuracy of smear, culture and Detect-TB; performance of smear plus culture and smear plus Detect-TB, according to different TB prevalence rates; and the cost-effectiveness of these procedures for pulmonary tuberculosis (PTB) diagnosis. METHODS: This paper describes a cost-effectiveness study. A decision analytic model was developed to estimate the costs and cost-effectiveness of five routine diagnostic procedures for diagnosis of PTB using sputum specimens: (a) Smear alone, (b) Culture alone, (c) Detect-TB alone, (d) Smear plus culture and (e) Smear plus Detect-TB. The cost-effectiveness ratio of costs were evaluated per correctly diagnosed TB case and all procedures costs were attributed based on the procedure costs adopted by the Brazilian Public Health System. RESULTS: A total of 294 spontaneous sputum specimens from patients suspected of having TB were analyzed. The sensibility and specificity were calculated to be 47% and 100% for smear; 93% and 100%, for culture; 74% and 95%, for Detect-TB; 96% and 100%, for smear plus culture; and 86% and 95%, for smear plus Detect-TB. The

negative and positive predictive values for smear plus Detect-TB, according to different TB prevalence rates, ranged from 83 to 99% and 48 to 96%, respectively. In a cost-effectiveness analysis, smear was both less costly and less effective than the other strategies. Culture and smear plus culture were more effective but more costly than the other strategies. Smear plus Detect-TB was the most cost-effective method. CONCLUSIONS: The Detect-TB evinced to be sensitive and effective for the PTB diagnosis when applied with smear microscopy. Diagnostic methods should be improved to increase TB case detection. To support rational decisions about the implementation of such techniques, cost-effectiveness studies are essential, including in prisons, which are known for health care assessment problems.

1469 MOSABEBI, N.; SADRNIA, M.; ZOLFAGHARI, M. R. **[Rapid detection of mutation in gene resistant to rifabutin in *Mycobacterium tuberculosis* isolates using Allele Specific-PCR.]** *Journal of Mazandaran University of Medical Sciences* (2014) **24** (119) Pe41-Pe47, En40 Sari, Iran; Mazandaran University of Medical Sciences [Pe, en, 19 ref.] Faculty of Basic Sciences, Qom Branch, Islamic Azad University, Qom, Iran. Email: msadmia@yahoo.com

BACKGROUND AND PURPOSE: Molecular detection of antibiotic resistance in clinical strains of *M. tuberculosis* is of great importance. In this study, we developed a method for rapid detection of mutations resistant to the rifabutin antibiotic resistant gene. MATERIAL AND METHODS: In this study 40 clinical isolates of *M. tuberculosis* including 12 resistant and 28 susceptible isolates to rifabutin were used. The isolates were obtained from Tuberculosis and Pediatric Infectious Research Center affiliated to Arak University of Medical Sciences. Specific primers were designed and corrected by BLAST-IDT and MEGA software. The primers for an Allele Specific PCR was able to detect the desired hot point in the gene from 3' end in 516-526-531 codons and could also reconnoiter mutant state; Therefore, lack of formation of band in PCR product indicates the resistance of strain to rifabutin. Some selected samples were sequenced and compared with results derived from ASP. RESULTS: 12 *M. tuberculosis* isolates resistant to rifabutin, mutations in one of the three main codons were detected in 10 strains using Allele Specific PCR method. Susceptible strains did not show any mutations in these codons. The sensitivity of the method was 80% (95% CI: 0.55-0.95) and the specificity was 100% (95% CI:0.87-1). Results of sequencing were concordant with results of ASP method. CONCLUSION: The results showed that Allele Specific-PCR was a rapid and simple method for fast detection of rifabutin resistance in *M. tuberculosis* isolates and is recommended for routine works.

1470 AZIMI, Y.; HEDAYATI, M. T.; DOROUDINIA, A.; MOUSAVI, B.; AHMADI, A.; KHALILIAN, A. **[Evaluation of fungal colonization and specific IgG against Aspergillus fumigatus in patients with pulmonary tuberculosis.]** *Journal of Mazandaran University of Medical Sciences* (2014) **24** (118) Pe34-Pe41, En33 Sari, Iran; Mazandaran University of Medical Sciences [Pe, en, 33 ref.] Invasive Fungi Research Center, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran. Email: hedayatimt@gmail.com

BACKGROUND AND PURPOSE: Aspergillus is a ubiquitous fungus, which causes a wide spectrum of infections including invasive pulmonary aspergillosis (IPA), depending on the patient's immune status and underlying lung disease. Among the Aspergillus spp, A. fumigatus remains the predominant agent of IPA. In patients with a

preexisting lung cavity from a variety of causes, such as pulmonary tuberculosis (TB) Aspergillus can colonize and grow into the cavity to form a pulmonary aspergilloma. In this present study we assessed TB patients for aspergilloma based on culture and non-culture based methods. MATERIALS AND METHODS: During one year, we studied 124 patients with TB at Massih Daneshvari hospital from Tehran, Iran. Sputum specimens were analyzed by direct microscopic examination (DME) with 20% potassium hydroxide. These samples were also processed for fungal culture. The clinical and radiological features or CT-scan report of all patients were recorded. All patients were screened for serum specific IgG against A. fumigatus, using Aspergillus IgG ELISA Kit (Genesis Diagnostics Ltd, Cambridgeshire, UK). The results are expressed in U/mL. IgG >12 U/mL was considered as positive result based on kit manufacturer instruction. RESULTS: Out of 124 patients with tuberculosis (66 male, 58 female, age range: 10-91 years), 54 had abnormal chest radiographic findings. Chest X-ray findings showed that 48 patients (38.7%) exhibited residual cavities (31 cases in right lobe, 10 in left lobe and 7 in both lung). Round shaped mass lesion was detected only in 6 patients (6.8%). DME of sputum was positive in 10 patients for septate fungal hyphae. *A. fumigatus* was grown from 14 samples of TB patients. Out of 124 TB patients, 55(44.3%) cases were positive for specific serum IgG against *A. fumigatus*. There was a significant relationship between positive culture, DME and serum IgG profile level (P<0.05). Totally, three patients (2.4%) met criteria for aspergilloma. CONCLUSION: Colonization with Aspergillus in preexisting lung cavity produced by TB should be considered as a risk factor for aspergilloma.

1471   EZATI, N.; LUKOYE, D.; WAMPANDE, E. M.; MUMS, K.; KASULE, G. W.; COBELENS, F. G. J.; KATEETE, D. P.; JOLOBA, M. L.   **The *Mycobacterium tuberculosis* Uganda II family and resistance to first-line anti-tuberculosis drugs in Uganda.** *BMC Infectious Diseases* (2014) **14** (703) (19 December 2014) London, UK; BioMed Central Ltd [En, 32 ref.] National Tuberculosis and Leprosy Program, Kampala, Uganda. Email: ezatinick@yahoo.co.uk, deuslukoye@gmail.com, ewampande@yahoo.co.uk, kenmusisi@yahoo.co.uk, kasulegw@gmail.com, f.cobelens@aighd.org, davidateete@gmail.com, m1j10@case.edu

BACKGROUND: The global increase in the burden of multidrug-resistant tuberculosis (MDR-TB) underscores an urgent need for data on factors involved in generation and spread of TB drug resistance. We performed molecular analyses on a representative sample of *Mycobacterium tuberculosis* (MTB) isolates. Basing on findings of the molecular epidemiological study in Kampala, we hypothesized that the predominant MTB strain lineage in Uganda is negatively associated with anti-TB drug resistance and we set out to test this hypothesis. METHODS: We extracted DNA from mycobacterial isolates collected from smear-positive TB patients in the national TB drug resistance survey and carried out IS6110-PCR. To identify MTB lineages/sub lineages RT-PCR SNP was performed using specific primers and hybridization probes and the 'melting curve? analysis was done to distinguish the Uganda II family from other MTB families. The primary outcome was the distribution of the Uganda II family and its associations with anti-TB drug resistance and HIV infection. RESULTS: Out of the 1537 patients enrolled, MTB isolates for 1001 patients were available for SNP analysis for identification of Uganda II family, of which 973 (97%) had conclusive RT-PCR results. Of these

422 (43.4%) were of the Uganda II family, mostly distributed in the south west zone (55.0%; OR=4.6 for comparison with other zones; 95% CI 2.83-7.57; p<0.001) but occurred in each of the other seven geographic zones at varying levels. Compared to the Uganda II family, other genotypes as a group were more likely to be resistant to any anti-TB drug (OR adj=2.9; 95% CI 1.63-5.06; p=0.001) or MDR (OR adj 4.9; 95% CI, 1.15-20.60; p=0.032), even after adjusting for geographic zone, patient category, sex, residence and HIV status. It was commonest in the 25-34 year age group 159/330 (48.2%). No association was observed between Uganda II family and HIV infection. CONCLUSION: The Uganda II family is a major cause of morbidity due to TB in all NTLP zones in Uganda. It is less likely to be resistant to anti-TB drugs than other MTB strain lineages.

1472 MAYNARD-SMITH, L.; LARKE, N.; PETERS, J. A.; LAWN, S. D. **Diagnostic accuracy of the Xpert MTB/RIF assay for extrapulmonary and pulmonary tuberculosis when testing non-respiratory samples: a systematic review.** *BMC Infectious Diseases* (2014) **14** (709) (31 December 2014) London, UK; BioMed Central Ltd [En, 52 ref.] Department of Clinical Research, Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK. Email: Stephen.Lawn@lshtm.ac.uk

BACKGROUND: Although the evidence base regarding the use of the Xpert MTB/RIF assay for diagnosis of pulmonary tuberculosis (TB) when testing respiratory samples is well established, the evidence base for its diagnostic accuracy for extrapulmonary and sputum-scarce pulmonary TB when testing non-respiratory samples is less clearly defined. METHODS: A systematic literature search of 7 electronic databases (Medline, EMBASE, ISI Web of Science, BIOSIS, Global Health Database, Scopus and Cochrane Database) was conducted to identify studies of the diagnostic accuracy of the Xpert assay when testing non-respiratory samples compared with a culture-based reference standard. Data were extracted and study quality was assessed using the QUADAS-2 tool. Sensitivities and specificities were calculated on a per-sample basis, stratified by sample type and smear microscopy status and summarised using forest plots. Pooled estimates were calculated for groups with sufficient data. RESULTS: Twenty-seven studies with a total of 6,026 non-respiratory samples were included. Among the 23 studies comparing Xpert and culture done on the same samples, sensitivity was very heterogeneous with a median sensitivity of 0.83 (IQR, 0.68-0.94) whereas specificities were typically very high (median, 0.98; IQR, 0.89-1.00). The pooled summary estimates of sensitivity when testing smear-positive and smear-negative samples were 0.95 (95% CI 0.91-1.00) and 0.69 (95% CI 0.60-0.80), respectively. Pooled summary estimates of sensitivity varied substantially between sample types: lymph node tissue, 0.96 (95% CI, 0.72-0.99); tissue samples of all types, 0.88 (95% CI, 0.76-0.94); pleural fluid, 0.34 (95% CI, 0.24-0.44); gastric aspirates for diagnosis of sputum-scarce pulmonary TB, 0.78 (IQR, 0.68-0.85). Median sensitivities when testing cerebrospinal fluid and non-pleural serous fluid samples were 0.85 (IQR, 0.75-1.00) and 0.67 (IQR, 0.00-1.00), respectively. CONCLUSION: Xpert detects with high specificity the vast majority of EPTB cases with smear-positive non-respiratory samples and approximately two-thirds of those with smear-negative samples. Xpert is a useful rule-in diagnostic test for EPTB, especially when testing cerebrospinal fluid and tissue samples. In addition, it has a high sensitivity for detecting pulmonary TB when using gastric

aspirate samples. These findings support recent WHO guidelines regarding the use of Xpert for TB diagnosis from non-respiratory samples.

1473   PENNA, M. L. F.; BUHRER-SEKULA, S.; PONTES, M. A. DE A.; CRUZ, R.; GOKALVES, H. DE S.; PENNA, G. O.   **Results from the clinical trial of uniform multidrug therapy for leprosy patients in Brazil (U-MDT/CT-BR): decrease in bacteriological index.** *Leprosy Review* (2014) **85** (4) 262-266 Colchester, UK; LEPRA [En, 13 ref.] Epidemiology and Biostatistics Department, Universidade Federal Fluminense, Rio de Janeiro, Brazil. Email: gpenna@gpenna.net

BACKGROUND: Many believe that the regular treatment for multi-bacillary (MB) leprosy cases could be shortened. A shorter treatment allowing uniformity in treatment for all cases renders case classification superfluous and therefore simplifies leprosy control. OBJECTIVE: To evaluate the association between treatment duration and the trend in bacteriological index (BI) decrease over time among patients given Uniform MDT (UMDT) compared to those given regular MDT (RMDT). METHODS: An open-label randomised clinical trial to compare the present routine treatment with one lasting six month. Patient intake was from March 2007 to February 2012. To evaluate the trend of BI as a function of time, a multilevel linear with mixed effects model was fixed to the two study groups and also four groups after stratification by BI, less than 3 and 3 or more. RESULTS: The BI fall was higher among those taking RMDT, this difference however was not statistically significant. CONCLUSION: The results presented here support the possibility of use of UMDT in the field, but further follow up is still needed for a final conclusion.

1474   WAGENAAR, I.; BRANDSMA, W.; POST, E.; RICHARDUS, J. H.   **Normal threshold values for a monofilament sensory test in sural and radial cutaneous nerves in Indian and Nepali volunteers.** *Leprosy Review* (2014) **85** (4) 275-287 Colchester, UK; LEPRA [En, 26 ref.] Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, the Netherlands, PO box 2040, 3000 CA Rotterdam, Netherlands. Email: i.wagenaar@erasmusmc.n1

The monofilament test (MFT) is a reliable method to assess sensory nerve function in leprosy and other neuropathies. Assessment of the radial cutaneous and sural nerves, in addition to nerves usually tested, can help improve diagnosis and monitoring of nerve function impairment (NFI). To enable the detection of impairments in leprosy patients, it is essential to know the monofilament thresh-old of these two nerves in normal subjects. The radial cutaneous, sural, ulnar, median and posterior tibial nerves of 245 volunteers were tested. All nerves were tested at three sites on both left and right sides. Normal monofilament thresholds were calculated per test-site and per nerve. We assessed 490 radial cutaneous and 482 sural nerves. The normal monofilament was 2 g (Filament Index Number (FIN) 4.31) for the radial cutaneous and 4 g (FIN 4.56) for the sural nerve, although heavy manual laborers demonstrated a threshold of 10 g (FIN 5.07) for the sural nerve. For median and ulnar nerves, the 200 mg (FIN 3.61) filament was confirmed as normal while the 4 g (FIN 4.56) filament was normal for the posterior tibial. Age and occupation have an effect on the mean touch sensitivity but do not affect the normal threshold for the radial cutaneous and sural nerves. The normal thresholds for the radial cutaneous and sural nerves are determined as the 2 g (FIN 4.31) and the 4 g (FIN 4.56) filaments, respectively. The addition of the radial cutaneous and sural nerve to sensory nerve assessment may improve the diagnosis of patients with impaired sensory nerve function.

1475   LIAN JIAN   **[Multiple-locus variable number tandem repeat analysis on genotypes of 80 strains of _Mycobacterium tuberculosis_ in Changle, Fujian province.]** _Disease Surveillance_ (2014) **29** (10) 797-801 Beijing, China; Editorial Board of Disease Surveillance [Ch, en, 13 ref.] Fujian Health College, Fuzhou 350101, Fujian, China. Email: lianjian95 @163.com

OBJECTIVE: To understand the genotype distribution of the clinical isolates of _Mycobacterium tuberculosis_, major circulating strains and related circulating patterns in Changle, Fujian province. METHODS: Fifteen locus of variable number tandem repeats (VNTR) were used to detect 80 clinical strains of _M. tuberculosis_ isolated in Changle, and clustering analysis of the strains were performed by using BioNumerics 5.0. RESULTS: The 80 _M. tuberculosis_ strains were classified into 7 gene groups, i. e. I, II, III, IV, V, VII and VIII. Group I was the major group which had 59 strains (73.8%). The gene groups of _M. tuberculosis_ were I, II, IV, VII and VIII were detected in floating population and I, II, III, IV, V and VIII were detected in local population. The VNTR analysis indicated that some differences existed in the genotypes of _M. tuberculosis_ detected between floating population and local population, but gene group I was predominant in two populations. No significant difference was detected in drug resistance between the isolates in group I and other groups (P>0.05). CONCLUSION: Seven gene groups of _M. tuberculosis_ were detected and obvious gene polymorphism was observed in Changle. Group I was the predominant genotype in both floating population and local population. It is necessary to strengthen the surveillance for the circulating of the strains in this gene group.

1817   JONES, C. E.; HESSELING, A. C.; TENA-COKI, N. G.; SCRIBA, T. J.; CHEGOU, N. N.; KIDD, M.; WILKINSON, R. J.; KAMPMANN, B.   **The impact of HIV exposure and maternal _Mycobacterium tuberculosis_ infection on infant immune responses to bacille Calmette-Guerin vaccination.** _AIDS_ (2015) **29** (2) 155-165 Hagerstown, USA; Lippincott Williams & Wilkins, Inc. [En, 49 ref.] Academic Department of Pediatrics, Imperial College London, London, UK. Email: cjones@sgul.ac.uk

OBJECTIVE: The objective of this study is to assess the effect of maternal HIV and _Mycobacterium tuberculosis_ (Mtb) infection on cellular responses to bacille Calmette-Guerin (BCG) immunization. DESIGN: A mother-infant cohort study. METHODS: Samples were collected from mother-infant pairs at delivery. Infants were BCG-vaccinated at 6 weeks of age and a repeat blood sample was collected from infants at 16 weeks of age. BCG-specific T-cell proliferation and intracellular cytokine expression were measured by flow cytometry. Secreted cytokines and chemokines in cell culture supernatants were analysed using a Multiplex assay. RESULTS: One hundred and nine (47 HIV-exposed and 62 HIV-unexposed) mother-infants pairs were recruited after delivery and followed longitudinally. At birth, proportions of mycobacteria-specific proliferating T cells were not associated with either in-utero HIV exposure or maternal Mtb sensitization. However, in-utero HIV exposure affected infant-specific T-cell subsets [tumour necrosis factor-alpha (TNF-a) single positive proliferating CD4+ T cells and interferon-gamma (IFN-γ), TNF-a dual-positive CD4+ T cells]. Levels of TNF-a protein in cell culture supernatants were also significantly higher in HIV-exposed infants born to Mtb-sensitized mothers. In the presence of maternal Mtb sensitization, frequencies of maternal and newborn BCG-specific proliferating CD4+ T cells were positively correlated. Following BCG vaccination, there was no demonstrable effect of HIV exposure or maternal Mtb infection

on infant BCG-specific T-cell proliferative responses or concentrations of secreted cytokines and chemokines. CONCLUSION: Effects of maternal HIV and Mtb infection on infant immune profiles at birth are transient only, and HIV-exposed, noninfected infants have the same potential to respond to and be protected by BCG vaccination as HIV-unexposed infants.

1818   MUSTOZ SANCHEZ, A. I.; PUERTO GUERRERO, A. H.; PEDRAZA MORENO, L. M. **[Educative intervention aimed at health workers about the case-finding of individuals with tuberculosis respiratory symptoms.]** Intervencion educativa en trabajadores de la salud sobre la captacion de sintomaticos respiratorios de tuberculosis. *Revista Cubana de Salud Pablica* (2015) **41** (1) 46-56 Ciudad de La Habana, Cuba; Editorial Ciencias Medicas [Es, en, 19 ref.] Facultad de Enfermeria, Universidad Nacional de Colombia, Carrera 30 No. 45-03-Torre de Enfermeria, Edificio 1001, Oficina 910, Bogota D.C., Colombia. Email: aimunozs@unal.edu.co

OBJECTIVE: to establish the level of knowledge about the case-finding actions for detection of patients with tuberculosis respiratory symptoms in health workers. METHODS: cross-sectional descriptive study of 471 health workers based in public and private institutions of two Bogota neighborhoods in the period of September 2012 through January 2013. Before and after the educative intervention, the participants' knowledge was evaluated. The ethical aspects were taken into account. RESULTS: before the intervention, lack of knowledge was detected in answers about the detection of people with respiratory symptoms as suspected of tuberculosis, about the tests that should be performed to confirm or rule out the diagnosis and the recommendations for sputum-taking for bacilloscopy. After the intervention, the level of knowledge on these topics rose from 8% to 25%. CONCLUSIONS: poor

basic knowledge about the active case-finding of suspected tuberculosis patients exists, hence the importance of carrying out educative interventions aimed at health workers in charge of taking care of patients, in order to raise their levels of knowledge and to improve respiratory symptom case-finding strategies, thus contributing to timely diagnosis of people with pulmonary tuberculosis.

1819   SAMANDARI, T.; AGIZEW, T. B.; NYIRENDA, S.; TEDLA, Z.; SIBANDA, T.; MOSIMANEOTSILE, B.; MOTSAMAI, O. I.; SHANG NONG; ROSE, C. E.; SHEPHERD, J.   **Tuberculosis incidence after 36 months isoniazid prophylaxis in HIV-infected adults in Bot-swana: a posttrial observational analysis.** *AIDS* (2015) **29** (3) 351-359 Hagerstown, USA; Lippincott Williams & Wilkins, Inc. [En, 31 ref.] Centers for Disease Control and Prevention Botswana, Gaborone and Francistown, Botswana. Email: tts0@cdc.gov

OBJECTIVE: Thirty-six months of isoniazid preventive therapy (36IPT) was superior to 6 months of IPT (6IPT) in preventing tuberculosis (TB) among HIV-infected adults in Botswana. We assessed the posttrial durability of this benefit. DESIGN: A 36-month double-blind placebo controlled trial (1:1 randomization) with recruitment between November 2004 and July 2006 and observation until June 2011. METHODS: One thousand, nine hundred and ninety-five participants were followed in eight public health clinics. Twenty-four percent had a tuberculin skin test mm (TST-positive). A minimum CD4+ lymphocyte count was not required for enrolment. Antiretroviral therapy (ART) was provided in accordance with Botswana guidelines; 72% of participants retained by June 2011 had initiated ART. Multivariable analysis using Cox regression analysis included treatment arm, TST status, ART as a time-dependent variable and CD4+ cell count at baseline and updated at 36 months. RESULTS:

In the posttrial period, 2.13 and 2.14 per 100 person-years accumulated, whereas 0.93 and 1.13% TB incidence rates were observed in the 36IPT and 6IPT arms, respectively (P=0.52). The crude hazard ratio of TB during the trial and posttrial was 0.57 [95% confidence intervals (CI) 0.33, 0.99] and 0.82 (95% CI 0.46, 1.49), and when restricted to TST-positive participants was 0.26 (95% CI 0.08, 0.80) and 0.40 (95% CI 0.15, 1.08), respectively. Multivariable analysis showed that ART use was associated with reduced death (adjusted hazard ratio 0.36, 95% CI 0.17-0.75) but not TB (0.92, 95% CI 0.55-1.53) in the posttrial period. CONCLUSION: The benefit of 36IPT for TB prevention declined posttrial in this cohort. Adjunctive measures are warranted to prevent TB among HIV-infected persons receiving long-term ART in TB-endemic settings.

1820   TAN HONGYIEN; YONG YEANKONG; ANDRADE, B. B.; SHANKAR, E. M.; SASHEELA PONNAMPALAVANAR; OMAR, S. F. S.; GOPALAN NARENDRAN; ADEEBA KAMARULZAMAN; SOUMYA SWAMINATHAN; SERETI, I.; CROWE, S. M.; FRENCH, M. A.   **Plasma interleukin-18 levels are a biomarker of innate immune responses that predict and characterize tuberculosis-associated immune reconstitution inflammatory syndrome.** *AIDS* (2015) **29** (4) 421-431 Hagerstown, USA; Lippincott Williams & Wilkins, Inc. [En, 44 ref.] Faculty of Medicine, Centre of Excellence for Research in AIDS (CERiA), University of Malaya, Kuala Lumpur, Malaysia. Email: martyn.french@uwa.edu.au

BACKGROUND: Tuberculosis-associated immune reconstitution inflammatory syndrome (TB-IRIS) is a substantial problem in HIV/TB coinfected patients commencing antiretroviral therapy (ART). The immunopathogenesis of TB-IRIS includes increased production of proinflammatory chemokines and cytokines, including interleukin-18, which is a signature cytokine of the nucleotide-binding domain and leucine-rich repeat pyrin containing protein-3 inflammasome. We compared plasma levels of interleukin-18 and other biomarkers of monocyte/macrophage activation in the prediction and characterization of TB-IRIS. METHODS: Biomarkers were assayed pre-ART and during TB-IRIS, or equivalent time-point, in a case-control study of Malaysian HIV patients with paradoxical or unmasking TB-IRIS (n=15), TB no IRIS (n=14), and no TB or IRIS (n=15). Findings for interleukin-18 were verified in another cohort of patients with paradoxical TB-IRIS (n=26) and their controls (n=22) from India. RESULTS: Interleukin-18 was higher in TB-IRIS patients pre-ART and during the event in both Malaysian patients (P<0.0001) and Indian patients (P<0.01). CXCL10 was higher pre-ART (P<0.001), mainly in paradoxical TB-IRIS patients, and during TB-IRIS (P<0.001), whereas CXCL8 was only higher during TB-IRIS (P<0.001). Soluble(s) CD14 was increased in all patients with HIV/TB coinfection pre-ART and during TB-IRIS or equivalent time-point, compared with patients without TB. In contrast, interferon-γ was lower before and during TB-IRIS. By receiver operating curve analysis, CXCL10, and/or interleukin-18 pre-ART were predictive of TB-IRIS. CONCLUSION: Plasma interleukin-18 levels pre-ART are candidate biomarkers for predicting paradoxical and unmasking TB-IRIS and should be investigated for risk stratification and elucidation of disease pathogenesis.

1821   KASA, S.; FAKSRI, K.; KAEWKES, W.; LULITANOND, V.; NAMWAT, W.   **Double-step multiplex real time PCR with melting curve analysis for detection and differentiation of mycobacteria in sputum.** *Southeast Asian Journal of Tropical Medicine and Public Health* (2015) **46** (1) 63-70 Bangkok, Thailand; SEAMEO Regional Tropical Medicine and Public Health Network [En, 14 ref.] Department of Microbiology, Faculty

of Medicine, Research and Diagnostic Center for Emerging Infectious Diseases (RCEID), Khon Kaen University, 123 Mittraphap Road, Khon Kaen 40002, Thailand. Email: wisnam@kku.ac.th

Mycobacterium tuberculosis (M. tb) is a causative agent of tuberculosis, a worldwide public health problem. In recent years, the incidence of human mycobacterial infection due to species other than *M. tb* has increased. However, the lack of specific, rapid, and inexpensive methods for identification of mycobacterial species remains a pressing problem. A diagnostic test was developed for mycobacterial strain differentiation utilizing a double-step multiplex real time PCR together with melting curve analysis for identifying and distinguishing among *M. tb*, *M. bovis* BCG, other members of M. tb. complex, *M. avium*, and non-tuberculosis mycobacteria. The assay was tested using 167 clinical sputum samples in comparison with acid-fast staining and culturing. Using only the first step (step A) the assay achieved sensitivity and specificity of 81% and 95%, respectively. The detection limit was equivalent to 50 genome copies.

1822   WEN YUFENG; JIANG CHAO; CHENG XIANFENG; ZHANG ZHIPING; CHEN BAIFENG; ZHU YU   **Predictive power of ETRE polymorphism and katG463 mutation to INH-resistance of *M. tuberculosis*.** *Iranian Journal of Public Health* (2015) **44** (2) 263-268 Tehran, Iran; School of Public Health and Institute of Public Health Research, Tehran University of Medical Sciences [En, 22 ref.] School of Public Health, Wan Nan Medical College, Wuhu, China. Email: wyf@wnmc.edu.cn

BACKGROUND: The MIRU-VNTR polymorphism and katG463 mutation are used to genotype the *Mycobacterium tuberculosis*, but the correlation between them and INH-resistance were unknown. This study was aimed to explore whether ETRE polymorphism and katG463 mutation could predict the INH-resistance, and the relationship between ETRE polymorphism and katG463 mutation. METHODS: The ETRE, katG463 mutation and drug resistance information of 109 *M. tuberculosis* strains were collected from online public database. We constructed the predictive diagnostic tool of ETRE polymorphism and katG463 mutation. Chi-square test was used to analyze the relationship between ETRE polymorphism, katG463 mutation and INH-resistance. ROC curve analysis and Z-test were used to evaluate the predictive ability of ETRE and katG463. The relationship between ETRE polymorphism and katG463 mutation was analyzed with Spearman correlation analysis. RESULTS: The mutation rate of katG463 was 27.50%, and the h value of ETRE polymorphism was 0.67. KatG463 mutation was associated with INH resistance (OR=3.72). The INH drug resistance rate in VNTR5 group was 3.43 times higher than that in VNTR3 group ($x2=24.77$, P<0.01), and there was no significant difference of INH resistance between the VNTR=4 group and VNTR3 group. The areas under the ROC curve of two loci prediction diagnostic tools were 0.64 and 0.70 respectively. The katG463 mutation was significantly related to the ETRE polymorphism (x=0.79, P<0.01). CONCLUSION: Both katG463 mutation and the ETRE polymorphism can predict the INH-resistance of tuberculosis. The katG463 mutation was associated with ETRE VNTR polymorphism.

1823   TAKARINDA, K. C.; HARRIES, A. D.; NYATHI, B.; NGWENYA, M.; MUTASAAPOLLO, T.; SANDY, C.   **Tuberculosis treatment delays and associated factors within the Zimbabwe national tuberculosis programme.** *BMC Public Health* (2015) **15** (29) (29 January 2015) London, UK; BioMed Central Ltd [En, 39 ref.] AIDS and TB

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BACKGROUND: Delayed presentation of pulmonary TB (PTB) patients for treatment from onset of symptoms remains a threat to controlling individual disease progression and TB transmission in the community. Currently, there is insufficient information about treatment delays in Zimbabwe, and we therefore determined the extent of patient and health systems delays and their associated factors in patients with microbiologically confirmed PTB. METHODS: A structured questionnaire was administered at 47 randomly selected health facilities in Zimbabwe by trained health workers to all patients aged years with microbiologically confirmed PTB who were started on TB treatment and entered in the health facility TB registers between 01 January and 31 March 2013. Multivariate logistic regression was used to calculate adjusted odds ratios (aOR) and 95% confidence intervals (Cis) for associations between patient/health system characteristics and patient delay >30 days or health system delay >4 days. Results: Of the 383 recruited patients, 211(55%) were male with an overall median age of 34 years (IQR, 28-43). There was a median of 28 days (IQR, 21-63) for patient delays and 2 days (IQR, 1-5) for health system delays with 184 (48%) and 118 (31%) TB patients experiencing health system delays >30 days and health system delays >4 days respectively. Starting TB treatment at rural primary healthcare vs district/mission facilities [aOR 2.70, 95% CI 1.27-5.75, p=0.01] and taking self-medication [aOR 2.33, 95% CI 1.23-4.43, p=0.01] were associated with encountering patient delays. Associated with health system delays were accessing treatment from lower level facilities [aOR 2.67, 95% CI 1.18-6.07, p=0.019], having a Gene Xpert TB diagnosis [aOR 0.21, 95% CI 0.07-0.66, p=0.008] and >4 health facility visits prior to TB diagnosis [(aOR) 3.34, 95% CI 1.11-10.03, p=0.045]. CONCLUSION: Patient delays were longer and more prevalent, suggesting the need for strategies aimed at promoting timely seeking of appropriate medical consultation among presumptive TB patients. Health system delays were uncommon, suggesting a fairly efficient response to microbiologically confirmed PTB cases. Identified risk factors should be explored further and specific strategies aimed at addressing these factors should be identified in order to lessen patient and health system delays.

1824 ENDALE ELISO; GIRMAY MEDHIN; MULUGETA BELAY **Prevalence of smear positive pulmonary tuberculosis among outpatients presenting with cough of any duration in Shashogo Woreda, Southern Ethiopia.** *BMC Public Health* (2015) **15** (112) (10 February 2015) London, UK; BioMed Central Ltd [En, 21 ref.] Shashogo Woreda Health Office, Hadiya Zone, Hosanna, Ethiopia. Email: mulg2002@yahoo.com

BACKGROUND: Excluding patients with cough less than two weeks from screening for TB which is the current practice of TB control program in Ethiopia may result in delayed diagnosis thereby increasing transmission risk to others. The current study aimed to determine the prevalence of smear positive pulmonary tuberculosis among patients presenting with cough to four health centers in Shashogo Woreda, Southern Ethiopia. METHODS: A cross sectional study was conducted in four health centers in Shashogo Woreda, between November 2011 and March 2012. Four-hundred and sixty one patients aged five years and above attending the out-patient clinics and reporting cough of any duration were screened for pulmonary TB using smear microscopy. During data analysis, patients were classified by duration of cough with the cut-off of

two weeks. Stata version 11 was used for data analysis. RESULTS: A total of 299 patients with cough of two or more weeks and 162 patients with cough less than 2 weeks were recruited. The overall prevalence of smear positive pulmonary TB was 4.6% (95% CI: 2.6% to 7.7%). The prevalence of smear positive pulmonary TB among patients with cough lasting two or more weeks was significantly higher compared to those patients with cough lasting less than two weeks (6.0% versus 1.9%; p=0.04). CONCLUSION: Although the prevalence of smear positive pulmonary TB among patients with cough less than 2 weeks was low, considering the contribution of delayed diagnosis for continued transmission of TB, screening patients with cough less than 2 weeks might be considered for TB control. A multisite study with large sample size is needed to substantiate the current findings.

1825   FABIAN, J.; MAHER, H. A.; CLARK, C.; NAICKER, S.; BECKER, P.; VENTER, W. D. F. **Morbidity and mortality of black HIV-positive patients with end-stage kidney disease receiving chronic haemodialysis in South Africa.** *SAMJ - South African Medical Journal* (2015) **105** (2) 110-114 Pretoria, South Africa; SAMA Health and Medical Publishing Group [En, 24 ref.] Wits Donald Gordon Medical Centre, Parktown, Johannesburg, South Africa. Email: june.fabian@mweb.co.za

INTRODUCTION: There are few published data from South Africa (SA) on the outcomes of black HIV-positive patients receiving chronic haemodialysis. METHODS: This retrospective study compared the incidences of vascular and infectious morbidity and mortality in black HIV-positive patients with those in a group of HIV-negative patients matched for ethnicity, age and gender. All the patients were receiving chronic haemodialysis in the medically insured healthcare sector of SA. RESULTS: The incidence

of tuberculosis and hospital admission rates for vascular access-related infections were significantly higher in the HIV-positive group than the HIV-negative group. The HIV-positive group had significantly lower albumin (p<0.05) and haemoglobin levels (p<0.01), but this did not impact on mortality. Survival in both groups was excellent. In the HIV-positive group, viral suppression rates were suboptimal with <50% of patients on antiretroviral therapy completely virally suppressed. CONCLUSION: This study has shown that black HIV-positive patients receiving chronic haemodialysis in a healthcare-funded environment in SA have excellent overall survival in spite of higher hospital admission rates and higher infectious morbidity compared with HIV-negative patients.

1826   SHAW, J. A.; IRUSEN, E. M.; GROOTE-BIDLINGMAIER, F. VON; WARWICK, J. M.; JEREMIC, B.; TOIT, R. DU; KOEGELENBERG, C. F. N. **Integrated positron emission tomography/computed tomography for evaluation of mediastinal lymph node staging of non-small-cell lung cancer in a tuberculosis-endemic area: a 5-year prospective observational study.** *SAMJ - South African Medical Journal* (2015) **105** (2) 145-150 Pretoria, South Africa., SAMA Health and Medical Publishing Group [En, 17 ref.] Division of Pulmonology, Department of Medicine, Faculty of Medicine and Health Sciences, Stellenbosch University and Tygerberg Academic Hospital, Tygerberg, Cape Town, South Africa. Email: jane.shaw@stonedragon.co.za

BACKGROUND: Integrated positron emission tomography/computed tomography (PET-CT) is a well-validated modality for assessing mediastinal lymph node metastasis in non-small-cell lung cancer (NSCLC), which determines management and predicts survival. Tuberculosis (TB) is known to lead to false-positive PET-CT findings. OBJECTIVES: To assess the diagnostic

accuracy of PET-CT in identifying mediastinal lymph node involvement of NSCLC in a high TB-endemic area. METHODS: Patients who underwent both PET-CT and lymph node tissue sampling for the investigation of suspected NSCLC were prospectively included in this observational study. Results were analysed per patient and per lymph node stage. A post-hoc analysis was performed to test the validity of a maximum standardised uptake value (SUVmax) cut-off for lymph node positivity. RESULTS: PET-CT had a sensitivity of 92.6%, specificity of 48.6%, positive predictive value of 56.8% and negative predictive value (NPV) of 90.0% in the per-patient analysis. Diagnostic accuracy was 67.2%. Similar values were obtained in the per-lymph node stage analysis. TB was responsible for 21.1% of false-positive results. A SUVmax cut-off of 4.5 yielded an improvement in diagnostic accuracy from 64.0% to 84.7% compared with a cut-off of 2.5, but at the cost of decreasing the NPV from 90.6% to 83.5%. CONCLUSION: In a high TB-endemic area, PET-CT remains a valuable method for excluding mediastinal lymph node involvement in NSCLC. Patients with a negative PET-CT may proceed to definitive management without further invasive procedures. However, PET-CT-positive lymph nodes require pathological confirmation, and the possibility of TB must be considered.

1827   MAGGARD, K. R.; HATWIINDA, S.; HARRIS, J. B.; PHIRI, W.; KRUUNER, A.; KAUNDA, K.; TOPP, S. M.; KAPATA, N.; AYLES, H.; CHILESHE, C.; HENOSTROZA, G.; REID, S. E.   **Screening for tuberculosis and testing for human immunodeficiency virus in Zambian prisons.** *Bulletin of the World Health Organization* (2015) **93** (2) 93-101 Geneva, Switzerland; World Health Organization [En, ar, ch, fr, ru, es, 23 ref.] Centre for Infectious Disease Research in Zambia, 5032 Great North Road, P.O. Box 34681, Lusaka 10101, Zambia. Email: stewart.reid@cidrz.org

OBJECTIVE: To improve the Zambia Prisons Service's implementation of tuberculosis screening and human immunodeficiency virus (HIV) testing. METHODS: For both tuberculosis and HIV, we implemented mass screening of inmates and community-based screening of those residing in encampments adjacent to prisons. We also established routine systems - with inmates as peer educators - for the screening of newly entered or symptomatic inmates. We improved infection control measures, increased diagnostic capacity and promoted awareness of tuberculosis in Zambia's prisons. FINDINGS: In a period of 9 months, we screened 7638 individuals and diagnosed 409 new patients with tuberculosis. We tested 4879 individuals for HIV and diagnosed 564 cases of infection. An additional 625 individuals had previously been found to be HIV-positive. Including those already on tuberculosis treatment at the time of screening, the prevalence of tuberculosis recorded in the prisons and adjacent encampments - 6.4% (6428/ 100 000) - is 18 times the national prevalence estimate of 0.35%. Overall, 22.9% of the inmates and 13.8% of the encampment residents were HIV-positive. CONCLUSION: Both tuberculosis and HIV infection are common within Zambian prisons. We enhanced tuberculosis screening and improved the detection of tuberculosis and HIV in this setting. Our observations should be useful in the development of prison-based programmes for tuberculosis and HIV elsewhere.

1828   TSHITANGANO, T. G.   **The practices of isolating tuberculosis infectious patients at hospitals of Vhembe district, Limpopo Province.** *African Journal of Primary Health Care and Family Medicine* (2014) **6** (1) Art. #555 Cape Town, South Africa; African Online Scientific Information Systems/AOSIS (Pty) Ltd [En, fr, 25 ref.] Department of Public Health, University of Venda,

Thohoyandou, South Africa. Email: takalani. tshitangano@univen.ac.za

BACKGROUND: Airborne infections pose a serious threat to susceptible individuals whenever they are together in confined spaces with patients coughing up tuberculosis (TB) bacilli. In healthcare facilities, those with infectious TB should, as far as possible, be isolated from non-infectious patients in order to prevent exposure to the infectious droplet nuclei generated by infected patients. AIM: This article aims to describe the use of masks and isolation of infectious TB patients at hospitals of Vhembe district, Limpopo Province in order to inform future policy and practices. SETTING: This study was conducted at seven of the eight hospitals in Vhembe district. METHODS: A cross-sectional qualitative design of a descriptive nature was used. Purposive sampling was used to select 57 focus group participants. Necessary approval, permission and clearance were obtained. The participants' rights were respected. RESULTS: This study confirmed that TB cubicles were not reserved for patients with infectious TB and that many TB inpatients at hospitals of Vhembe district were not isolated; masks were not used consistently or appropriately by patients, staff or visitors. Further-more, the movement of TB inpatients in isolation was not restricted. CONCLUSIONS: There is an unnecessary risk of becoming infected with TB at the rural hospitals of Vhembe district as a result of incorrect isolation practices. The development and imple-mentation of a quality control programme, as well as ongoing training at the hospital level, would improve the TB infection control measures practised by healthcare workers at hospitals in Vhembe district and reduce the risk of acquiring TB at these hospitals.

1829   EHLERS, V. J.; ARAGAW, G. S.   **An audit of diagnosis and treatment of tuberculosis in Ethiopia.** *African Journal of Primary Health Care and Family Medicine* (2014) **6** (1) Art. #582 Cape Town, South Africa; African Online Scientific Information Systems/AOSIS (Pty) Ltd [En, fr, 19 ref.] Department of Health Studies, University of South Africa, Pretoria, South Africa. Email: ehlersjh@mweb.co.za

BACKGROUND: Despite the existence of national tuberculosis guidelines (NTG) in Ethiopia, the incidence and prevalence of tuberculosis did not decline markedly. Audits could attempt to determine whether or not healthcare pro-fessionals actually implemented these guidelines, as non-implementation could contribute to suboptimal tuberculosis treatment outcomes. AIM: To evaluate healthcare providers imple-mentation of Ethiopia's NTG during the diagnosis and treatment of tuberculosis in order to enhance tuberculosis treatment outcomes. METHODS: A descriptive, cross-sectional study design was used. RESULTS: Healthcare providers imple-mented the NTG during tuberculosis diagnosis for female (60.9%; n=67) and male (56.1%; n=69) patients. The correct numbers of anti-tuberculosis pills, complying with the NTG recommendations, were prescribed for 91.8% (n=101) of the women and for 90.2% (n=111) of the men. However, both over-and under-prescriptions of anti-tuberculosis drugs occurred. There was an over-diagnosis of smear-negative pulmonary tuberculosis. Only 2.6% (n=2) of the 76 smear-negative pulmonary tuberculosis patients had been diagnosed correctly. CON-CLUSION: Implementation of the NTG should be enhanced, especially with regard to the diagnosis of smear-negative pulmonary tuberculosis patients and the correct prescription of anti-tuberculosis drugs. This would help to increase the number of correctly-diagnosed and -treated tuberculosis patients, improve tuberculosis treatment outcomes, decrease the spread of

tuberculosis and prevent the development of multi-drug-resistant tuberculosis strains.

1830   SAMUEL, O. O.; VILLIERS, P. J. T. DE **Compliance of St Joseph's Hospital Roma, Lesotho with the National Tuberculosis Programme of Lesotho, 2007 and 2008.** *African Journal of Primary Health Care and Family Medicine* (2014) **6** (1) Art. #586 Cape Town, South Africa; African Online Scientific Information Systems/AOSIS (Pty) Ltd [En, fr, 11 ref.] Division of Family Medicine and Primary Care, Stellenbosch University, Stellenbosch, South Africa. Email: pierre@aosis.co.za

BACKGROUND: In 2009 Lesotho had an estimated TB prevalence of 696 cases/100 000 population - the 4th highest in the world. This epidemic was characterised by high rates of death, treatment failure and unknown treatment outcomes. These adverse outcomes were attributable to a high rate of TB and/or HIV co-infection and weaknesses in the implementation of Lesotho's National Tuberculosis Programme (NTP). This study was conducted in St Joseph's Hospital, Roma (SJHR) to assess the implementation of the NTP. METHOD: Records of 993 patients entered into the SJHR TB register between 2007 and 2008 were reviewed. Patients' treatment details were extracted from the register, validated and analysed by STATA 10.0. RESULTS: Of 993 patients registered: 88% were new patients, 37% were diagnosed on sputum smear microscopy alone, 35% were diagnosed on sputum smear micro-scopy with chest X-ray, whilst 25% were diagnosed on chest X-ray alone. In addition: 33% were sputum smear positive, 45% were sputum smear negative, and 22% had extra-pulmonary TB. As to treatment outcome: 26% were cured, 51% completed treatment, and 51% converted from sputum smear positive to sputum smear negative over six months, whilst 16% died. Regarding HIV, 77% of patients were tested for HIV and 59% had TB and/or HIV co-infection. Of ten NTP targets only the defaulter and treatment failure rate targets were met. CONCLUSION: Whilst only two out of ten NTP targets were met at SJHR in 2007-2008, improvements in TB case management were noted in 2008 which were probably due to the positive effects of audit on staff performance.

1831   BHEBHE, L. T.; ROOYEN, C. VAN; STEINBERG, W. J.   **Attitudes, knowledge and practices of healthcare workers regarding occupational exposure of pulmonary tuberculosis.** *African Journal of Primary Health Care and Family Medicine* (2014) **6** (1) Art. #597 Cape Town, South Africa; African Online Scientific Information Systems/AOSIS (Pty) Ltd [En, fr, 22 ref.] Department of Family Medicine, Faculty of Health Sciences, University of the Free State, Bloemfontein, South Africa. Email: steinbergwj @ufs.ac.za

BACKGROUND: Healthcare-associated tuberculosis (TB) has become a major occupational hazard for healthcare workers (HCWs). HCWs are inevitably exposed to TB, due to frequent interaction with patients with undiagnosed and potentially contagious TB. Whenever there is a possibility of exposure, implementation of infection prevention and control (IPC) practices is critical. OBJECTIVE: Following a high incidence of TB among HCWs at Maluti Adventist Hospital in Lesotho, a study was carried out to assess the knowledge, attitudes and practices of HCWs regarding healthcare-associated TB infection and infection controls. METHODS: This was a cross-sectional study performed in June 2011; it involved HCWs at Maluti Adventist Hospital who were involved with patients and/or sputum. Stratified sampling of 140 HCWs was performed, of whom, 129 (92.0%) took part. A self-administered, semi-structured questionnaire was used. RESULTS: Most respondents (89.2%)

had appropriate knowledge of transmission, diagnosis and prevention of TB; however, only 22.0% of the respondents knew the appropriate method of sputum collection. All of the respondents (100.0%) were motivated and willing to implement IPC measures. A significant proportion of participants (36.4%) reported poor infection control practices, with the majority of inappropriate practices being the administrative infection controls (>80.0%). Only 38.8% of the participants reported to be using the appropriate N-95 respirator. CONCLUSION: Poor infection control practices regarding occupational TB exposure were demonstrated, the worst being the first-line administrative infection controls. Critical knowledge gaps were identified; however, there was encouraging willingness by HCWs to adapt to recommended infection control measures. Healthcare workers are inevitably exposed to TB, due to frequent interaction with patients with undiagnosed and potentially contagious TB. Implementation of infection prevention and control practices is critical whenever there is a possibility of exposure.

1832   LIU CHIAJEN; HONG YINGCHUNG; TENG CHUNGJEN; HUNG MANHSIN; HU YUWEN; KU FANCHEN; CHEN YUNGTAI; CHIEN SHENGHSUAN; YEH CHIUMEI; CHEN TZENGJI; CHIOU TZEONJYE; GAU JYHPYNG; TZENG CHENGHWAI   **Risk and impact of tuberculosis in patients with chronic myeloid leukemia: a nationwide population-based study in Taiwan.** *International Journal of Cancer* (2015) **136** (8) 1881-1887 Hoboken, USA; Wiley-Blackwell [En, 40 ref.] Division of Hematology and Oncology, Department of Medicine, Taipei Veterans General Hospital, No. 201, Shipai Road, Sec. 2, Taipei 11217, Taiwan. Email: jpgau@vghtpe.gov.tw

The relationship between chronic myeloid leukemia (CML) and tuberculosis (TB) has not been determined. We conducted a national survey including 1,082 CML patients identified from the Taiwan National Health Insurance database covering a period between 1998 and 2011; the matched non-exposed cohort included 10,820 subjects without CML that were matched for age, sex and comorbidities. The impact of TB was measured by the overall mortality, and the risk factors were identified by a multivariate Cox proportional hazards model. We found the risk of TB was higher in the CML cohort, with an adjusted hazard ratio (aHR) of 3.76 (p=0.001) for both pulmonary (aHR 3.23, p<0.001) and extra-pulmonary (aHR 9.77, p=0.001) TB. Specific risk factors were: aged (aHR 3.24, p=0.022), being male (aHR 13.49, p=0.012), receiving stem cell transplantation (aHR 10.50, p=0.001) and interferon-a therapy (aHR 3.34, p=0.011). CML patients with TB had a higher mortality rate than those without (aHR 2.04, p=0.043). We conclude that the incidence of TB is significantly higher in CML patients of male sex, aged 610, having received either stem cell transplantation or interferon-a treatment. Careful screening strategies for TB should be considered for CML patients with high risk of the infection.

1833   JEON DOOSOO, LEE SEUNGEUN; CHO WOOHYUN; LEE BYUNGHEE; KIM YUNSEONG; LEE JIEUN; SON EUNSOON; LEE YEJIN; HONG MINSUN; EUM SEOKYONG   **Potential role of immunodiagnosis for pulmonary tuberculosis using induced sputum cells.** *Yonsei Medical Journal* (2015) **56** (2) 340-347 Seoul, Korea Republic; Yonsei University College of Medicine [En, 19 ref.] Department of Internal Medicine, Pusan National University School of Medicine, Yangsan, Korea Republic. Email: soolilokr@ yahoo.co.kr

PURPOSE: To evaluate the diagnostic utility and predictors for determinate results of an enzyme-linked immunospot assay using induced sputum cells (IS ELISPOT) for a rapid diagnosis of

pulmonary tuberculosis (TB). MATERIALS AND METHODS: Subjects suspected of pulmonary TB who had either sputum acid fast bacilli smear-negative or not producing sputum spontaneously were prospectively enrolled. ELISPOT assay was performed using cells from induced sputum. RESULTS: A total of 43 subjects, including 25 with TB (TB group) and 18 with non-TB disease (non-TB group) were enrolled. Results of IS ELISPOT were determinate in only 17/43 (39%) subjects, but all of determinate results were consistent with the final diagnosis. Of the 43 sputum samples, 11 (26%) were inadequate to perform IS ELISPOT. Of 32 adequate sputum samples, the proportion of determinate results was significantly higher in the TB group (75%, 15/20) than in the non-TB group (17%, 2/12) (p=0.002). The status of active TB was a unique predictor but smear positivity was not a significant predictor for determinate results. In addition, sensitivity of IS ELISPOT (75%, 9/12) in smear negative TB was higher than that of TB-polymerase chain reaction (25%, 3/12). Conclusion: IS ELISPOT showed relatively high diagnostic value and accuracy in the TB group, independent of smear positivity. IS ELISPOT may provide additional diagnostic yield for microbiological tools in the rapid diagnosis of smear-negative TB.

1834   MABUNDA, T. E.; RAMALIVHANA, N. J.; DAMBISYA, Y. M.   **Mortality associated with tuberculosis/HIV co-infection among patients on TB treatment in the Limpopo Province, South Africa.** *African Health Sciences* (2014) **14** (4) 849-854 Kampala, Uganda; Makerere University Medical School [En, 15 ref.] Limpopo Provincial Department of Health, Polokwane 0700, South Africa. Email: yoswad@gmail.com

BACKGROUND: South Africa has a high tuberculosis burden, and Limpopo Province experienced higher than national average TB mortality rates between 1997 and 2008.

OBJECTIVE: To establish factors associated with TB mortality in Limpopo Province in 2008. DESIGN: Retrospective study using provincial data for patients who died after commencing TB treatment between 01 January 2008 and 31 December 2008. RESULTS: In 2008, some 18074 patients started treatment: 15995 (88.5%) had pulmonary TB (PTB), while 2079 (11.5%) had Extra pulmonary TB (EPTB). Overall, 2242 (12.4%) patients died, mainly PTB patients (n=1906; 85%), more males (n=1159, 51.7%), mainly those aged 25 to 54 years (n=1749, 78.0%), and new cases (1914; 85.4%). TB mortality was significantly higher among smear negative than smear positive patients (17% vs 13.8%; P<0.001), among those with EPTB compared to PTB patients (P<0.001), and among re-treatment cases (P<0.001). Only 4237 (23.4%) patients had HIV status known, with higher mortality found among HIV positive than the HIV negative patients (P<0.0001); but HIV status was not known for the majority who died (n=1685, 75.2%). CONCLUSION: Higher mortality was associated with age 22-55 years; smear negativity, EPTB, HIV infection, and re-treatment. The findings call for greater integration of TB control efforts and HIV services, especially among the 22-55 year age group.

1835   GRASS, D. DE; MANIE, S.; AMOSUN, S. L. **Effectiveness of a home-based pulmonary rehabilitation programme in pulmonary function and health related quality of life for patients with pulmonary tuberculosis: a pilot study.** *African Health Sciences* (2014) **14** (4) 866-872 Kampala, Uganda; Makerere University Medical School [En, 18 ref.] University of Cape Town, Cape Town, South Africa. Email: donna.degrass@westemcape.gov.za, shamila.manie@uct.ac.za, seyi.amosun@uct.ac.za

BACKGROUND: Patients with Pulmonary Tuberculosis (PTB) often develop impairment in

pulmonary function due to anatomical changes secondary to the illness. Physiotherapy in the form of pulmonary rehabilitation has been advocated. OBJECTIVE: The aim of the study was to determine whether adherence to a six-week home-based pulmonary rehabilitation programme (PRP) improved the baseline measurements of lung function, exercise tolerance and health-related quality of life (HRQoL) in patients receiving out-patient treatment for PTB. METHOD: A single blinded randomized control study design was used to assess the effects of a six-week home-based PRP in patients receiving treatment for PTB at a local clinic in Khayelitsha, Western Cape. We evaluated lung function by spirometry (MINATO AUTOSPIRO-model no. AZ-505), exercise tolerance using the 6-min-walk test (6 MWT), the Borg exercise exertion scale and HRQoL using the EQ-5 D questionnaire in an intervention group (n=34) and a control group (n=33). The trend of the effects of the PRP on lung function was towards increases, but there was no statistical difference between the intervention and control groups at the end of the sixth week in the values of FVC (p=0.2; 95% CI -0.9 to 0.51) as well as FEV1 (p=0.1; 95% CI -0.07 to 0.51). Similar trend was observed for exercise tolerance, and there was no significant difference in HRQoL (p=0.789). CONCLUSION: The outcome of the study provides motivation for further consideration and implementation of a pulmonary rehabilitation programme for patients with PTB.

1836   SHAGUFTA IRAM; ASYIA ZEENAT; SHAHIDA HUSSAIN, YUSUF, N. W.; MALEEHA ASLAM   **Rapid diagnosis of tuberculosis using Xpert MTB/RIF assay - report from a developing country.** *Pakistan Journal of Medical Sciences* (2015) **31** (1) 105-110 Karachi, Pakistan; Professional Medical Publications [En, 26 ref.] Allam lqbal Medical College, Lahore, Pakistan. Email: noshinwasim@hotmail.com

OBJECTIVE: To evaluate the diagnostic accuracy of the Xpert MTB/RIF assay for the detection of *M. tuberculosis* in pulmonary and extrapulmonary specimens and to compare it with conventional techniques. METHODS: During a period of 10 months from December 2012 through September 2013, two hundred and forty five clinically TB suspects were enrolled for Xpert MTB \RIF assay. The cohort comprised of 205 suspects of pulmonary TB and 40 of extrapulmonary TB (EPTB). The 40 EPTB samples included pus aspirated from different sites of the body (n=19), pleural fluid (n=11), ascitic fluid (n=7), pericardial fluid, CSF and urine one each. Ziehl-Neelsen (ZN) Stained smear microscopy, culture on LJ media and Xpert MTB/RIF assay was performed on samples from these patients. RESULTS: *M. tuberculosis* (MTB) were detected by Xpert MTB/RIF test in 111 (45.3%) out of 245 samples. Of these, 85 (34.7%) were smear positive on ZN staining and 102 (41.6%) were positive on Li cultures. Rifampicin resistance was detected in 16 (6.5%) patients. Nine out of 19 pus samples (47.3%) were positive for MTB by Gene Xpert, 03 (15.8%) on ZN staining and 04 (21%) on LJ culture. MTB could not be detected in any other extra-pulmonary sample. CONCLUSION: Xpert MTB/RIF is a sensitive method for rapid diagnosis of Tuberculosis, especially in smear negative cases and in EPTB as compared to the conventional ZN staining. Among EPTB cases the highest yield of positivity was shown in Pus samples. For countries endemic for TB GeneXpert can serve as a sensitive and time saving diagnostic modality for pulmonary and EPTB.

1837   WEI LAN; LI HUI   **[Expression and analysis of NKG2A and NKG2D in peripheral blood of senile patients with pulmonary tuberculosis.]** *Medical Journal of National*

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OBJECTIVE: To know the change of expression level of NKG2A and NKG2D of senile patients with pulmonary tuberculosis in order to provide new ideas and theoretical basis for immune therapy of pulmonary tuberculosis. METHODS: Flow cytometry (FCM) was used to analyze the expression level of NK cells surface receptors NKG2A and NKG2D in peripheral blood of 100 senile patients with early pulmonary tuberculosis and 89 senile healthy people, respectively. RESULTS: Compared with the control group, the expression level of NKG2D in the tuberculosis group decreased significantly while that of NKG2A increased significantly; compared with the patients with pulmonary tuberculosis complicated with extra pulmonary tuberculosis, the patients with simple pulmonary tuberculosis had lower expression level of NKG2A (P<0.05); in the tuberculosis group, the expression rate of NKG2D decreased significantly with the lesion involvement range increase (P<0.05); between the smear-negative pulmonary tuberculosis group and smear-positive pulmonary tuberculosis group and between the pulmonary cavity group and non-cavity group, the expression levels of NKG2A and NKG2D had no statistical difference (P>0.05). CONCLUSION: The determination of the expression level of NKG2A and NKG2D in peripheral blood of the senile patients with pulmonary tuberculosis has a certain clinical value for understanding the immune function of the patients, and it can provide important theoretical basis for immunotherapy.

1838   JIAN YUHUA; HU HUIGE   **[Study on repair effects of probiotic preparation on intestinal mucosa of patients with ulcerative colitis.]** Section I of Department of Internal Medicine, People's Hospital of Shapingba District, Chongqing 400030, China.

OBJECTIVE: To explore the repair effects of probiotic preparation on intestinal mucosa of patients with ulcerative colitis (UC). METHODS: Total 84 patients with UC were selected and divided into research group and placebo group (n=42, respectively) on principles of random and double blind. The placebo group was provided with mesalazine or hormone therapy, based on which, the research group was provided with Bifidobacterium, Lactobacillus acidophilus, and Enterococcus triple viable capsules. And then, colonoscopy was performed in both groups respectively before the treatment, and within one month, three months, and six months after the treatment, and intestinal mucosa scoring were made according to the endoscopic performance. RESULTS: Within one month, three months, and six months after the treatment, the intestinal mucosa scores in the research group (1.86±0.68, 1.28±0.46, and 0.82±0.24, respectively) decreased significantly (P<0.05 or P<0.01) in comparison with those in the placebo group (2.48±0.86, 1.84±0.74, and 1.26±0.58, respectively). CONCLUSION: Combined administration of probiotic preparation is helpful for repair of intestinal mucosa of patients with UC.