PS1

TB DOTS facility with isolation ward/cell, laboratory for regular TB/MDR TB at San Ramon Penal colony/ Prison)

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The establishment of the TB DOTS facility in the prison (ward, isolation cell, and laboratory) that caters both the regular TB and the Multidrug Resistant TB (MDR) in the San Ramon Penal Colony benefitted number of inmates, staff and visitors. Inmates are vulnerable and captured population, it is possible to detect and treat TB to the point of cure. But before the said initiative established patient with cough of more than 2 weeks have to travel 1 hour from San Ramon penal colony to the nearest hospital, and before they can go out they have to ask for approval for the patient to be brought to the hospital that will take 1 week for security purposes.

With the current establishment of TB DOTS facility within the penal colony for regular TB DOTS and MDR TB, early diagnosis and treatment was done and spread of infection among inmates, staff and visitor were controlled. The DOH-Regional Office was able to establish also a ward for the patients to ensure Infection control policy is being followed. It has reduced the number of inmates with infectious TB that was released into the community.

PS2

Identifying Strategic Framework of Tuberculosis control and prevention in Older People: A Scoping Review

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Background
Tuberculosis (TB) is an important public health problem in older people. Despite their increasing disease burden and high TB risks, targeted strategies are not well understood and examined. This study aims to identify the strategic framework of TB control and prevention in older people.

Methods
A scoping review was conducted based on Arksey and O'Malley's framework. Embase, MEDLINE, Global health and EBM reviews were searched for original and review articles, and policy papers published in English between January 1990 and December 2015. Search strategy and analysis were established in a standardized procedure.

Results
Nineteen articles met the inclusion criteria. Most of them were review articles, issued in developed countries and after 2000. In TB transmission chain, infection control and early diagnosis were essential for prevention especially in elderly institutions; screening and preventative therapy of latent TB infection were more effective by reducing risks of reactivation; systematic screening, initial empirical and adequate follow-up treatment, and enhanced programmatic management were underlined for active TB elimination.

Conclusions
This study comprehensively mapped TB strategic framework in older people. Key findings revealed limited research of evaluated interventions and ignored strategic considerations especially in developing countries. Further targeted research is highly needed for global and regional policy improvement.

PS3

Tuberculosis screening in an elderly residential facility in a low-incidence setting

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Introduction
The elderly population is particularly susceptible to tuberculosis infection because of their age and weakened immune systems. However, despite this, they are a difficult group to screen and the best approach is not known.

Objective
Reviewing a contact tracing exercise in an aged care residential facility following exposure to tuberculosis, to assist in refining practical and optimal approaches to contact tracing in such environments.

Methods
Retrospective cohort study of tuberculosis contact tracing and screening in an elderly residential facility in Victoria, Australia

Results
Contact tracing was performed for 19 residents, of whom 18 had both tuberculin skin test (TST) and interferon-gamma release assay (IGRA) test performed. Residents were insignificantly more likely to have a positive IGRA test (27.8%, P>0.05) compared to TST (11.1%). Feedback from nurses revealed significant technical difficulties in executing TST in this elderly population. Screening with CXR was problematic in this group, particularly due to many co-morbidities and incidental findings on CXR (especially malignancy).

Conclusion
Elderly persons residing in residential facilities are at risk of latent tuberculosis infection. The use of IGRA in screening latent TB infection could be considered as a screening tool in elderly residential facilities due to the low sensitivity of TST.

PS4

The Impact of Systematic Screening and Rapid Diagnosis for TB in Jails and Prison: The DetecTB Project Experience in the Philippines

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4818 inmates of two jails and one prison facility were systematically screened. 2011 (41.7%) TB suspects were identified based on presence of symptoms and/or radiological findings suggestive of TB. Confirmatory sputum testing of the TB suspects by Direct Sputum Smear Microscopy (DSSM) using Light Emitting Diode Fluorescence Microscopy (LED-FM) and Xpert® MTB/RIF assay yielded 282 (14%) bacteriologically confirmed (BC) cases, including 20 (7%) who were Rifampicin Resistant.

228 (80.8%) of the 282 BC cases were initially suspected based on having both clinical symptoms and radiological findings. The remaining 54 (19.1%) BC cases were suspected based on radiological findings alone, demonstrating additional value of Xray screening for finding TB among non-symptomatic patients.

146 (51.8%) of the 282 BC cases were both LED-FM positive and Xpert positive. The remaining 136 (48.2%) BC cases were Xpert positive alone, demonstrating additional value of Xpert for finding BC TB.

Of the 282 BC cases, 228 (81.1%) started treatment within three days, 163 (58%) of which within the first 24 hours.

This study underscores the limitations of the current TB case detection approach using symptom-based screening and DSSM diagnosis. The use of systematic screening using Xray followed by rapid Xpert test can find significantly more BC cases, thereby improving quality of diagnosis minimizing missed TB cases and allowing early initiation of appropriate treatment cutting TB transmission soonest.

ABSTRACT

PS5

SCREENING and RISK ASSESSMENT of TUBERCULOSIS AMONG IMMIGRANT WORKERS in SABAH, MALAYSIA

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Introduction: Immigrants mobility and vulnerability to tuberculosis become a big challenge in TB control worldwide including Malaysia. Immigrant workers, mainly among Filipinos and Indonesians, has a substantial contribution to TB incidence in Sabah, Malaysia. Objectives: This study was aimed to determine the yield of screening for TB disease and assess TB incidence risk among legal immigrant plantation workers in Sabah. Methodology: A retrospective and prospective cohort study involving 482 legal immigrant workers was conducted in 2013. Workers with previous history of TB or currently on TB treatment were excluded. Symptom based questionnaire, screening tests to detect latent TB infection while follow-ups were done for 15 months with chest radiograph and sputum samples collection for symptomatic participants. Results: Three hundred and sixty three cases were screened where 191(39.6%) and 101(21.6%) were positive for Mantoux and Quantiferon TB Gold respectively. There were only five TB incidences among the study cohort. Multiple Cox regression analysis showed that history of TB contact was the only significant predictor after adjusted with other confounders. Conclusions: TB screening among immigrants are still a challenge. Further studies are warranted to focus on improving TB disease screening to ensure immigrants at higher risk of active TB are targeted and receive due attention.

PS6

Prevalence of Asymptomatic Pulmonary Tuberculosis with Positive GeneXpert Test and Association of the Risk Factors in All Male Inmates of Cebu City Jail, Philippines

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Background: Tuberculosis (TB) is the sixth leading cause of morbidity and mortality in the Philippines; the country is ninth out of the 22 highest TB-burden countries in the world with one of the highest burdens of multidrug-resistant TB (MDR-TB). In 2014, WHO estimated MDR-TB among all forms of TB (9.6M) at 5% (480,000). In 2012, a prevalence survey of TB in prisons and jails conducted showed four to five times higher prevalence of bacteriologically confirmed pulmonary tuberculosis (PTB) compared to the general population.

Objective: To determine the prevalence of asymptomatic PTB with positive GeneXpert TB Test and analyze the associated risk factors in all male inmates in Cebu City Jail.

Setting: The study will review data from medical records of all male inmates of the Cebu City Jail who participated in the TB Mass Screening done by the Cebu City Health from April 18 to May 20, 2016.

Study Population: All male inmates of Cebu City Jail diagnosed with PTB during the Mass TB Screening will be included in the study.

Main Outcome Measures: This study aims to measure the total number of asymptomatic male inmates diagnosed with PTB using GeneXpert TB Test and to analyze the associated risk factors.

Keywords: asymptomatic pulmonary tuberculosis, genexpert test

PS7

COMMUNITY TB CARE AND CONTROL AMONG ILLE-GAL MINERS

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KICK TB GHANA

ABSTRACT

BACKGROUND: Ghana is a High tuberculosis (TB) prevalence countries, where CSOs needs to work with National TB programmes (NTPs) to ensure widespread access to effective treatment.

METHOD: Administration of checklist and interview to community members and leaders playing and staff of NGOs playing key roles in TB Control, review of the literature on community TB control projects and a progress report on the project "Community TB Care in Ghana.

RESULTS: Two district-based projects in western region of Ghana (Tarkwa Nsuaem and Sekondi-Takoradi) participated in the overall "Community TB Care in Western Region of Ghana project. The District TB programmes in collaboration with CSOs offering patients the choice of community or health facility treatment supervision generally performed effectively, with satisfactory rates of treatment success.

CONCLUSION: Assessment of TB control systems for community TB care formulated policy recommendations. NTPs should: (1) extend TB care to the community to improve access; (2) identify suitable community TB treatment supporters in consultation with the community; (3) ensure that effective systems extend into the community for recording and reporting, and for supply of anti-TB drugs; (4) monitor community contribution to TB care using standard indicators;

PS8

Paradoxical reactions and immune reconstitution inflammatory syndrome during anti-tuberculosis therapy with continued administration of infliximab

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We describe a case of 36-year-old man complicated with pulmonary tuberculosis (TB) under the treatment of infliximab (IFX) for Crohn's disease. He had been administered prednisolone (PSL) as possible pulmonary manifestation of Crohn's disease at the previous hospital prior to the administration of anti-TB therapy, but it was not effective. Although he was treated with anti-TB drugs with tapering PSL in our hospital, his condition worsened. He was diagnosed with paradoxical reactions (PR) and immune reconstitution inflammatory syndrome (IRIS), pending the exclusion of other causes such as bacterial infection and multi-drug-resistant TB. Administration of methylprednisolone improved his symptoms and pulmonary infiltration, and his condition stabilized during continued anti-TB treatment. It has been reported that biological drugs such as IFX should not be discontinued during anti-TB therapy because of the risk of PR and IRIS. Since IFX was continued for Crohn's disease every 8 weeks for the duration of the anti-TB therapy in this case, the PR and IRIS might have been caused by tapering the PSL. It is possible that PSL as well as biological drugs should be continued during anti-TB therapy in order to prevent PR and IRIS.

ABSTRACT

PS9

Tuberculosis consultation services for foreign residents in Japan

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*Introduction

The main objective of this study is to evaluate the activities of the Tuberculosis Consultation Service Section for foreign residents of JATA and to clarify future issues.

*Outline of Tuberculosis Consultation Service Section for foreign residents in Japan

Tuberculosis Consultation Service Section began its activities in providing consultation and interpretation services for both foreign-born TB patients and Japanese healthcare workers providing TB care and treatment for foreign-born patients in 1994, with assistance from the Official Development Assistance program of Japan.

*Results

The cumulative total number of consultation offered between 2006 and 2015 was 2,530. The annual number of consultation offered has constantly been increasing, and has been more than 300 since 2012. Of the 2,530 consultations, 2,229 were from patients themselves, and 301 were from public health centers and hospitals. The majority of the patients were from China, however, those from Vietnam, Myanmar and Nepal have also been increasing. More than 80% of the consultation was about inquiry regarding interpretation services.

*Discussion

Language barrier seems to be one of the primary concerns for both patients and healthcare workers. Because of the increasing number of foreign-born patients, and with wider diversity of nationalities, interpretation services need to be further strengthened.

PS10

Role of social adaptation in management of patients with pulmonary tuberculosis

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Characteristics of tuberculosis (TB) patients with an emphasis on their social adaptation were studied, using the evidence from a northern city in the Far Eastern Federal District of Russia. Social characteristics were determined based on the presence of complicating factors: chronic alcohol abuse; low income; imprisonment; unemployment; homelessness; substance abuse. Patients with 2 or more complicating factors were designated as socially maladjusted (SMA). This important characteristic must always be considered in choosing approach to treatment and TB control.

In 2014, out of 148 new cases, 51 (34.5%) were multidrug resistant (MDR). Proportions of SMA patients were 56.9% among MDR cases, and 39.9% among patients without MDR.

After treatment completion, part of patients return to normal life. Treatment was significantly less effective in SMA patients: 67.5% versus 87.7%. These patients tend to remain in the lists of registered cases and enlarge the number of cases subject to regular observation by TB doctor.

SMA worsened with disease severity (37.9% among new cases; 50% among recurrent cases; 84.3% among chronic cases), and develops more often in MDR cases.

Improving treatment effectiveness in TB patients will require concerted action including medical, social, and legal support, with active involvement of municipal, administrative, and public agencies.

PS11

Home care for elderly tuberculosis patients in Japan

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Background: It is estimated that one fourth of Japanese population is elderly in 2015, and that the rate will increase to approximately 40% by 2060. The ratio of the aged tuberculosis (TB) patient was steadily increased in this 28 years. In 2015, two thirds of TB patients are more than 65 years old.
Purpose: To describe the support for elderly TB patients being cared for at home.
Methods: Case study.
Results: Decrease in ADL and cognitive disorder make it difficult to manage medication. Medication supports were well-going by cooperation with home care service provider for elderly TB patient being cared for at home. To strengthen partnership, we developed "the handbook to support elderly TB patients."
Conclusion: Cooperation with home care service providers were important to implement smooth supports for elderly TB patients.

PS12

The impact of private practitioner engagement and verbal screening on child TB notification in an urban and rural setting in Pakistan.

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Background High TB burden countries have the dual problem of lack of notification of TB disease in urban settings and under diagnosis in rural settings. This leads to a gross underestimation of the overall burden of TB in children where diagnosis may not always be easy.

Methods: The Indus Hospital conducted a mass private practitioner/community engagement program funded by TBReach 1 in 2011, within its catchment urban population. In 2015 the Indus Hospital team implemented health worker training, free testing and verbal screening strategies in 4 public sector hospitals in relatively rural Jamshoro district.

Results: Private practitioner and community engagement resulted in an increase in child TB case notification by 3.8 times compared to the previous year (367 children with TB in 2011 compared to 97 in 2010).. On the other hand, 995 children with TB were diagnosed and treated in the rural setting which was an increase in case notification by 2.9 times compared to the previous year in Jamshoro.

Conclusions: Our findings indicate that where private sector engagement resulted in increased child TB notification in an urban megacity, capacity building and verbal screening strategies resulted in a robust increase in child TB diagnosis and notification in the rural setting.

PS13

Factors associated with Tuberculosis infection among children and adolescents in a northern state of Malaysian: a comparative cross-sectional study

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Introduction: An escalating trend of Tuberculosis (TB) cases among children and adolescent would further enhance TB transmission in the community.

Objectives: This study aimed to determine the association of sociodemography and clinical factors with TB infection in children and adolescents in the Northern state of Malaysia.

Methodology: This comparative cross-sectional study used the Tuberculosis Information System as a source population. A simple random sampling was applied to select 322 cases each from the registered TB cases and non-TB among TB contacts in children and adolescents from the year 2012 to 2015.

Results: Out of 5412 TB cases, 8.4% were children and adolescents with mean age of 15year-old, the majority were female (54.6%), and resided in rural area (79.6%). Male to female ratio was 1:1, 6.4% illiterate, 2.2% HIV positive, 15.6% smokers, and 6.8% have no BCG scar. After adjusted the confounding factors using multiple logistic regression, smoking (OR: 3.31; 95% CI: 1.83, 5.95) and female (OR: 1.68; 95% CI: 1.20, 2.35) were significantly associated with TB infection in children and adolescents.

Conclusions: This study provides important criteria of children and adolescents to be prioritised for TB screening and early diagnosis in the TB prevention and control programme.

Keywords: Tuberculosis, children, adolescent, associated factors, Malaysia

PS14

To Study the Effect of Concomitant Administration of Moxifloxacin Anti-tubercular Activity of Isoniazid and Rifampicin in the form of Microspheres

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Material/Methods: Isoniazid, Rifampicin, Moxifloxacin. The micropsheres were prepared by double emulsion method and complex coacervation method

Results: The *in-vitro* drug release of isoniazid and rifampicin from formulations where Moxifloxacin is used was found to be about 85-90% in 12 hrs. While the same was about 45-50% in case of formulations where Moxifloxacin was not used.

Conclusions: The particle size was uniform and found to be less than 110 micron in size. The drug encapsulation efficiency was found to be in the range of 35-62% (increased on addition of Moxifloxacin in the formulations). The percentage bioadhesion of the microsphere were found to be 20-72% (were significantly increased in the formulations where Moxifloxacin is used). The *in-vitro* release study by USP paddle apparatus and the most important results from the *in-vitro* release study relates to the very significant enhancement in drug release (45 to 90% for microspheres prepared by modified emulsion method and 47 to 90% complex coacervation method), due to presence of Moxifloxacin. All the evaluation parameters were performed in triplicate and found to be reproducible.

Keywords: Micropsheres, Double emulsion method, Complex coacervation method

PS15

Treatment success rate of re-treatment of previously failed drug resistant tuberculosis patients at The Indus Hospital, Karachi

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The Indus Hospital[1], Interactive research and Development (IRD)[2]

Background:

Treatment of drug resistant cases of tuberculosis is difficult, expensive and prolonged. The situation is worse while treating those patients who were previously treated for drug resistant tuberculosis (DR TB) but failed.

Objectives:

To find out the treatment success rate of DR TB patients who were declared failure of treatment, and then re-enrolled for added or modified drug regimens.

Methods:

All patients enrolled under the Programmatic Management of DRTB (PMDT) sites managed by The Indus Hospital Karachi from 2010-2016 were included in the study. Patients whose treatment outcome was not declared, or transferred out were excluded.

Results:

A total of 2331 patients were enrolled on DR TB treatment. ; 49 patients were included in the study, 28 (57%) were female, the median age was 26 years (range 15-61). The resistance patterns of the study group were as follows: 39 (76%) multiple drug resistant; 10 (24%) extensive drug resistant. The re-treatment outcomes were as follows: 24 (49%) cured, 13 (27%) died, 8 (16%) failed and 4 (8%) lost to follow-up.

Conclusion: The overall success rate of re-treatment of previously failed DR-TB patients is 49%, which is unacceptable. Therefore, we suggest introduction of new, safe and effective anti-TB drugs and novel regimens for faster sputum conversion, less toxic and more effective treatment of patients who failed on conventional DR-TB regimens.

PS16

Effect of interruption on treatment outcome of drug resistant tuberculosis patients at The Indus Hospital.

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The Indus Hospital[1], Interactive research and Development[2]

The treatment of drug resistant TB (DR TB) is complicated and lengthy. Sometimes patients fail to appear on each month follow up and the treatment is interrupted. We explored whether the number of months patient has missed follow up during duration of treatment has any impact on the treatment outcomes. We conducted a retrospective data analysis of the patients enrolled on DR TB from 2009 to February, 2016 at The Indus Hospital, Karachi. The number of enrolled patients till the time of analysis was 895, 623 patients were included in the analysis. The treatment interruption was defined as the discontinuation of treatment for at least for 30 consecutive days.

Median age of the patients was 27 years (6 months-85 years) 298 (46%) were females. Number of patients who were declared as treatment failure was 51 (8%), 90 (15%) patients died. Overall success rate was 70% and default rate was 7%. Number of patients whose treatment was interrupted for at least 30 consecutive days was 110 (18%). After controlling for age, SLD history, gender, presence of co morbid diseases, and resistance patterns the multivariate logistic regression showed that the number of months treatment was interrupted; was directly associated with poor treatment outcomes (OR 2, 95% CI 1.5-2.2). For this population overall compliance (% of patients who never miss drugs) is 71%.

PS17

In vitro activity against multidrug-resistant Mycobacterium tuberculosis isolates of rifabutin and rifapentin in combination with pasiniazid and moxifloxacin

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Multidrug resistance has become a serious problem in the management of tuberculosis. The main objective of this study was to compare the activity of rifabutin(Rfb) and rifapentin(Rft) in combination with moxifloxacin(Mfx) and pasiniazid(Pa) against clinical strains of Mycobacterium tuberculosis(Mtb) in the search for new strategies against multidrug-resistant (MDR) and extensively drug-resistant (XDR) tuberculosis. By using the three-dimensional chequerboard assay, a total of 20 MDR and 19 XDR clinical isolates were studied. The fractional inhibitory concentration index (FICI) was used to interpret the test results as follows: synergism, ≤ 0.50; indifference, >0.50-4; and antagonism, >4. The combination of Mfx and Pa showed a synergistic effect in 5 of the 39 strains tested and indifference in 34 strains. MfxPaRfb combination showed a synergistic effect in 21 of the 39 strains and indifference for the rest. But the combination of MfxPaRft showed a synergistic effect in 35 strains and indifference in only 4 strains. The FICI distribution for MfxPaRft combination displayed a significant difference against MfxPa and MfxPaRfb for all the MDR strains. In conclusion, Rft is more effective against MDR isolates of Mtb than Rfb when combined with Mfx and Pa, which could be useful for the clinical treatment of drug-resistant tuberculosis.

PS18

Multi-drug resistance among foreign-born pulmonary tuberculosis patients in Japan, 2007-2015

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Background: The burden of multi-drug resistant tuberculosis (MDR-TB) is significantly higher among the foreign-than the Japan-born cases in Japan. With increasing number of foreign-born cases, MDR-TB is also likely to pose a challenge to TB control in Japan.
Objective: To describe the characteristics of foreign-born MDR-TB cases notified between 2007 and 2015 in Japan. Method: Data from the Japan Tuberculosis Surveillance system was analyzed. Those whose country of birth was unknown was excluded from the analysis.
Results: Between 2007 and 2015, of the cumulative total of 91,842 culture confirmed pulmonary TB (PTB) cases, 3.9% (3,587/91,842) were foreign-born. However, of the 463 MDR-TB cases, 24.6% were foreign-born (115/468). The proportion of MDR-TB among the foreign-born culture confirmed PTB cases was 3.2% (115/3,587), however, that among the retreatment cases was 27.3%
The proportion of MDR-TB tended was the highest among the age group 15-24 (4.7%), followed by 25-34 (3.6%).
Of the 115 foreign-born MDR-TB cases, 45.2% were from China, 13.9% from the Philippines and 7.8% from Vietnam. The proportion of MDR-TB among the culture confirmed PTB cases was 34.0% among the retreatment cases from China.
91.3% of the 115 foreign-born MDR-TB cases were notified within 5 years of entering Japan.

PS19

Success clinical Regimen in treating pre-extensive and extensively drug-resistant Mycobacterium tuberculosis

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BACKGROUND
Current treatment for pre-extensive and extensively drug-resistant tuberculosis (PRE-XDR, XDR-TB) is facing challenges with the development of second-line drug resistance. The adequate drugs are limited and with poor outcomes. Intensive treatment with bedaquiline, linezolid, clofazimine and meropenem were applied as part of XDR-TB or pre-XDR-TB treatment regimen.

METHODS
Patients with persistent positive sputa after a prolonged use of 2nd line drugs and lack of effective anti-TB drugs and/or treatment intolerance were included. A regimen of bedaquiline, linezolid, clofazimine and meropenem plus other anti-TB drugs was applied depends on each patients' drug susceptibility test, at least 7 effective drugs were used. Clinical, epidemiological and microbiological characteristics of all subjects were collected. Drug tolerance, side effects and treatment outcomes were recorded.

RESULTS
Five patients (3 XDR-TB and 2 pre-XDR-TB) were eligible and included in this setting. All patients were resistant to isoniazid, rifampin, streptomycin, and FQN. Side effects were noted and managed by experts during the treatment.The average sputum cultures converted date was 55.6 days. All five patients were treated successfully within 24 months

CONCLUSIONS
Treament based on bedaquiline, linezolid, clofazimine and meropenem is a strong regimen with effective outcome. However, small sample size limited.

PS20

Improved outcome of MDRTB through enhance DOTS-plus Program in Central Taiwan

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Settings:
Establish an enhance DOTS-plus program for multidrug-resistant tuberculosis (MDR-TB) in Taiwan. 310 MDR-TB patients were enrolled from May 2007 to May 2016 in Central Taiwan.

Methods:
MDR-TB, Rifampicin-monoresistance TB, and poly-resistance (isoniazid, ethambutol and streptomycin) TB patients were included into the MDR-TB program. The treatment is designed as individualized regimen based on results of previous history of anti-TB treatment and drug sensitivity test (DST).

It is a community-based MDR-TB treatment. Total of 8 cars teams in this program and each car has one nurse as DOTS worker and one driver who guarantees the safety of the nurse. The team workers not only deliver the drugs to the patients and ensure them to take the pills, but also give injections and monitor for any adverse effects. The drugs are delivered twice a day, from Monday to Friday. This program is supported by Taiwan CDC and the amount of 33,000 USD per patient annually was provided in order to complete the treatment.

Results:
The defaulting rate for MDR-TB patients reached 29.1% in 2001, however, the defaulting rate dropped to 0.3% and the success rate of the treatment increased to 79.03% (245/310) after the implementation of enhance DOTS-plus program in Taiwan.

ABSTRACT

PS21

Why are rates of MDR-TB so much higher at re-treatment than in new cases?

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Rates of multidrug-resistant TB (MDR-TB) are considerably higher at re-treatment than in new cases (3.5% versus 20.5% globally). This difference is often interpreted as arising from poor treatment adherence, but several pathways to MDR-TB at re-treatment exist.

We present a simple mathematical model parameterised with country and region-specific data to quantify the relative contributions of four possible pathways to MDR-TB at re-treatment. These are: *1)* resistance amplification during treatment for drug-susceptible TB (DS-TB), *2)* relapse of originally MDR-TB which has been inappropriately treated as DS-TB, *3)* relapse of appropriately treated MDR-TB and *4)* re-infection with MDR-TB after previous treatment.

At the global level, causes *1*, *2*, *3* and *4* contribute 31% (95% simulation interval, 7-52%), 57% (40-77), 3% (2-4) and 10% (7-13) respectively to the burden of MDR-TB at re-treatment. Cause *2* is dominant in South East Asia (70%), the Eastern Mediterranean (60%), Western Pacific (55%) and African Regions (44%), while cause *1* is the leading contributor in the American region (57%) and Cause *3* in Europe (47%).

Globally, failure to diagnose MDR-TB at first presentation is the leading cause for high rates of re-treatment MDR-TB. However, patterns differ markedly by context, with important programmatic implications.

PS22

Modelling results give insights into the risk of global epidemic replacement with drug resistant M. tuberculosis strains

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Aim. To provide some general mathematical model conclusions on risk of replacement of drug-susceptible by drug resistant isolates of *Mycobacterium tuberculosis*.

Methods. We used a published mathematical model of two strains of tuberculosis to model the long term dynamics of drug-susceptible and Multidrug-resistant (MDR) TB. We explored the response of the model to changes in the input parameters including: the relative fitness of the drug susceptible and drug resistant strain, the time to detection of each strain, the treatment success and default/failure rates. Outputs included incidence and prevalence of the two strains, the equilibrium ratios of the strains, the time to become the dominant strain and the source of MDR TB (through transmission or via amplification: acquired during therapy).

Findings. Under most modelled scenarios: (1) MDR TB will dominate, replacing DS-TB in the long run, unless the detection and successful treatment rate improve. (2) Time taken for MDR to become the most prevalent strain is decades/centuries and depends on strain fitness, case detection and success rate of programs. (3) Improved detection of both strains may reduce incidence but increase the proportion of cases that are MDR. (4) Once MDR-TB is introduced the majority of new cases arise from transmission rather than amplification.

PS23

Can the current MDR-TB detection strategy detect most MDR-TB patients in China?

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Background:

One quarter of the global estimated multidrug-resistant tuberculosis (MDR-TB) cases were detected in 2014. In China, a high MDR-TB burden country, the detection of MDR-TB was low to 11%. This study aimed to find whether the current MDR-TB screening strategy can discover most of the MDR-TB among notified Chinese TB patients.

Methods:

Information on demographics, clinical profile and drug susceptibility testing (DST) of all bacteriologically confirmed TB patients in two prefectures in eastern and western China in 2013-2014 were collected. MDR-TB suspects were previously treated TB patients, new patients without a sputum conversion at the end of 2nd month or end of the treatment course, close contacts of MDR-TB and persistent bacterial positive patients according to the national guideline.

Results:

Of the 2326 bacteriologically confirmed TB patients, 123 were MDR-TB. There were 337 patients met the definition of MDR-TB suspects, mainly being retreatment patients (83.42%). The MDR-TB suspects accounted for 50.62% and 30.95% of the detected MDR-TB patients in eastern and western sites respectively. The population attributable risk of MDR suspects were 41.98% and 20.70% respectively.

Conclusion:

A big proportion of MDR-TB patients came from the non-MDR-TB suspects. A full coverage of DST for MDR-TB diagnosis should be considered.

PS24

Transmission rates to household contacts of multidrug-resistant and drug-susceptible tuberculosis patients: a multicenter, prospective cohort study

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BACKGROUND.

Household contact tracing is considered a highly efficient strategy for tuberculosis (TB) early diagnosis and prevention of transmission. The aim of our study was to assess the "fitness" of multidrug-resistant (MDR) and drug susceptible (DS) TB patients by comparing the prevalence and incidence of latent TB infection (LTBI) in their household contacts.

METHODS.

A prospective cohort study of household contacts of MDR and DS-TB index cases was conducted in six cities in Jiangsu province, China. Household contacts were administered a tuberculin skin test (TST) at baseline and the proportion with a positive TST ($\geq$10 millimeter induration) in contacts of MDR and DS-TB cases were compared.

RESULTS.

At baseline, 111 (28.0%) of 397 household contacts of MDR-TB patients and 165 (24.7%) of 667 contacts of DS-TB index cases were TST positive (aOR= 0.74; 95% CI: 0.55-1.00; p =0.050). Living in north of Jiangsu Province (aOR= 1.98), contacting TB patients (aOR=1.71), family size (aOR=1.41), and having an independent kitchen(aOR=0.48) were associated with LTBI.

CONCLUSIONS.

Transmission of tuberculosis in Jiangsu province was comparable between household contacts of MDR and DS-TB. Living in north of Jiangsu Province, contacting TB patients, large family size and not having an independent kitchen were risk factors of LTBI prevalence.

PS25

The difference of effectiveness among 3 Newquinolones against multidrug-resistant tuberculosis isolates with various mutations in Gyrase A

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Objective :

In japan, levofloxacin was adopted as one of the drugs against tuberculosis by the Ministry of Health and Welfare. This enabled us to use it to treat multidrug-resistant tuberculosis (MDR-TB) using public health insurence on January 29, 2016. Newquinolones (NQs) have often been used in the treatment of MDR-TB. We evaluated the difference of effectiveness between 3 NQs ; ciprofloxacin (CPFX), sparfloxacin (SPFX) and levofloxacin (LVFX).

Methods :

79 clinical MDR-TB isolates were distributed for study. The minimal inhibited concentration was defined as the minimum concentration which caused complete growth inhibition. We tried to determine the differences of effectiveness between 3 NQs against MDR-TB. We analyzed the differences of effectiveness by conducting the tests with several mutations of the gyrase A.

Results :

Judging from the susceptibility of each quinolone against MDR-TB isolates with mutations in the gyrase A, the degree of effectiveness of each quinolone for the treatment of MDR-TB was observed to be SPFX>LVFX>CPFX.

Conclusion :

We showed each mutation in gyrase A. Also the number of times of mutation occured in the MDR-TB isolates. Each mutation also shows various resistances of MDR-TB against 3 quinolones.

PS26

The survey of an eight-year epidemic situation on multidrug-resistant tuberculosis from hospital based data in Zunyi, Guizhou Province of China

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Objective To understand the epidemic situation of multidrug-resistant tuberculosis for last eight years in the service areas of the comprehensive hospital in Zunyi, Guizhou, one of the highest incidence rate regions in China. Methods A total of 534 Mycobacterium tuberculosis isolates, which were collected from patients with pulmonary tuberculosis (PTB) in the Zunyi region between 2013 and 2015, to be determined for antibiotic susceptibility patterns against 12 anti-TB drugs: 4 first-line (rifampicin, isoniazid, ethambutol and streptomycin) and 8 second-line (levofloxacin, gatifloxacin, moxifloxacin, para-aminosalicylic acid, amikacin, capreomycin, kanamycin, and prothionamide) were analyzed and compared with the data from 2008-2010 and 2011-2012, respectively. Results The results showed that the percentage of the patients with MDR-TB in both new TB cases and previously treated cases declined from 8.1% to 2.1 and 45.1 to 21.6, respectively, and MDR-TB in new case drop strikingly, which means the decrease of person to person in tuberculosis infection. The great progress made in the recent eight years in Zunyi area was related to the supports of a lot of basic and clinic research projects, high-quality training for medical staff and public education on TB knowledge especially MDR/XDR-TB. Conclusion Research programs can make big contribution to the tuberculosis control.

PS27

Group intervention and psychosocial support enhance daily life quality of patients with MDR-TB

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Objective To use psychosocial support to substantially increase multidrug-resistant tuberculosis (MDR-TB) patients' medical adherence, in order to ameliorate the daily life quality of patients with MDR-TB. Methods We provided emotional support such as emotion disclosure, attentive care, and understand for 28 patients with MDR-TB through group psychosocial therapy, to better assist them deal with their concerns and apprehensions, such as dealing with worries that patients have about the negative influences that MDR-TB have on their daily life, social activities, work, and health, to better help them eliminate the negative emotional effects the disease have on different aspects of their lives, to help them cope with emotional difficulties during the long MDR-TB treatment process. Results Through the guided emotionally supportive group activities, patients exchanged friendly gestures, built mutual understanding, and established new friendships among themselves, consequently the negative emotions brought by the disease, such as fear, stigma, anger, hopelessness, and feeling of isolation were alleviated, and their attitude toward disease treatment was improved, hence their daily life quality were significantly ameliorated during the term of MDR-TB treatment. Conclusion Group intervention and psychosocial support can efficaciously enhance daily life quality of patients with MDR-TB.

PS28

Subclinical and Clinical hypothyroidism among MDR-TB patients treated with prothionamide and/or para-amino salicylic acid

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Background

Hypothyroidism induced by MDR-TB treatment was reported on few articles. But there was no data about the shifting of subclinical to clinical hypothyroidism. The appropriate frequency of thyroid monitoring was still unknown.

Materia and Method

MDR-TB patient treated with prothionamide (Pto) and/or para-amino salicylic acid (PAS) between July 2007 and December 2015 in Chest Hospital, Taiwan was collected. Patient with checking Free T4 and TSH monthly from the beginning of MDR-TB treatment was enrolled.

Result

The incidence of combined subclinical and clinical hypothyroidism was 53.3%, subclinical hypothyroidism 50% and clinical hypothyroidism 30%. If patient had subclinical hypothyroidism, 43% would progress into clinical hypothyroidism. The median time of subclinical hypothyroidism developed was Pto 99 days (21-238), PAS 68days(23-98), Pto+PAS 130days(49-279), clinical hypothyroidism was Pto 214days(68-434), PAS 118days (96-128), Pto+PAS 191days (102-664). The median time of subclinical hypothyroidism shifting to clinical hypothyroidism was Pto 115days (30-317), PAS 61.5days (28-95), Pto+PAS 69.5days (22-416). There were no provocating factors of hypothyroidism was detected.

Conclusion

If patient had subclinical hypothyroidism, 43% patient would progress into clinical hypothyroidism. 3 months interval of TSH monitoring seems appropriate after initiation of MDR-TB treatment. But 1 month interval of TSH monitoring was judicious if subclinical hypothyroidism was developed.

PS29

Comparison of 1st M. Tuberculosis culture conversion between pre-XDR and XDR patient who get standard regiment and Bedaquiline regiment in Persahabatan hospital, Jakarta 2015-2016

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MDR-TB programs in Indonesia started in 2009. Currently there are 5377 cases of MDR-TB cases and 350 cases pre-XDR and XDR. Programs for pre XDR and XDR TB in Indonesia consist of two types. The study is to compare between two groups patients pre-XDR TB and XDR who received standard regiment is kanamisin (etambutol) pirazinamid-sikloserin ethionamide moxifloxacin PAS while other group receiving regimens containing Bedaquiline. The sputum culture will check every month. The outcome of this study is first M.Tb culture conversion. This study was conducted from September 2015 to August 2016. Total 15 patients with pre and XDR get a standard regiment, a mean age of 41.73 years (23-60 years), while patients receiving regimens bedaquiline is 12 people with a mean age of 28.43 years (23-47 years), First M. Tb Culture conversion in the group of pre-TB and XDR with standard regimen is 2 people or 13.3%, while the group receiving bedaquiline regimen is 5 people or 41.6%. There were no differences in side effects such as nausea, vomiting between two groups. Group pre and XDR TB patients who received regimens with bedaquiline had more first M.Tb culture conversion compared to the group receiving standard regiment treatment

PS30

Investigation on spoligotyping and phenotypes of drug resistance to four first-line drugs of 251 Mycobacterium tuberculosis isolates from Qinghai, China

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Objective To learn drug resistance situation of four first-line anti-TB drugs among 251 *Mycobacterium tuberculosis* isolates from Qinghai and to explore their relationships with genotypes by Spoligotyping, so as to provide basis for effective prevention of tuberculosis. Methods Isolates of 251 *Mycobacterium tuberculosis* were tested susceptibility of four first-line drugs including isoniazid (INH), rifampicin (RFP), streptomycin(SM) and ethambutol (EMB) by using conventional proportion method and genotyped by Spoligotyping. Relationship between drug resistance and genotypes were analyzed statistically. Results Of 251 *Mycobacterium tuberculosis* isolates, the total drug resistance rate was 56.2% (141/251). Resistance rates of four first-line drugs were 43.0% (108/251) for INH, 37.1% (93/251) for RFP, 39.0% (98/251) for SM, 27.9% (70/251) for EMB respectively. Rate of multidrug-resistant TB (MDR TB) was 31.5%(79/251). All 251 isolates of Mycobacterium tuberculosis were typed by spoligotyping. 185 (73.7%) were Beijing genotypes and 66 (26.3%) were non-Beijing genotypes, and no statistical association was found with drug resistance. Conclusion Isolates of Mycobacterium tuberculosis prevail in Qinghai have both high rates of drug resistance and MDR and dominant isolates are Beijing genotypes by spoligotyping.
Keywords Mycobacterium tuberculosis; Drug resistance; Spoligotyping

PS31

Accelerate access to new anti TB drugs for MDR & XDR TB treatment in India

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India has the highest burden of DR TB. Inclusion of new antibiotics in DR TB regimens will play crucial role in improving cure rates in the country.

Bedaquiline and delamanid are first new antibiotics to become available in forty years, and offer hope for people with extreme forms of DR-TB. However, access to these medicines is restricted in India due to programmatic, regulatory, patent barriers.

Bedaquiline is now approved and available in public sector but strictly rationed. Otsuka is yet to apply for registration to the Indian FDA. Without the mandatory marketing approval, treatment providers including the public sector cannot provide delamanid to eligible XDR TB patients.

As a result, treatment providers have to resort to time consuming 'name-patient system' of accessing drugs on compassionate use grounds for dying patients with XDR-TB or pre-XDR TB.

Indian generic manufacturers will not register low cost equivalents, due to multiple patents on these two medicines. They are also unlikely to make necessary investments to develop these medicines in absence of availability of licenses (compulsory or voluntary).

Access to new TB drugs is glacially slow in India and there is a significant need for stakeholders to address these barriers.

PS32

Genetic profile of the arylamine n-acetyltransferase 2 among multidrug-resistant tuberculosis patients in Persahabatan Hospital, jakarta

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OBJECTIVE

Some studies in Indonesia have assessed the NAT2 genotypes but none among MDR-TB patients. This study aims to describe the genetic profile of the NAT2 gene among MDR-TB patients in Jakarta.

METHODS

30 MDR-TB patients were included in the study. DNA was isolated from blood and direct sequencing was performed.

RESULT

Of the 30 sampels, 29 NAT2 genotype data of MDR-TB patients were obtained. The most frequent allele were wild type NAT*4 (67.2%). Five mutant alleles (NAT*6A, NAT*6C, NAT*6F, NAT*7B, NAT*13) were found with a frequency of 6.9%, 6.9%, 6.9%, 8.7%, 3.4% respectively. 58.6% of the patients were fast acetylators, 31% intermediate acetylators and 10.4% slow acetylators. According to bimodal distribution frequencies 89.6% were fast acetylators. Based on patient's history of prior treatment, among the rapid acetylators 66.4% of the patients experienced treatment failure; 11.5% of the patients were dropped out and 23.1% were relapse cases. Among the slow acetylators, similar patient's history were 66.7% for treatment failure, 33.3% for dropped out, and none for relapse cases.

CONCLUSION

Largest proportion found was NAT2*4 associated with predicted phenotype fast acetylators. Further study is needed to assess the correlation with the treatment failure leading to MDR TB.

PS33

Withdrawn

PS34

Epidemiology of Tuberculosis in Adolescents and Young Adults in the Philippines

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The Philippines is one of the WHO's 30 high TB burden countries, and the third largest country in the WHO Western Pacific region, with a population of almost 100 million people. Unlike most other large countries in Asia, the Philippines has a young population; 30% of its citizens are adolescents and young adults aged 10-24 years. This age group is known to have particular needs with regards to TB care and adherence support.

TB surveillance data for the Philippines were used to investigate the age-related burden of TB in the country over the years 2003-2015, especially in the adolescent and young adult age group.

Since 2003, TB notifications for the 15-24 age group have increased more substantially than any other age group; by 2012, notifications for young men had increased by 53% compared to 2003, while those for young women increased by 59%.

The Philippines faces an increasing TB caseload among adolescents and young adults. The needs of this group regarding treatment support while they are completing education and becoming independent require further consideration.

PS35

FACTORS AFFECTING THE ACCEPTANCE OF DIRECTLY OBSERVED THERAPY (DOTS) OF TUBERCULOSIS IN COMMUNITIES. A CASE OF KAWEMPE COMMUNITY, KAMPALA UGANDA

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Uganda ranks 15th among 22 TB high-burden countries with an estimated annual risk of infection of 3% equivalent to 150-165 new smear positive TB cases per 100,000 populations per year. Uganda put in place a National TB and Leprosy Program (NTLP) which aimed at detecting 70% of the new smear Pulmonary Tuberculosis sputum smear positive (TB SS+) cases and to successfully treat 85% of the new TB SS+ cases utilizing the DOTS strategy.

The study aimed to establish the factors affecting the acceptance of DOTS in communities of Kawempe and used both qualitative and quantitative methods of data collection, a number of methods of observation, opinion surveys, personal interviews and group discussions with CWH. *The 75 respondents used in the study were patients (73.3%), health workers (14.7%), and community leaders (12%).*

Results of the study, indicated that acceptance of CB-DOTS in communities was frustrated by low education levels (35%), lack of confidence from Kawempe health unit (29%), poor selection of community volunteers (21%) insufficient funding (8%) and cultural factors (7%).

The study recommended; increasing training of community volunteers, increased sensitization, capacity building of health workers, increasing facilitation of community volunteers, and funding of key interventions.

PS36

Withdrawn

ABSTRACT

PS37

Tuberculosis Direct-Observe Treatment Short Course (TB DOTS) Facility Online Certification System

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TB-DOTS facility online certification is a process to ensure TB-DOTS facility is capable of providing accessible, quality and sustainable DOTS services to presumptive TB and client following set of standards. The implementation of Online Certification system made the process faster and easier for those facilities wanting to be certified or needing a certification renewal. The paper based process used in the entire country noted to have gaps/challenges thus, the innovative project made the process more accessible in submission of requirements, provision of Technical Assistance, improved the two way communication system and ensures transparency on its operation to general public.

The Online Certification system has given clients an easy way to track down and provides citizen-clients access to relevant information and ensures evidence of compliance with certification requirements, standards, and status. It helps stakeholders monitor the status of the registered facilities online.

The process is in collaboration with Local Government Unit and public-private facilities that provide services to clients from urbanized to Geographically Isolated Depressed/armed conflict areas. It is linked to Philippine Health Insurance and facilitated availment of insurance package.

PS38

Assessment on filterability and killing activity of nanomembranes with Mycobacterium tuberculosis

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Tuberculosis (TB) is still public health problem. The etiologic agent of TB, *Mycobacterium tuberculosis* (*M. tb*), can spread easily through the air by coughing and sneezing of TB patients. While most of researchers have attempted to find the novel treatments, this study, we attempted to reduce the rate of infection by eliminating of *M. tb* floating in the air using nanotechnology.

Silver-containing nanomembrane fabricated from polyvinyl alcohol (PVA) using electrospinning technique developed by researchers from National Nanotechnology Center, Ministry of Science and Technology, Thailand, was evaluated on ability to filter and to kill the pathogen. One million cell of *M. tb* H37Ra suspensions were aerosolized and sprayed onto the nanomembrane. CFU count showed 100% filtration ability of nanomembrane while the cells trapped on membrane were stained with LIVE/DEAD fluorescent staining method and then observed viability by confocal laser scanning microscope. Antimycobacterial efficiency of the nanomembrane increased from more than 80% to 100% as the exposure time increased from 24 hr to 96 hr.

This is the preliminary study showing possibility of silver-containing nanomembrane to eliminate *M. tb* in the air and because of PVA is cheaper than other materials so this might be useful in low- and/or middle income countries.

PS39

Tuberculosis in the Balimo region of Papua New Guinea: enhancing clinical diagnoses in a resource-limited setting

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Tuberculosis in Papua New Guinea is a health crisis. In Western Province, the largest and most remote province in the country, there is limited published data describing the epidemiology of tuberculosis. However, tuberculosis incidence is estimated to be as high as 500 cases per 100,000 people, substantially higher than the national estimate of 417 cases per 100,000 people. To address this information gap, we have undertaken an ongoing study in collaboration with Balimo District Hospital, in the Middle Fly District of Western Province. Tuberculosis diagnoses in this region are predominantly clinical, with microscopy being the only method of laboratory confirmation available. In addition, prior research has found high rates of extrapulmonary tuberculosis cases. The current study has included an analysis of the tuberculosis patient register, defining how and where tuberculosis patients are distributed in this region. Furthermore, a cohort study has investigated clinically-diagnosed pulmonary and extrapulmonary tuberculosis cases, using additional laboratory diagnostics and investigation of clinical decision-making protocols, to evaluate methods of clinical diagnosis and help further define diagnostic accuracy. The study outcomes contribute to the Balimo tuberculosis program through support of local health workers in improving clinical diagnoses and outcomes.

PS40

Knowledge and Practices of Clients, Health Care Providers and Local Government Units on Pulmonary Tuberculosis and Tuberculosis—Directly Observed Treatment Short Course

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The study determined the knowledge on pulmonary tuberculosis (PTB) and Tuberculosis-Directly Observed Treatment Short course (TB-DOTS) practices of stakeholders in Albay, Philippines. It specifically determined the level of knowledge of clients, and health care providers (HCPs) on PTB, their level of compliance with TB-DOTS practices, and the problems encountered by the HCPs and Local Government Units (LGU) personnel in its implementation. This is a descriptive research that involved 95 TB clients, 78 HCPs and 45 LGU personnel for a total of 172 respondents. The findings show that the HCPs and clients have a high level of knowledge on TB-DOTS, mode of transmission and symptomatology of TB; TB DOTS practices are "sometimes complied with" by the HCPs, barangay health workers (BHWs) and clients. The problems in the implementation of TB-DOTS are on management of resources and monitoring and evaluation of the TB-DOTS implementation. The study concludes that the clients enrolled in TB-DOTS are predominantly poor making them vulnerable to PTB; the HCPs and clients are generally knowledgeable on PTB and TB-DOTS but do not regularly comply with TB-DOTS practices. The LGU personnel support the TB-DOTS as shown by their efforts to address the problems in its implementation.

PS41

Perspectives on support for tuberculosis patients by skilled public health nurses and fostering of new nurses

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Public health nurses are reflective professionals and have a role to provide continually improving health services to the residents of their community. Our study aimed to help foster the abilities of new public health nurses so they can better work to support patients with tuberculosis (TB). We studied three skilled public health nurses registered in the same Japanese prefecture. Each was asked to undergo a semi-structured interview about providing support for TB patients, and descriptions that effectively demonstrated the characteristics of this support were extracted from the interview recording and categorized for analysis. Eight commonalities and perspectives regarding support for TB patients were extracted from among 52 descriptions. The results of our study show that patient care provided by professionals highly knowledgeable about TB, and capable of maintaining preventive perspectives, will lead to effective development of new public health nurses who can inform the health index of their community.

PS42

Development of the AuTuMN framework to guide decision-making in tuberculosis programs

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Aim. To develop a mathematical tool to guide TB control and resource allocation.

Methods. We employed a modular approach to programming for the development of AuTuMN. It comprises seven different modules for disease dynamics, health economics, calibration, uncertainty, data inputs, model outputs and graphical visualisation. The TB transmission dynamic module is stratified by age, comorbidities, special populations and access to healthcare. It also incorporates resistant strains and smear-positive, smear-negative and extra-pulmonary forms of TB. The health economic module allows cost estimations of TB programs and, when linked to the disease dynamic module, TB epidemic corresponding to different funding levels. Data inputs are derived from the literature, WHO TB data and country-specific data.

Results. AuTuMN is a flexible framework that can be applied to different epidemiological contexts. It is being applied in Fiji and Philippines. AuTuMN provides TB epidemic trajectory under different intervention and funding scenarios, enabling policy makers to assess whether or how TB targets can be achieved. It also allows countries to prioritise TB programs by projecting TB epidemic and the costs of different programs.

Conclusions. AuTuMN is a useful tool for TB strategic planning. The modular approach allows independent development and evaluation of modules, and reusability of modules.

PS43

Reinvestigating TB latency to better inform TB control

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TB latency dynamics follow a characteristic pattern, with a higher risk of disease in the early stages of infection but a life-long risk of disease, often stated to be around 10-15%. While TB control has used mathematical modelling for several decades to better design policies, it remains unclear whether existing models capture the observed patterns of latency dynamics.

Recent studies have provided valuable longitudinal data about the risk of TB disease over time after infection. We took this opportunity to investigate the ability of existing models to replicate the reactivation dynamics observed empirically and to produce parameter estimates that fit the data closely.

We demonstrate that only models incorporating at least two latency compartments are able to replicate the activation dynamics of TB. From a review of 88 studies reporting the use of TB models, we found that only 20 employed such model structures. We also identified marked gaps between parameter values employed and those estimated by fitting to data. Finally we demonstrate that TB models should incorporate age stratification to account for dramatically different patterns of the reactivation by age.

Past modelling methods to simulate TB are likely to be suboptimal. We provide a framework to improve model predictions.

PS44

Treatment outcomes in TB patients detected through active case finding strategies in rural Sindh-Pakistan

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Background

Tuberculosis (TB) treatment is associated with high loss to follow-up rates in developing countries. We assessed treatment outcomes of TB patients after implementing verbal screening and contact tracing activities in rural district in Sindh, Pakistan.

Methods:

Verbal screening and contact tracing focusing child TB was implemented between October 2014 and March 2016 at 4 health facilities. Children were screened for TB symptoms and referred to physician for evaluation. All children (0-14years age) and adults, started on treatment till March 2016 with available outcomes are analyzed.

Results:

2306 patients (58% males; n=1334) were started on treatment. 74% (n=1717) were children, 84% (n=1928) had Pulmonary TB; 38 were transferred to another facility. 1513 have declared outcomes, 1099/1513 were children. 1400/1513 (1036 children) completed treatment, making treatment success rate 92.5%. Loss to follow-up was 3.5% (n=54, children=28/54). Loss to follow-up was higher among female children (n=17) and adult males (n=19); 27 died while 32 failed treatment. The treatment success rate for district in 2013 was 82% without programmatic approach to increase case notification in children.

Conclusion:

Active case finding is associated with high loss to follow-up rates but under programmatic conditions with systematic counseling and follow-up a high treatment completion rate is achievable.

PS45

Contribution of community-based Tuberculosis care by international non-governmental organizations in Myanmar 2013-2014

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In this study, we describe four INGO strategies for community-based TB care for hard to reach populations in Myanmar, and assess their contribution in TB case detection.

We conducted a descriptive study using program data from four INGOs and the national TB program (NTP) in 2013-2014.

All four INGOs implemented community-based TB care in challenging contexts, targeting migrants, post-conflict areas, urban poor and other vulnerable populations. Two recruited community volunteers via existing community health volunteers or health structures, one via existing community leaderships, while one directly involved TB infected/affected individuals. Two compensated volunteers via performance-based financing, two provided financial and in-kind initiatives. All relied on NTP laboratories for diagnosis and TB drugs, but provided Direct Observation Treatment (DOT) support and treatment follow-up.

The four INGOs combined contributed 36% (7383/20663) of the total new TB cases detected in their respective townships, ranging from 15% to 52%.

INGOs supported community-based TB care successfully achieved TB case detectionin hard to reach and vulnerable populations. This is vital to achieve the End TB strategy targets. Strategies to ensure sustainability of the programs should be explored, including the need of longer-term commitment of INGOs.

PS46

Tuberculosis mortality rates and trends in Bangladesh

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This study was conducted as part of national tuberculosis (TB) control effort. The mortality situations (by age and gender), due to TB in Bangladesh over the past 10 years (2005 to 2013) was determined. We used a range of secondary databases available from different sources. Indirect measurement of mortality based on incidence and case fatality rate (CFR) was used.

The case detection rate increased from 38% in 2005 to 55% in 2014. Among the registered TB cases 70-75% were males. The sex difference in terms of observed TB death also was observed (male 66-77%). Majority of TB death (74-90%) were observed among patients of age 40 years and above. The CFR varied from 0.03 to 0.04 and CFR of TB-HIV population was 0.29. Mortality due to TB decreased from 64/100,000 to 48/100,000. The proportion of TB death among total death decreased (0.11 to 0.093).

This study provides recent evidence base on TB mortality rates and trends in Bangladesh. The substantial difference on TB deaths by gender exists. We recommend gender friendly awareness and screening programs for TB case identification and management. In-depth study to further investigate TB-HIV co-infection is essential. Periodic National TB mortality survey is also recommended.

PS47

The impact of the issue of the state of emergency in tuberculosis epidemic by the minister of the health on epidemiology of TB, Japan, 1992-2005

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Background

In July 1999, the Minister of Health of Japan issued the state of emergency in tuberculosis (TB) in Japan, based on an observation that notification rate of all types of TB reverted in 1997. This study reviews TB epidemiology from 1992-2005, comparing it before and after the issue of the state of emergency to see its impact.

Methods

TB notification data from 1992-2005 were reviewed in terms of time, place, and person, focusing on smear-positive TB.

Results

From 1992-1998, the trend in notification rates of all types and smear-positive TB were -3.3%/year (95% confidence interval [CI]: -[2.3-4.4%]) and +0.94%/year (95%CI: -0.33-+2.2%), respectively. However, from 2000-2005, both trends changed to -6.6%/year (95%CI: -[5.5-7.5%]) and -3.3% (95%CI: -[2.4-4.2%]), respectively. In 29 prefectures (62%), including Tokyo, Mie, Osaka, Kyoto, Hyogo, and Fukuoka that had big cities, the notification rate of smear-positive TB increased from 1992-1997, however, in only seven prefectures did so from 2000-2005. The notification rate of smear-positive TB increased in 50-69 year-old before 1997, however, after 2000, it started declining.

Conclusion

The issue of the state of emergency in TB in 1999 had powerful impact on TB control in Japan and led sharper decline in incidence.

PS48

Prevalence of tuberculosis suspects and their healthcare-seeking behavior in Mongolia

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Objective: To assess the health-seeking behavior of adults with prolonged cough in a population-based, nationally representative sample in Mongolia.

Methods: A cross-sectional survey was conducted from April 2014 to November 2015. All inhabitants aged ≥ 15 years were invited for screening for cough, history of tuberculosis (TB) treatment. TB suspects were defined as any survey participants with cough for ≥ 2 weeks.

Results: Of 50,309 survey participants, 5.1% had prolonged cough. Fifty-three percent of them had sought health care and reported pharmacies (17%), family group practitioners (56%), district health centers (13%), and private physicians (2%) as first point of contact. Only 20% received advice to undergo sputum smear examination. Of the TB suspects with prolonged cough, 2.0% were diagnosed with TB. The young adults, students, and individuals who were living in the city approached pharmacies for care more often than their rural counterparts. Preference for family clinics increased with age.

Conclusions: In this survey, half of the TB suspects had visited a health-care provider. The health facilities most frequently contacted first were those of family practitioners. Sputum smears were rarely recommended, and diagnostic practices need to be improved by retraining health staffs of family health facilities.

PS49

Bone marrow mesenchymal stem cells kill mycobacteria by inducing the expression of cathelicidin.

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Tuberculosis (TB) is caused by pathogenic bacteria *Mycobacterium tuberculosis* (*Mtb*), a global threat of human morbidity and mortality. *Mtb* not only infect lungs, it infects various parts of human body by following different routs of pathogenesis.*Mtb* can infect bone marrow mesenchymal stem cells (BM-MSCs) and remain inside for longer period of time in dormant stage which can lead to active TB infection in later time point.

It is still unclear how *Mtb* remain inside BM-MSCs for longer period of time. Our study shows differential activity of BM-MSCs against pathogenic and non-pathogenic mycobacterium. We have infected mouse BM-MSCs with *Mycobacterium bovis* and checked intracellular survival of the bacteria. We found decreased bacterial survival in BM-MSCs. Further studies revealed that intracellular bacterial killing was due to increased expression of Cathelicidin related Antimicrobial Peptide(*CAMP*). Increased *CAMP* expression was found to be regulated by p38 MAPK pathway in a TLR4 and TLR2 dependent pathway.Inhibition of p38 resulted in down-regulation of *CAMP* in infected BM-MSCs. Interestingly pathogenic bacteria *Mtb* was found to downregulate the expression of *CAMP,* which could be the cause of its survival in BM-MSCs for longer period of time.

PS50

A Case Control Study on Environmental and Host related Risk factors of Tuberculosis in Eastern Terai Region

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Background: Tuberculosis caused by *Mycobacterium tuberculosis* complex, usually affects the lungs. If properly treated, tuberculosis caused by drug susceptible strains is curable in virtually all cases. **Methods:** A community based case control study was conducted from July 2013 to July 2014, in Eastern Terai Region of Nepal. Newly diagnosed pulmonary tuberculosis patients registered in National Tuberculosis Program were taken as case. One of the control was unmatched household contact, 2nd control was unmatched community contact. Analysis was conducted, using index case: household control and index case: community controls pair to assess the effect of host-related factors and, index case: community control pairs to assess the effect of environmental risk factors. Bivariate analysis was performed to see the association between the dependent and independent variables. Multivariate models were constructed, including variables that showed a significant statistical effect in the prediction of TB in bivariate analysis ($P<0.05$). **Results:** Male gender was observed as an independent risk factor. The dose dependent increase in risk was observed with increasing pack year and was an independent risk factor. Living in an overcrowded condition increased the risk by 1.13 times. BCG vaccination showed a protective effect when compared across both control groups.

PS51

Malnutrition and survival in patients admitted to the Tuberculosis (TB) ward at San Lazaro Hospital, Manila, the Philippines

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Introduction: Under-nutrition is a risk factor and complication of active TB disease. Appropriate nutritional management of malnourished TB patients might improve treatment outcomes. However, the prevalence of under-nutrition in TB in the Philippines and its association with outcomes is not known.

Methods: Prospective cohort study of patients admitted with clinically suspected tuberculosis ($n=418$), to determine association between clinical wasting (body-mass-index [BMI]$<17.5kg/m^2$) and in-hospital mortality after the acute admission period (48 hours). Secondary objectives include determining the prevalence of co-morbid diabetes and HIV, change in nutritional status during admission and prevalence of TB using GeneXpert test and microscopy.

Findings: In preliminary results (n=61), mean BMI on admission was 17.7 kg/m^2 (SD=3.1, n=40; [66%]), with 53% BMI$<17.5kg/m^2$. Microscopy results (n=37) indicate 30% as TB positive (n=11), whilst GeneXpert tests (n=47) detected *Mycobacterium TB* in 45% (n=21), with 24% indicated as multi-drug-resistant (n=5). HgbA1C>6.5%, indicating diabetes (n=52) was 12%. There were 11 deaths (18% mortality), 7 occurred after 48hr for whom BMI was: unavailable, n=4; BMI$<17.5kg/m^2$, n=1; & BMI$>17.5kg/m^2$, n=2.

Conclusion: Clinical wasting is common in patients admitted with suspected TB, although assessment of BMI is difficult to acheive in this setting. We are investigating alternative assessments of clinical wasting. Data collection is ongoing.

PS52

Risk factor for tuberculosis incidence and mortality in people living with HIV, Chiang Rai, Thailand

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Introduction and objective: We have studies multiple risk factors for tuberculosis incidence and survival in HIV epidemic province, Chiang Rai Thailand since 1993. Recent studies suggest that the ratio of leucocyte subsets may be a risk factor for tuberculosis incidence and mortality, especially HIV-positive persons. **Methods:** We have studied 1,661 people living with HIV in Mae Chan Hospital, Chiang Rai, Thailand who registered in day care center in 2005 - 2015. The provincial wide TB registry since 1987 and the mortality database of Ministry of Interior were used to identify TB incidence and mortality. **Results:** 1,314 HIV-infected persons never become TB. Before, at TB register, and after DCC register, 174, 39, and 134 TB incidence cases were identified, respectively. Mean monocyte-lymphocyte (M/L) ratio of these 4 groups are 0.252, 0.244, 0.364, and 0.301, respectively and later 2 groups are significantly elevated from the group who never become TB. Scatter plot of M/L ratio among TB cases suggest M/L ratio increase before becoming TB and decrease after. **Discussion:** M/L ratio might be risk biomarker for TB incidence, although we also need to study and adjust the other factors including CD4 counts, previous TB history, tuberculin skin testing status, anti-retroviral therapy, and INH preventive therapy. Risk factors for mortality should be also investigated.

PS53

Evaluation of test results about MTB in sputum specimens by loop-mediated isothermal amplification method

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Objective: To evaluate the diagnostic value of loop-mediated isothermal amplification (LAMP) method for rapid detection of Mycobacterium tuberculosis.

Method: 503 sputum samples were collected from suspected TB patients in our hospital, samples were detected by smear, liquid culture, solid culture and LAMP methods to fund mycobacterium tuberculosis.

Result: Detection rate of LAMP in smear-positive patients was 91.49% and 27.62% in smear-negative patients, the total detection rate was 51.49%, higher than the smear, liquid culture and solid culture (respectively 38.38%, 46.72% and 42.15%). Taking culture as the gold standard, LAMP detection sensitivity was 85.82%, specificity was 85.54%,. the consistency between the two is 85.69%.

Conclusion: As a molecular method for TB diagnosis, LAMP method not only has higher positive rate comparing to direct smear microscopy but also has good sensitivity, specificity and consistency comparing to golden standard culture.

Key words: loop-mediated isothermal amplification, LAMP; Mycobacterium tuberculosis.

PS54

Gene mutations and level of susceptibility to fluoroquinolones in *Mycobacterium tuberculosis* clinical isolates

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Drug resistances in *Mycobacterium tuberculosis* (MTB) mainly develops by mutation of chromosomal genes. This study aim to investigate relationship of *gyr*A and *gyr*B gene mutations with minimal inhibitory concentration (MIC) level of moxifloxacin (MXF) and ofloxacin (OFX). MTB isolates from 191 patients were analyzed. The MIC cutoff values were also identified by comparing with the standard agar proportion method (APM) of susceptibility testing. Using receiver operating characteristic curve analysis, MIC cutoff values were 2.0 and 4.0 μg/ml represent to APM of MXF and OFX resistance, respectively. The mutations occurred at *gyr*A such as Asp94Gly/Tyr/His (63.33%), Ala90Val (23.33%) and Ser91Pro (10%). Asp94Gly/Tyr/His related with high MIC of MXF at G.M. 4.39-8 μg/ml and of OFX at 14.59-16 μg/ml. Ala90Val isolates had a moderate MIC with G.M. 2.97 μg/ml for MXF and 7.25 μg/ml for OFX. Ser91Pro showed a relationship with high MIC for MXF with G.M. 12.7 μg/ml and 8 μg/ml for OFX. Only one isolate with both mutations in Ser91Pro of *gyr*A/Glu501Asp of *gyr*B had a very high MIC to both MXF and OFX, >8 and >32 μg/ml, respectively. This finding could provide important information for interpretation of rapid molecular detection and MIC of *M. tuberculosis* susceptibility testing.

PS55

Adverse effects of treatment for Mycobacterium abscessus complex lung disease

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BACKGROUND

M. abscessus complex (MAbC) is resistant to many antibiotics in vitro. MAbC lung disease (MAbC-LD) often requires combination therapy including macrolides and parenteral drugs. While prolonged therapy with aggressive parenteral drugs may lead to many adverse effects, this issue has not been well documented. We therefore conducted a retrospective study to address the impact of side effects on clinical course of MAbC-LD.

METHODS

A retrospective study was performed including 36 patients of MAbC-LD who were treated with chemotherapy from Jan 2010 to Dec 2013 in our hospital.

RESULTS

The therapeutic regimens for MAbC-LD vary widely in our study. The common regimen were CAM/RFP/EB or CAM/IPM/AMK (n=9, 6). Twenty-six side effects were documented among 36 patients complicated with MAbC-LD who received treatment. Common side effects were gastrointestinal disorders, skin changes, and vertigo (n=6,6,6). Amikacin, the most commonly used IV agents was associated with multiple side effects. Twenty-one patients (72.2%) required a change in therapy. However, the rate of negative conversion between the patients who change therapy and the patients who did not was not significantly different (52.4, 60.0%, P=0.65).

CONCLUSION

Our study suggested there was a difficult balance between treatment success and toxicities in the patients with MAbC-LD.

PS56

Epidemiology of nontuberculous mycobacterial lung disease in a subtropical region of Japan and investigation on clinical features of rapidly growing mycobacterial disease

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[Background] Nontuberculous mycobacteria (NTM) lung disease is increasing globally. *Myocobacterium avium* complex (MAC) is the leading cause of NTM lung disease in most countries including Japan, whereas the etiological epidemiology is different depending on regions. Okinawa is located in the southernmost of Japan and categorized as subtropical region, and the climate condition is different from mainland Japan. We investigated the epidemiology of NTM lung disease in Okinawa and compared clinical features of rapidly growing mycobacteria (RGM) infected patients with that of MAC infected patients. [Methods] NTMs cultured from respiratory specimens in patients admitted to two hospitals in Okinawa from 2009 to 2015 were retrospectively extracted from medical records. Of these, NTM lung disease cases, defined according to the American Thoracic Society criteria, were extracted and the epidemiology and clinical information were evaluated. [Results] NTM was cultured from respiratory samples from 416 patients and the most common NTM was *M. abscessus* complex (n=127; 30.5%), followed by *M. intracellulare* (n=85; 20.4%). Of these, 114 patients were diagnosed as NTM lung disease and the most detected pathogen was *M. abscessus* complex (n=41; 36.0%), followed by *M. intracellulare* (n=31; 27.2%). Eight tracheotomized patients were included and all cases were infected with RGM (RGM 14.3% vs MAC 0%, p=0.0232). Chest CT evaluation revealed bronchiectasis and nodular shadows were less frequent in RGM patients compared with MAC patients. [Conclusion] *M. abscessus* was the most common pathogen causing NTM lung disease in this study and RGM was frequently isolated from tracheotomized patients.

PS57

The Impact of bronchodilator (LAMA, Glycopyrronium) on previous Tuberculosis history patients with chronic airway obstruction

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Introduction
History of pulmonary TB has been linked with developing chronic airway obstruction (CAO) disease. Many patients have impaired PFT after completing TB treatment.

Aims
This study aimed to investigate the impact of bronchodilator in the PFT, biomarkers, and effects in reducing symptoms on CAO patients with TB history.

Methods
Subjects presented with COPD symptoms in GOLD guideline B, C, D, they were then subdivided into 3 groups based on their medical histories: (A) COPD; (B) old TB and COPD; (C) old TB and CAO without smoking. Serum levels of hs-CRP, fibrinogen, PFT clinical symptoms were assessed at the baseline, 3 months and 6 months after using bronchodilator (Glycopyrronium).

Results
A total of 87 subjects were enrolled. The mean serum level of hs-CRP, fibrinogen, and FEV1 at baseline had dropped after 6 months of bronchodilators ($P<0.05$). When hs-CRP level was compared between Group A, B, and C, there was a correlation between the use of LAMA treatment and patients with smoking history. Indeed, mMRC and CAT score were reduced after LAMA treatment.

Conclusion
The application of bronchodilator improved the levels of PFT, biomarkers, and clinical symptoms in all CAO patients. It had correlation to previous history of TB and smoking history.

PS58

Talc pleurodesis; It's not for everyone

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Malignant pleural effusion (MPE), especially from lung cancer, heralds an overall poor prognosis. In addition to the human cost of distress and morbidity, it contributes to rapidly rising healthcare burden. There has been recent renewed interest in comparing chemical pleurodesis with indwelling pleural catheter (IPC). Hospital length of stay (LOS) and complications of chemical pleurodesis were frequently cited disadvantages. We conducted a retrospective review of talc pleurodesis performed for MPE between 1st Jul 2011-31st Dec 2013 on: 1. Efficacy 2.Talc pleurodesis-related complications including an audit on LOS. 120 patients were identified using pharmacy's records of electronic talc prescription and with diagnosis of MPE. 77 (63.6%) were primary lung cancer. 26 (22%) patients died within 30 days of intra-pleural talc administration. 69 (73%) had successful pleurodesis. The median total LOS and LOS-effusion related were 16 and 13 days respectively. Overall median survival was 6 months. Talc-related complications were fever: 66 (57.9%), pain: 48 (43.2%), arrythmias: 21 (18.6%), hypoxaemia: 16 (14%) and pleural infection: 1 (0.8%). 21% of patients with fever had unscheduled venepunctures and 35% were prescribed antibiotics. The extended LOS was attributed to 1. Days required for complete drainage of effusion before pleurodesis 2. CXR not routinely performed prior to talc administration. 3. Completion of IV antibiotics in response to post-talc fever. 4. We also noted more patients with fever and hypoxaemia compared to previous studies.

PS59

Primary Sjogren's syndrome presenting unilateral bloody pleural effusion complicated with Waldenstrom's macrogloburinemia

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Although primary Sjogren's syndrome (SjS) is associated with pulmonary complications such as nonspecific interstitial pneumonia, pleuritis is a rare pulmonary complication of SjS. SjS accompanied by bloody pleural effusion has not been reported. We report the case of a 61-year-old patient with primary SjS who developed bloody unilateral pleuritis with Waldenstrom's macroglobulinemia (WM). SjS and WM were diagnosed through lip biopsy and bone biopsy, respectively. The patient was first treated with cyclophosphamide (CPA) for WM, since she had an embolism on the eyeground due to hyperviscosity syndrome. However the bloody pleural effusion was not controlled despite a decrease in serum IgM levels. Because her leucocyte count decreased to 1000/μl, CPA therapy was discontinued and she was started on oral corticosteroid therapy. As soon as prednisolone therapy (PSL) was initiated, the bloody pleural effusion began to abate. Pleuritis did not recur even when CPA was re-started along with the PSL. This suggested that the bloody pleural effusion was mainly due to primary SjS. This is the first case report of primary SjS complicated with WM presenting as a bloody pleural effusion. The patient's pleuritis has not recurred in more than 8 years since the original diagnosis.

PS60

Tuberculosis and asthma: a systematic review

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Background Both tuberculosis and asthma cause significant morbidity and mortality. Tuberculosis is strongly associated with structural lung disease, but no systematic review has evaluated the association between tuberculosis and asthma. Methods We performed a systematic literature review (in accordance with PRISMA guidelines) of studies that quantified the effect of previous tuberculosis on asthma prevalence for individual subjects. Studies that assessed tuberculosis infection rather than disease, case reports and case-series were excluded. The National Heart Lung and Blood Institute quality assessment was used to assess internal validity and risk of bias for each study. A random effects model was used for the meta-analysis to calculate a pooled effect estimate. Results Of 2172 abstracts identified, just 4 studies met the inclusion criteria and were included in the quantitative analysis. All included studies provided individual level data on exposure and outcome from subjects (n=284,466). Quality was assessed as "fair" or "good". Heterogeneity was considered moderate across studies (I^2 63% and Tau^2 p= 0.03). Included studies demonstrated an increased risk of asthma following tuberculosis disease, with the overall Odds Ratio estimated at 1.94 (95% Confidence Interval 1.56-2.41) among people with previous tuberculosis compared to community controls. Conclusion A history of tuberculosis disease is associated with an increased risk of asthma.

PS61

Relation of ADRB2 and ACE gene polymorphisms and clinical parameters of COPD in Mongolian patients

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Background: Recent studies have established that rs1042713, rs1042714 and rs4646994 polymorphisms may have an influence on COPD development and severity. The aim of this study was to investigate the association of *ACE* and *ADRB2* gene polymorphisms in the Mongolian patients.

Material and Methods: 100 patients with COPD and 100 healthy volunteers were randomly involved in the case-control study. The gene polymorphisms were identified by PCR and restriction fragment length polymorphism analysis. Statistical analysis was performed by STAT13.0 and SNPalyze software.

Result: No significant differences were observed for allele and genotype frequencies of rs4646994 polymorphism in *ACE* gene between case and control groups (p>0.05). Genotype frequencies of Gly/Gly16 (OR=2.31; 95% CI, 1.23-4.32, p=0.027) and Gln/Gln27 (OR=2.04; 95% CI, 1.14-3.63; p= 0.044) of *ADRB2* gene was more frequent in COPD patients than the controls. Also, proportion of Gly16+Gln27 haplotype was statistically different between both groups (OR=2.62; 95% CI, 1.65-4.15; p<0.001).

Conclusion: There is no relation between rs4646994 polymorphism in *ACE* gene and COPD. But the homozygote Gly/Gly16 and Gln/Gln27 variations of *ADRB2* gene may increase the carrier's susceptibility to the development of COPD.

Key words: Chronic obstructive pulmonary disease, single nucleotide polymorphism, angiotensin converting enzyme, beta-2 adrenergic receptor

PS62

EPHX, GSTM1 AND GSTT1 gene polymorphisms in Mongolian patients with COPD

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Background: The genetic variations on certain genes, such as rs1051740, rs 2234922 polymorphisms in *EPHX* gene, and deletion on *GSTM1* and *GSTT1* genes that might be associated with COPD susceptibility and development. To investigate the association of *EPHX*, *GSTM1* and *GSTT1* gene polymorphisms with COPD.

Materials and Methods: The study subjects were 100 patients with COPD and 100 healthy volunteers. The genotypes were identified by restriction fragment length polymorphism analysis. Statistical analysis was performed by STAT 13.0 and SNPalyze software.

Result: None of rs1051740 and rs2234922 polymorphisms observed significant association with COPD. Proportion of GSTM1-null (OR=2.26; 95% CI, 1.28-3.98; p=0.0046) and GSTT1-null (OR=2.0; 95% CI, 1.16-3.59; p=0.01) genotypes were significantly higher in patients with COPD.

Conclusion: There is no significant association was observed rs1051740 and rs2234922 polymorphisms with COPD. However, GSTT1-null and GSTM 1-null genotypes were associated with an increased risk of COPD in Mongolian population.

Key words: Chronic obstructive pulmonary disease, polymorphism, epoxide hydrolase, glutathione S-transferase

PS63

Clinical comparison study of T-SPOT, QFT and QFT-Plus for Immunodiagnosis of active pulmonary tuberculosis in the elderly.

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Active TB patients are still moderately common in Japan, particularly among the elderly. Interferon-γ release assays (IGRAs) have revolutionized the immunodiagnosis of tuberculosis (TB) infection by using blood samples. Three IGRAs are currently available; T-SPOT®.TB (T-SPOT), QuantiFERON®-TB Gold (QFT) and newly developed QuantiFERON®-TB Gold plus (QFT-Plus). Active 57 TB patients (>80 years old) were recruited from referral or contact investigation. TB infection was confirmed by cell culture or LAMP/PCR. T-SPOT, QFT and QFT-Plus were tested head to head as per the manufacturer's instructions.

Sensitivity of each IGRA was as follows: T-SPOT 41/57 (71.9%), QFT 51/57 (89.5%) and QFT-Plus 53/57 (93.0%). Both QFT and QFT-Plus had higher sensitivity than T-SPOT (p<0.02 and P<0.004 respectively). Two of the 3 QFT indeterminates were positive for QFT-Plus due to TB2-Nil >0.35 IU/mL. The CD4+ cells less than 200/μL in blood was observed in 23 cases (40.4%). Sensitivity of each IGRA in the TB patients with CD4+ cell counts < 200/μL was as follows: T-SPOT 65.2%, QFT 73.9% and QFT-Plus 82.6%.

The results suggested that newly developed QFT-Plus with TB1 and TB2 might have a high performance for the detection of TB patients, especially with lower CD4+ cell counts such as HIV and/or high aged subjects.

PS64

Cycloserine; Microdialysis; Pharmacokinetics; Pharmacodynamic; High performance liquid chromatography mass spectrometry/mass spectrometry

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Objective: To investigate the pharmacokinetics of cycloserine in healthy rat blood and lung tissues

Method: Healthy rat blood and lung tissues were sampled in vivo by microdialysis sampling technique simultaneously. The concentrations of cycloserine in both blood and lung tissues were measured by high performance liquid chromatography mass spectrometry. All date were analyzed by Win-Nonlin software

Results: The maximum concentration of free cycloserine in blood and lung tissue was (10.61±2.42) mg/L and (1.53±1.71) mg/L at 1 h and then both continued to decline. After administration the concentrations of free cycloserine in the blood has been higher than the concentrations in lung tissues. The area under the concentration curve (AUC) of free cycloserine was (33.53±6.51) h.mg-1.L-1 in blood and (4.49±2.08) h.mg-1.L-1 in lung tissues.

Conclusion: Microdialysis sampling technique combined with high performance liquid chromatography mass spectrometry/mass spectrometry can be accurately and objectively reflect the drug in the blood and tissues of the pharmacokinetic characteristics of cycloserine. Concentrations in lung tissues were significantly lower than concentrations in blood.

PS65

Selective destruction of IL-23 signal expansion of major Ag-specific γδ T-cell subset in TB patients

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Loses of Ag-specific T-cell responses due to cytokine signaling impotency after infections have not been demonstrated. We hypothesize that tuberculosis (TB) can destruct signaling effects of selective cytokine(s), and exhaust Ag-specific T cells in response to the respective cytokine. To test this, mechanistic studies were conducted to examine whether and how TB destructed IL-23 and IL-2 signaling effects on HMBPP-specific Vγ2Vδ2 T cells. IL-23 and IL-2 distinctly expanded Vγ2Vδ2 T cells from subjects with latent TB infection, and IL-2 synergized the IL-23 effect. IL-23 expansion of these γδ T cells involved STAT3. Surprisingly, TB patients exhibited selective destruction of IL-23 expansion of Vγ2Vδ2 T cells. TB-driven impairing of IL-23 signaling coincided with decreases in expression and phosphorylation of STAT3. Interestingly, impairing of STAT3 was linked to marked increases in hsa-miR-337-3p and hsa-miR-125b-5p in Vγ2Vδ2 T cells from TB patients. Silence of TB-induced increases in miRNAs could improve the IL-23-mediated expansion of Vγ2Vδ2 T cells and their capability to produce anti-TB cytokines. These results support our hypothesis that TB can selectively impair a cytokine effect while sparing another, and induce exhaustion of T cells in response to the respective cytokine.

PS66

A POSSIBLE SOLUTION FOR IMPROVING THE QUALITY OF CHEST RADIOGRAPHY BASED ON THE EXPERIENCES IN RESOUCE CONSTRAINED SETTINGS

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The quality of chest radiography (CXR) depends on the skills of radiological technologists (RTs) who manipulate X-ray units. RIT/JATA has conducted a four-day training since 2008 in Asian and African countries. The course contents were based on a handbook developed by the Tuberculosis Coalition for Technical Assistance in 2008.

To figure out the possible solutions for improving the quality of CXR by evaluating the capability of the RTs who attended the training in three different countries, Philippines, Laos, and Viet Nam.

At the first and the final days of the semi-standardized four-day training, participants were asked to have standardized identic pre- and post-tests. Before and after the training, the key X-ray factors were compared and the quality of CXR was evaluated by the method described in the TBCTA handbook.

Although X-ray facilities in the countries were varied, the results indicated some improvements of the quality of CXR and capability of RTs.

Despite modern medical imaging technology is drastically expanding globally, it's regretted that RTs in resource limited settings have insufficient opportunity to receive continuing education. The results imply this sort of training will be a possible solution for better quality of CXR examination, especially in resource limited settings.

PS67

The value of pro-inflammatory cytokine interleukine-2 concentration in pleural fluid to differentiate tuberculosis pleurisy from non tuberculosis pleurisy patients

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Tuberculous pleurisy occurs in 15% of disease and its diagnosis remains a challenge. Cytokines are important in the pathogenesis of TB and interleukine-2 (IL-2) is considered as powerful cytokine in pleural effusion development. The aim of this study is to investigate the usefulness of IL-2 in pleural fluid to differentiate tuberculous pleurisy from non tuberculous pleurisy.

This prospective cross sectional study, was performed in Hasan Sadikin referral hospital. We included 79 patients with pleural effusions and 47 of them confirmed as TB pleuritis with microscopically acid fast bacilli staining, Ogawa culture and polymerase chain reaction. The IL-2 concentration was determined in pleural fluids using ELISA.

We found significant difference of IL-2 concentration between tuberculous pleurisy and non tuberculous pleurisy (median 8.2 and 26.8 ; 95% CI 10.4-98.6; p0.001). Area under curve (AUC) with ROC analysis found for IL-2 was 0.727 at >55.7 pg/mL as cut of point (95% CI 0.615 to 0.821; p 0.002) with 59.6% sensitivity and 7.5% specificity. The regression coefficient of IL-2 concentration to determine the pleuritis TB was 1.670 (95% CI 1.254-22.492; p 0.023).

This findings showed that IL-2 concentration in pleural fluid is useful tool to differentiate TB pleuritis from non TB pleuritis.

PS68

SHORT-TERM EFFECTIVENESS OF A TRAINING COURSE ON THE QUALITY OF CHEST RADIOGRAPHY IN VIET NAM

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Objective
The authors conducted a training course on chest radiography (CXR) quality assurance for radiological technologists (RTs) to enhance their skills in Viet Nam. This study aims to evaluate the short-term effectiveness of the training course.

Methods
A cross-sectional and observational study was conducted, including a questionnaire survey of government X-ray facilities selected by the National Tuberculosis Control Programme in Viet Nam, and CXR film assessment comparing those films taken before and after the training. The four-day training course was based on the handbook developed by the Tuberculosis Coalition for Technical Assistance. Essential characteristics of X-ray facilities were descriptively summarized. The sum of assessment scores for each of the six assessment factors was analyzed.

Results
Twenty one RTs across Viet Nam participated in the training course and successfully submitted 12 CXR films, i.e., 6 CXR films each before and after the course. Participants adjusted the x-ray factors, e.g., higher kV (P=0.003) and shorter exposure time (P<0.001). Three assessment sum scores, i.e., patient positioning (P=0.005), density (P=0.01), and contrast (P=0.01) in addition to the total score (P=0.04) indicated significant improvement after the training course.

Conclusion
The four-day training course has demonstrated at least short-term positive impact on CXR quality improvement.

PS69

Development of an isothermal recombinase polymerase amplification assay for rapid detection of Mycobacterium tuberculosis

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We developed an isothermal IS*6110* recombinase polymerase amplification (RPA) kit with lateral-flow readout for rapid TB diagnosis. We used 4 *Mycobacterium tuberculosis* (MTB) and 35 nontuberculous mycobacteria (NTM) reference strains for validation. 105 sputum specimens with various AFB smear results, negative (n=6), scanty (n=20) and positive (n=79), were used. The IS*6110* real-time PCR was conducted in parallel. Culture result was used as the gold standard. All of the NTM species tested were found to be negative. Of the 105 sputum specimens, 6 were culture-negative and 99 were culture-positive including 70 MTB and 29 NTM. The detection limit of the RPA kit was 120 cfu/mL. Compared to culture results, of the 105 sputum specimens tested, the overall sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of the RPA test were 85.7%, 100.0%, 100.0% and 77.8%, respectively. Moreover, for smear-positive specimens, the sensitivity, specificity, PPV and NPV values of the RPA test were 94.9%, 100.0%, 100.0% and 87.0%, respectively. Whereas, for smear-positive sputum specimens, the sensitivity, specificity, PPV and NPV values of the real-time PCR were 98.3%, 85.0%, 95.1% and 94.4%, respectively. The RPA kit demonstrated comparable results with the real-time PCR and had better specificity and PPV for smear-positive sputum specimens. The turnaround time is 70 minutes. Our RPA kit is low-cost and can rapidly detect TB.

PS70

Genetic Polymorphism of Whole Genome Sequencing for 1,184 Clinical Isolates Analysis Reveals a New RD Signature for M. tuberculosis Lineage I (Indo-Oceanic)

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The genetic diversity of *Mycobacterium tuberculosis* becomes globally interesting for understanding of the unfavorable outcome of tuberculosis infections with different *M. tuberculosis* lineages. Structure variations (SVs) including large sequence polymorphism (LSP) and single nucleotide polymorphism (SNP) have been used as one of genetic determinants for lineage typing for *M. tuberculosis*, when compared with the reference strain, H37Rv. The LSP or genomic region of difference (RD) can classify *M tuberculosis* into six main lineages: lineage 1(Indo-Oceanic): RD239, Lineage 2 (East-Asian or Beijing): RD105, 207,181, 150,142, Lineage 3 (East-African-Indian): RD 750. Lineage 4 (Euro-American): RD183,193, 219, Lineage 5 (West African I): RD711 and Lineage6 (West African II): RD702

Recently, the next generation sequencing (NGS) becomes more an informative approach for genomic analysis. In this study, we, therefore, investigated 1,184 clinical *M. tuberculosis* isolates for SNP using GATK/samtools platform and determined the RD based on the read-depth sequencing analysis. Of the 1,184 clinical strains, four lineages were identified: Lineage 1 (n= 486, 41%), Lineage 2 (n=519, 44%), Lineage 3 (n=11, 1%) and Lineage 4 (n= 163, 14%). Our preliminary result also revealed that the RD147c (2,303 bp deletion), is a new specific signature for Indo-Oceanic lineage.

PS71

Natural Classification of the TbD1 positive lineage of Mycobacterium tuberculosis by whole genome sequencing

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Mycobacterium tuberculosis can be classified, based on the presence or absence TbD1 DNA segment, into the ancestral and modern lineages. While there have been many reports on the sublineage classification of the latter, the attempts on the ancestral lineage have been rather limited and based mainly on spoligotyping. The TbD1 positive lineage is common in Eastern Africa and South Asia as well as South East Asia, including Thailand. The genomes of 487 TbD1 positive isolates from chronic pulmonary tuberculosis patients in Chiangrai province, Northern Thailand, were characterized by whole genome sequence. All isolates also had the RD239 deletion. The phylogenetic tree of them was constructed, based on the single nucleotide variances, using several isolates belonging to the modern lineage as outgroups. The results were compared with the polymorphism of the sequences of the Direct Repeat region as well as the IS6110 polymorphism profiles. It was found that although all isolates with East African Indian spoligotypes were TbD1 positive, the reverse is not true. Detailed subclassification of the TbD1 positive lineage was obtained and is not totally congruent with spoligotyping. These results provide the basis for investigation of microbiological, pathological, clinical and epidemiological characteristics of the TbD1 positive lineage.

PS72

Withdrawn

PS73

Naked-eye colorimetric and electrochemical detection of Mycobacterium tuberculosis-towards rapid screening for active case finding

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Despite recent advances in detection strategies, Tuberculosis (TB) is still a significant global health problem, due to a lack of rapid, sensitive and low cost methodologies which contributes to this issue. In countries with developing health care systems, there is an urgent need to rapidly screen groups of people identified to have had contact with patients diagnosed with TB in order to halt the spread of the infection in their communities. To this end, we have devised a simple colorimetric assay that utilizes the chemical oxidation of 3,3',5,5'-tetramethylbenzidine (TMB) by isothermally functionalized DNA targets as a sensitive and specific biosensor for the detection of Mycobacterium tuberculosis. As TMB is also electrochemically active, we extended the method to electrochemical detection on cheap disposable electrodes, and compared the characteristics of both sensing methods.

Our assays are inexpensive (US$3), rapid (75 minutes), sensitive (approaching single cell) and highly specific to M. tuberculosis. We believe that our assay could potentially enable public health officials to quickly make important decisions related to the appropriate channelling of precious healthcare resources and form part of the solution to reduce lengthy time-to-diagnosis that is commonly associated with conventional approaches in these settings.

PS74

Clone, expresses and purification of recombinant antigen Rv3480c in Mycobacterium tuberculosis

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Objective To clone, express and purify the recombinant antigen Rv3480c of Mycobacterium tuberculosis. Methods We used Mycobacterium tuberculosis H37Rv genome as template, amplified the gene encoding antigen Rv3480c by overlap PCR. PCR product was inserted into the expressional plasmids pET-28a and linked by T4 ligase. The recombinant plasmid was transformed into the host E.coli BL21 (DE3) strains. After plentiful amplification of E.coli BL21 (DE3) strains, protein expression was induced by IPTG, and purification finally. Results After the PCR amplification of Rv3480c gene, electrophoresis results showed that the location of the PCR gene fragment was in agreement with the target gene. The recombinant plasmid was successfully built. The best condition of inducible expression was 16 degrees, IPTG 1: 5000. Protein was expressed in inclusion body. We obtained the purified protein by urea solubilization of inclusion bodies and dialyzing in low concentration urea and PBS, and further western blotting confirmed the target protein. Conclusion We successfully constructed the recombinant expression plasmid pET28a-Rv3480c, and Rv3480c protein has been successfully expressed and been purified in E. coli. The application of the protein in clinic is being evaluated currently in our lab.

PS75

Single Nucleotide Polymorphism (SNP) Phylogeny of Thai Isolates of Mycobacterium tuberculosis Genomes

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There are a number of genotyping and evolution studies of *Mycobacterium tuberculosis* worldwide. That is because *M. tuberculosis* is a recombination free bacterium and no reports in horizontal gene transfer. Moreover, a reference phylogenetic tree is still important for further analyses in the evolution of *M. tuberculosis*. Here, we sequenced the genomes of Thai isolates of *M. tuberculosis* from ChiangRai Province, Thailand ($N=1,177$) using Illumina platform. The total of 71,873 positions of single nucleotide polymorphisms (SNPs) were identified and extracted from the genome sequences using *M. tuberculosis* H37Rv as a reference genome sequence. The SNP matrix ($1,177 \times 71,873$) was used for reconstruction the phylogenetic trees with the neighbor-joining (NJ) method. The NJ tree illustrated that all isolates of *M. tuberculosis* in ChiangRai Province were divided into four major clades, East-African Indian (EAI), Beijing, Central Asia and Euro-American clades. To improve the accuracy of the tree, we implemented maximum likelihood (ML) and Bayesian inference methods for reconstruction of the new phylogenies. The ML and Bayesian trees with bootstrap values and posterior probabilities will be presented. Analysis of SNP phylogenies will reveal us in the evolutionary relationship of *M. tuberculosis* in Thailand.

PS76

Quantitative PCR using ethidium/propidium monoazide for monitoring treatment outcome of tuberculosis patients

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Background: Nucleic acid amplification (NAT) methods are useful for the rapid diagnosis of pulmonary tuberculosis (TB). However, NATs cannot be used to monitor the treatment outcome, because they detect even dead bacteria. In this study, we developed the qPCR system for clear discrimination of viable *M. tuberculosis* (MTB) and accurate quantification of them in clinical specimen.

Methods: The qPCR systems using ethidium/propidium monoazide (EMA/PMA) are often used for detecting viable bacteria. EMA/PMA can intercalate into double-stranded DNA of dead bacteria through the impaired cell membrane, and inhibit denaturation of DNA in PCR process. The number of MTB H37Rv in the logarithmic growth phase was quantified by COBAS TaqMan MTB (Roche Diagnostics) with and without EMA/PMA. The total and viable (growing) numbers of MTB were counted with microscopy (total cell count) and culture (CFU count).

Results: The proportion of viable MTB using microscopy and culture were 50-100%. Those of TaqMan MTB with EMA and PMA were 38-100% and 12.5-60%, respectively.

Conclusions: We concluded that qPCR with EMA could quantify viable MTB H37Rv more accurately than with PMA. We will report the further results including the data of clinical specimens.

PS77

Early diagnosis of active TB is still difficult especially for elder patients.

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<background>Sometimes we experience cases of which early diagnosis with active tuberculosis (TB) is difficult.

<objective>To examine the difference between suspected and unsuspected TB cases.

<method>The patients who were newly diagnosed with active TB at our hospital from 2014 to 2015 were enrolled. Cases were divided into three groups; suspected before our hospital (SBH), suspected at our hospital (SAH), and unsuspected (US). Clinical and radiological Data were collected through medical record and compared between the three groups.

<result>The number of cases in each group was 55, 17, and 12 for SBH, SAH, and US group, respectively. Although significantly higher age, lower serum albumin was observed in US group, there was no significant difference in WBC, Lymphoid cells, CRP, HbA1c, and days taken for diagnosis between the three groups. There was significant difference in chief complaint and radiological calcification, but not in radiological cavity, T-SPOT positive predictive value, and past history of TB.

<conclusion>14% of newly diagnosed active TB at our hospital was not suspected with the disease at first visit. Higher age and lower rate of specific symptom might be the cause of delay of diagnosis.

PS78

The epidemiological significance and temporal stability for Mycobacterial Interspersed Repetitive Unit-Variable-Number Tandem Repeat (MIRU-VNTR) based methods applied in Mycobacterium tuberculosis circulating in China

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Background
This study attempted to obtain additional information about the applicability of MIRU-VNTR genotyping in a genetically and geographically diverse set of clinical isolates from patients with pulmonary tuberculosis in China.

Methods
Collected from three population-based investigations in rural China from 2010 to 2012, a panel of 982 strains of Tuberculosis complex were used to evaluate the epidemiological validation and temporal stability of combinations of MIRU-VNTR24 alone and those with additional hypervariable MIRU-VNTR loci.

Results
According to the heterogeneity, 4 novel combinations (based on 24-locus MIRU-VNTR) were determined, with the discriminative power comparable to 24-locus MIRU-VNTR and IS6110-RFLP genotyping. The proportion of temporally stable MIRU-VNTR loci ranged from 90.5% to 92.5% within the novel MIRU-VNTR combinations, which was comparable to 24-locus MIRU-VNTR (93.5%) but higher than IS6110-RFLP (85.4%). Meanwhile, the 4 novel combinations indicated more than 20% confirmed and possible epidemiological linkage by contact investigation and geographic congregation respectively, and showed 90.3% consistency with IS6110-RFLP.

Conclusion
We suggest panels of 24-Locus MIRU-VNTR genotyping with additional hypervariable loci which have high discriminatory power, epidemiological significance and a level of stability suitable for the Tuberculosis surveillance and outbreak investigation in China.

Keywords: MIRU-VNTR; Mycobacterium Tuberculosis; Epidemiological significance; Temporal stability; China

PS79

Meta-analysis of the Sputum Microbiome in Pulmonary Tuberculosis

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The lung has received less attention compared to other body sites in terms of microbiome characterization, and its study carries special technological difficulties related to obtaining reliable samples as compared to other body niches. Tuberculosis (TB) is a worldwide health problem with high morbidity and mortality. It is still unclear if changes in the lung microbiome composition are associated with pulmonary TB. Studies on the sputum microbiota on TB patients and controls have reported somewhat contradictory results.

A systematic NCBI PubMed searched identified 6 studies on sputum microbiome and TB with sequences available. Data from lower respiratory tract samples, i.e. sputum and/or bronchoalveolar lavage (BAL), in both TB cases and healthy controls was used for analysis. Sequence data was obtained and processed using mothur with default parameters. Normalization of data across studies was performed using cumulative-sum scaling (CSS) and the metagenomeSeq Bioconductor package. Overall, no statistical difference in the diversity nor in the detection rate between TB cases and healthy controls. However, there was a small difference observed between for one of the studies. PC regression revealed significant clustering of TB cases and controls (p <0.05).

A number of OTUs annotated for Proteobacteria, Actinobacteria, and Firmicutes were observed to be significantly abundant in the TB cases while OTUs associated with an unclassified Ruminococcaceae, unclassified Peptostreptococcaceae, and Clostridium_XVII were found to be significantly abundant in healthy controls.

Although our findings are narrowed by a limited number of studies, they underline the fact that the lung microbiome in TB patients differs from normal individuals and it is evident that Mycobacterium was not the most dominant genera in TB cases. Future larger studies may help validate a consistent presence or overrepresentation of genera in TB cases vs. controls and understanding the dynamic of lung microbiome and its dynamics in dysbiosis observed in TB patients may play a role in disease onset, progression, recurrence, and outcome after treatment. Understanding the composition of the lung microbiome in health and comparing it to that of pulmonary TB cases would elicit clues into the pathogenesis of *Mycobacterium tuberculosis* infection at the pulmonary alveolus and would help the design of promising treatment options for TB with potential direct beneficial consequences for patients and public health.

Key words: Tuberculosis, microbiome, meta-analysis

PS80

Pilot study of whole genome sequencing service for tuberculosis control in Thailand

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Background: Whole genome sequencing offers an effective approach for rapid detection of drug resistant tuberculosis and high resolutions of outbreak investigation.

Method: We set up laboratory procedure for whole genome sequencing using Ion PGM™ System. The genomes of 10 *Mycobacterium tuberculosis* clinical isolates in Thailand were sequenced and compared with the sequences from other sources. A bioinformatics pipeline was developed and applied to determine anti-tuberculosis drug resistance and pairwise pathogen relationship based on variations between these genomes.

Results: Concordance between genotypic and phenotypic drug susceptibility assay were 100% for rifampicin (*rpoB*), 100% for isoniazid (*katG* and *fabG1*-promoter), 80% for streptomycin (*rpsL*) and 100% for fluoroquinolones (*gyrA*). However, the concordance rate for ethambutol (*embB*) was low at 16.7% because a low-level resistance determinant of ethambutol, *embB* Gly406Asp, was found in 5 ethambutol-susceptible isolates. The analysis of single nucleotide polymorphisms provided a molecular evidence of 5 possibly linked isolates in a cluster. Total turnaround time for results was 7 days when the sequencing was performed on purified genomic DNA from culture.

Conclusions: We demonstrated the potential to utilize whole genome analysis for shortening time to detect drug-resistant tuberculosis including resistance to the second-line anti-tuberculosis drugs and early confirmation of tuberculosis outbreaks in Thailand.

PS81

Streamline and timely diagnosis of MDR-/XDR-TB using molecular tests

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We implemented an algorithm to improve utilization of molecular diagnostics for intensifying MDR-/XDR-TB case finding. The GeneXpert MTB/RIF (Xpert) test was used for initial diagnosis. Sample with *Mycobacterium tuberculosis* (MTB) positive and rifampicin resistance (RIFr) results is subsequently and simultaneously tested using the GenoType MTBDR*plus* and the GenoType MTBDR*sl* tests. We enrolled 1,827 MDR-TB high-risk individuals, 32.2% were relapse, 20.2% were failure, 2.4% were default, 1.2% was MDR-TB contacts, and 43.4% were from MDR-TB high incidence area/countries. Results of the Xpert test showed that 34.6% were MTB positive and 5.4% were RIFr. Of the 34 RIFr sputa analyzed using the GenoType MTBDR*plus* and GenoType MTBDR*sl* tests, we identified 16 mono-RIFr TB and 18 MDR-TB cases, including 10 FLQs & SLIDs, 2 FLQr & SLIDs and 4 FLQs & SLIDr and 2 did not have enough samples for analysis. Besides, 2 mono-RIF[r] TB cases were FLQs & SLIDr. Among 18 MDR-TB cases, 3 were failure, 10 were relapse, 1 was MDR-TB contacts, and 4 were from MDR-TB high incidence area/countries. The turnaround time for detection of MDR-/XDR-TB was 2 working days. The time form MDR-/XDR-TB diagnosis to treatment is significantly reduced by introduction of molecular rapid tests to our control program.

PS82

Drug resistance mutations in M. tuberculosis isolates from rural participants of TB prevalence survey

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Introduction: Multidrug-resistant (MDR) *Mycobacterium tuberculosis* (TB) infection requires rapid detection/identification, and the molecular method will help the appropriate case management and infection control. This study aimed to evaluate drug resistance and determine the major mutations in INH and RIF resistant among isolates from prevalence survey.

Materials and methods: A total of 102 *M. tuberculosis* complex isolated from rural participants of national TB prevalence survey in 2015 were tested for Genotype® MDRTB*plus* (Ver.2 Hain lifescience GmbH, Germany) assay.

Results: Of 102 isolates, 73 (71.6%) were fully susceptible, while 10 (9.8%) and 18 (17.7%) were MDR and INH mono-resistance, respectively. One isolate (0.9%) was hetero-resistant. *katG* and *inhA* mutations were observed in 12 (41.4%) and 17 (58.6%) among 29 INH resistant isolates. The *katG*, *inhA* and *rpoB* mutations observed in these cases were S315T, C-15T, and S531 L, respectively. MDR was found in 9.6% (8/83) and 11.1% (2/18) among new and previously-treated cases, respectively.

Conclusion: Prevalence of MDR and INH resistance was relatively high in both of new and previously-retreated cases. The variation of mutations observed in the isolates was limited to specific alleles. Further molecular epidemiological study will be required to analyze the route of transmission in the rural community.

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PS85

A combined use of social network analysis and geographic information system in understanding the transmission dynamics of tuberculosis in an urban setting in Japan

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Objective: To understand the transmission dynamics of tuberculosis in urban city in Japan by using social network analysis and geographic information system.

Method: We prospectively collected and analyzed demographic, clinical, social activity and tuberculosis genotype cluster information of active tuberculosis patients newly notified between January 2015 and August 2016 in one urban district of a city in Japan. Using a social network software, a sociogram, showing a network of patients and places they frequented, was drawn and degree centrality was calculated for each place. The geographical distribution of these places was then analyzed using the geographic information system.

Results: The data of a total of 47 tuberculosis patients and the 133 places frequented by the patients were analyzed.

The place with the highest degree centrality, indicating that it was most frequented by the patients, was a central commercial area of the district with a large train station. Other places with degree centrality higher than the average were sporadically distributed around the commercial zones. However, a place with moderate degree centrality was located in the periphery of the district.

Three genotype cluster groups were identified - the sociogram indicated that those in the same cluster group frequented the same places.

PS86

The contribution of a non-governmental organisation's Community Based Tuberculosis Care Programme to case finding in Myanmar: trend over time

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Background
The standard, passive case finding (PCF) strategy for detecting cases of tuberculosis (TB) patients in Myanmar has not been successful: 26% of cases are missing. Therefore active case finding (ACF) by community volunteers, have been initiated since 2011. This study aimed to assess the contribution of a Community Based TB Care Programme (CBTBC) by local non-governmental organizations (NGOs) to TB case finding in 84 project townships in Myanmar between 2011 and 2014.

Methods
This was a descriptive study using routine, monitoring data. Original data from the NGOs was sent to a central National TB Programme and data were extracted.

Results
Over time, the number of referred presumptive TB cases decreased, except in the Yangon Region, although in some areas, the numbers fluctuated. A trend for the proportion of cases treated, compared to those referred decreased over time (p=0.051). Overall, the contribution of CBTBC to total case detection deceased over time (p<0.001).

Conclusions
Contrary to evidence from previous studies, a concerning reduction in TB case finding by local NGO volunteer networks in Myanmar over four years. Therefore measures to support the volunteer network such as incentives, closer supervision and improved monitoring and evaluation tools and improve its performance are needed.

PS87

Health-related quality of life assessment in pulmonary TB patients

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Background

Pakistan ranks fifth amongst TB high-burden countries globally. Health-related quality of life (HRQoL) is important for care, policy and preventative strategies. This study aims to understand the effect of tuberculosis and its treatment on patient's HRQoL.

Methods

This is a prospective follow-up of patients (18-65 years) diagnosed with susceptible pulmonary TB at the Indus Hospital, Karachi (July-December 2015). EQ-5D-3L consists of 5 questions/dimensions: mobility, self-care, usual activity, pain, and anxiety with 3 levels, level 1: no problem, level 2: some problem and level 3: extreme problem. Utility values of the health outcomes were calculated based on population studies, ranging from <0-1. EQ-5D-3L was administered before treatment and at monthly intervals for six months till treatment completion for eligible patients.

Results

In total, 229 patients completed the survey, 117 males and 112 females. The mean health utility value before treatment was 0.43 (SD: 0.37) and after treatment was 0.88 (SD: 0.11). The greatest increase in health utility was in the first month of treatment (0.17)

Conclusion

Increase in perceived health utility in the initial stages of treatment has been linked to loss-to-follow-up. This indicates a need to enhance efforts to follow-up patients after this stage for treatment completion.

PS88

Anxiety and depression among diagnosed TB patients seen at the UP-PGH using the validated Filipino version of the hospital anxiety depression score (HADS-P)

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Anxiety and depression are co-morbidities of chronic illnesses, and the Hospital Anxiety and Depression Score Filipino version (HADS-P), is a tool that is utilized in its diagnosis. Burden of illness and its negative impact among tuberculosis patients is a field that needs investigation, especially in strengthening compliance; early holistic intervention together with addressing their psychiatric needs. The objective is to determine the prevalence of anxiety and/or depression using HADS-P among diagnosed TB patients.

Participants were evaluated using the validated HADS-P questionnaire in a cross-sectional, descriptive study.

Sixty-nine subjects were enrolled showing anxiety in 2.90%; depression in 8.7%; and none for having both anxiety/depression. Significant variables with likelihood of developing anxiety include: smoking status, number of pack-year smoking, level of physical activity, presence of complications, and organ involvement. Depression was noted to be significant with the presence of disabilities.

Tuberculosis, a chronic condition that affects the daily lives of patients, has a relatively lower frequency of anxiety and/or depression in the Filipino population, owing to cultural differences and disease perception. Screening for psychiatric disorders is pertinent to provide holistic care to vulnerable populations.

ABSTRACT

PS89

POST-2015, why delay to seek health care? Perceptions and lived experiences of TB health care providers in the northern region-Malawi

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Background

Malawi is a low-income country with heavy Tuberculosis (TB) burden. Although national TB control program has made remarkable achievements, TB diagnosis delay is still a major problem at present. Health sector plays a key role in Malawi's TB control. This study aimed to understand TB diagnosis delay from health care providers' perceptions and experiences. Supported by Chinese government scholarship, the investigators developed the study mainly based on Chinese experience.

Methods

Nine focus group discussions were conducted with 57 participants. The participants were TB officers, clinicians, nurses, lab technicians and community health workers. A semi-thematized guide was utilized. The discussion sessions were audio recorded and transcribed. Content analysis using NVivo (11.0) was applied in data analysis.

Findings

Three themes for factors influencing diagnosis delay were developed under the clients, institutions and health care providers respectively. Client's belief, stigma and fear for HIV test, shortage of resources and weak capacity in health facilities, lack of community involvement and bad attitude of health care providers towards TB suspect clients were among the influencing factors.

Conclusion

The TB control strategies should aim to reduce HIV stigma, improve resource supply and improve TB health workers' morale in order to achieve timely TB diagnosis.

PS90

A comparative study of tuberculosis diagnosis delays in China and Malawi

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Background:

Although remarkable achievements in meeting the MDG-TB control targets globally, timely diagnosis of TB is still problematic in high TB burden countries. This is a comparative study to understand the diagnosis delay in China and Malawi, and to share experiences for a timely TB diagnosis between these two high TB burden countries.

Methods

Cross sectional studies using questionnaire interviews were conducted in northern Malawi and eastern China. Patient delay was the period between symptom onsets to first health facility visiting while hospital delay was from the first visit to TB diagnosis.

Results

Totally 254 and 146 smear positive TB patients were continuously recruited during the study period. The medians of patient delay were 20 and 22 days in China and Malawi (p=0.144). Hospital delays in median were 10 days in China, significantly lower than the 12 days in Malawi (p=0.021). Age and seeking care in village health posts or pharmacies were found significantly associated with hospital delays in China.

Conclusion:

The 3-weeks patient delay was close to the suggested screening time for TB symptoms, whereas hospital delay became the major concern for a timely TB diagnosis. Both settings need to enhance the TB health service for a better accessibility.

Key words: Tuberculosis, delay, China, Africa

PS91

The Failure Treatment of MDR-TB in Three Generations: A Case Study of the Household in Northeastern, Thailand

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This study was aim to explain the failure treatment of MDR-TB patient in three generations within one household. This qualitative research was explored the household in the province located at northeastern Thailand; 5 patients of three generations in one household and failure treatment of MDR-TB were including to study. The data was analyzed by content analysis. Finding: Grandmother, 78 years old, have had twice treatments and still alive. Parents; mother was failure treatment and died causing from MDR-TB at 54 years old causing from not compliance to drug, and father was default treatment because of the alcohol consumption, the second treatment was cured but died at 61 years old. The son and daughter were default treatment caused from the household problem of economic, drug addicted, alcohol, and divorces. Elder brother was not return to treatment while his symptom was getting worse whereas younger sister, 21 year old, was returned to continue treatment for 4 months. The causes of failure treatment were poor economic, household problem, and drug addicted. Only the medication was not the answer of cured/successful treatment, but the socio-economic and the understanding the patient's context was crucial equally the medication care in MDR-Tb patient.

PS92

Transcultural adaptation and validation of Korean version of brief illness perception questionnaire for patients with pulmonary tuberculosis

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Background: The brief illness perception questionnaire (BIPQ) has been used in many illness populations for both adults and children, and provides a rapid assessment of illness perception. This study was performed to translate and adapt the BIPQ into the Korean language for patients with pulmonary tuberculosis.

Methods: Translation and transcultural adaptation of BIPQ into a Korean version was performed according to internationally recommended guidelines. Internal consistency, test-retest reliability, concurrent validity, and discrimination validity were evaluated. In order to assess the discrimination validity, the BIPQ scores were compared between pulmonary TB and chronic obstructive pulmonary disease (COPD).

Results: Sixty-eight patients with pulmonary TB were participated in this study. A Cronbach's α coefficient was 0.753, which indicated satisfactory internal consistency. The concurrent validity showed significant correlations (Pearson's correlation of 0.753). Consequence, timeline, identity, illness concern, and emotional representation were positively correlated with TBscore. The test-retest reliability was confirmed with an intra-class correlation coefficient of 0.892. Total score of BIPQ in patients with COPD was significantly higher than that of pulmonary TB (37.67 vs. 30.85; p-value=0.005), which supports the discrimination validity.

Conclusions: The Korean version of BIPQ was found to be a reliable and valid questionnaire for patients with pulmonary tuberculosis.

PS93

Withdrawn

PS94

High-dose vitamin D3 during intensive phase treatment of pulmonary tuberculosis in Mongolia: a double-blind randomised controlled trial

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Introduction and Objectives

Our objective was to conduct a large randomised controlled trial of high-dose vitamin D in a setting where profound vitamin D deficiency was common in patients with pulmonary TB.

Methods

390 participants were allocated to receive 3.5 mg vitamin D_3 (n=190) or placebo (n=200) at baseline and at 2, 4 and 6 weeks after starting standard tuberculosis treatment. The primary endpoint of the trial was time from initiation of antimicrobial therapy to sputum culture conversion.

Results

At baseline, 81% of participants had profound vitamin D deficiency. Vitamin D supplementation elevated 8-week serum 25(OH)D concentrations to high-physiological levels but did not influence time to sputum culture conversion. Allocation to vitamin D was associated with accelerated sputum smear conversion (adjusted HR 1.47, 95% CI 1.09 to 1.98, P=0.01) and a small but statistically significant reduction in the mean number of zones affected on chest radiograph at 8 weeks

Conclusions

This is the largest randomised controlled trial to investigate effects of adjunctive vitamin D on time to sputum culture conversion in pulmonary tuberculosis conducted to date. Adjunctive high-dose vitamin D was effective in elevating serum 25(OH)D concentrations to high-physiological levels, but did not influence time to sputum culture conversion.

PS95

Simultaneous quantification of first line anti-tuberculosis drugs in human plasma by development and validation of liquid chromatography tandem mass spectrometry method

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A sensitive and rapid liquid chromatography tandem mass spectrometry (LC-MS/MS) method was developed to simultaneous plasma drugs level measurement of Isoniazid (INH), Rifampicin (RMP), Pyrazinamide (PZA) and Ethambutol (EMB), first line antituberculosis. Samples with the spiked drug standards were extracted using protein precipitation, and then separated on ACQUITY UPLC BEH amide column and detected with mass spectrometry using isocratic elution of 0.1% formic acid in water and acetonitrile (50:50, v/v). Separation of all analyses was detected under positive ionization mode by multiple reaction monitoring (MRM) and achieved completely with the 6 minutes run time. Interassay calibrated variability data obtained through concentrations of 0.25-25 ug/ml for INH and PZA, 0.1-5 ug/ml for RMP and 0.05-2.5 μg/ml for EMB. The calibration curves were linear over a 50-fold concentration range ($r^2 \geq 0.995$). Within-run and between-run precision (%CV) were 2.2-10.3% and 2.9-13.2%, respectively, at concentration representing low and high levels for four drugs. The performance of our MS/MS detection technique was generally acceptable. The method provided rapid, sensitive and reproducible quantification of first-line anti-TB drugs enabling therapeutic drug monitoring(TDM) for tuberculosis.

PS96

Polymorphisme of genotype N-acetyltransferase 2 (NAT2) in the early treatment failure tuberculosis patient in North Jakarta population: a pharmacogenetic study

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BACKGROUND

Polymorphisms N-acetyltransferase 2 (NAT2); might affect the outcomes of treatment of Tuberculosis patients as reported in some studies in Asia, might also associated with the risks of drug-induced hepatotoxicity in tuberculosis patients.

OBJECTIVE

This study is focused on the identification of NAT2 polymorphisms in the naive TB patient who experienced early treatment failure in conventional standard regimen; a 6-month regimen comprising INH, rifampicin, pyrazinamide, and ethambutol/streptomycin, in a population of patients treated in primary health care in North Jakarta.

METHODS

A group of 30 TB naive patients from Pademangan District in North Jakarta, Indonesia, who had early treatment failure was subjected to NAT2 genotyping. Direct sequencing of DNA was used to detect all NAT2 polymorphisms/variations and for genotyping.

RESULTS

Twenty six TB patients, 23.1% were slow acetylators and 76.9% were rapid acetylators. The frequency of NAT2*4, NAT2*6, NAT2*7 and NAT2*13 alleles was 0,769, 0.077, 0.038 and 0.115, respectively. The most prevalent genotypes are those which encode fast acetylation phenotype. Around 26.9%, 50.0% and 23.1% of TB patients who undergone early treatment failure carried the slow, the intermediate and the fast-encoding genotypes, respectively.

CONCLUSION

Further study relating the possibility of tailored dosing of isoniazid in chemotherapy for tuberculosis according to its NAT2 genotype polyporphisms is needed in the future.

PS97

Impact of the new Vietnamese pictorial cigarette pack warnings on male smokers' intention to quit smoking

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Introduction: Pictorial health warnings (PHWs) on cigarette packages were requested by Tobacco Control Law in Vietnam since May 2013. Literatures suggest that PHWs help motivate smokers to quit smoking.

Objective: Assess the impact of the PHWs on young Vietnamese adult smokers' intention to quit

Methods: Cross-sectional questionnaire-based household survey was administered to 1462 and 1509 Vietnamese male smokers aged 18 to 35 years in May 2014 and May 2015 respectively. Level of cognition was categorized as "high" and "low" according to the extent to which smokers reported noticing, paying attention to, thinking about and discussing the new labels.

Results: The results showed a strong positive association between the level of cognition related to the PHWs and smokers' intention to quit (OR=1.5; 95% CI: 1.2-1.7). In addition, the strongest predictor for a quit intention was "Very worried about the health consequences" (OR=6.4; 95% CI: 4.5-8.9), followed by "Ever made a quit attempt" (OR=3.99; 95% CI: 3.3-4.8) and "Avoid looking at or thinking about the PHWs" (OR=1.5; 95% CI: 1.2-1.8).

Conclusions: The exposure to the newly introduced PHWs was associated with high level of intention to quit smoking. PHWs may serve as an effective population based smoking cessation intervention in Vietnam.

PS98

Nicotine dependence assessment using Fagerstrom test and Nicotine Replacement therapy (NRT) recommendation techniques for smoking cessation among Paniya tribes

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Nicotine replacement therapy (NRT), can significantly increase an individual's chances of stopping the use of tobacco products.This has been tried in Paniya,a south Indian Tribe.

OBJECTIVES:

To investigate the effectiveness of nicotine replacement therapy (NRT) for smoking cessation among paniya tribes.

DESIGN:

Randomised controlled trial.

PARTICIPANTS AND SETTING:

200 paniya tribal smokers from South India, aged 18 years and older with a Fagerstrom score of 1 and above were included in the study.

INTERVENTIONS:

The scoring of the tribal patients was done using Fagerstrom test for nicotine dependence.The NRT recommendation chart was used to give the appropriate intervention according to the scoring criteria.

MAIN OUTCOME MEASURES:

Self-reported abstinence assessed by questionnaires at 1, 2, 3 and 6 months

RESULTS:

Of the 200 patients approached, 165 (82.5%) agreed to participate; five of these were later excluded. Among the 160 tried NRT during the study period. At 30-day follow-up, 82 (51.25%) who had used NRT planned to continue using them, it reduced to 74,52 and 30 at the end of 2, 3 and 6 months respectively. Average cigarette consumption decreased from 15.6 per person/d to 7.6 over the study period (P<.001).

CONCLUSION:

NRT therapy is an effective modality to eliminate nicotine dependence to a larger extent.

PS99

CLINICAL TRIAL COMPARING NICOTINE REPLACE-MENT THERAPY PLUS BRIEF COUNSELLING AND COUNSELLING ALONE ON SMOKING CESSATION IN PATIENTS PRONE TO LUNG CANCER USING BED-FONT MICRO-SMOKERLYZER

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Tobacco use is the greatest preventable morbidity and mortality.Cessation interventions require an equal balance of pharmacotherapy and behavioural supportive care.

Methods: Patients were randomised to receive either usual care, counselling alone (20 minute intervention with written materials), or NRT plus counselling (counselling intervention with a 6 week course of NRT).

Inclusion Criteria -Past cancer treatment or with family history, Lowered immunity, Previous smoking related cancers, Exposure to certain chemicals and radon gas.

Continuous and point prevalence abstinence from smoking(validated by exhaled carbon monoxide <10 ppm) was measured at 3 and 12 months, and self-reported reduction in cigarette consumption in smokers was assessed at 3 and 12 months.

Results: 300 smokers were enrolled. Abstinence was higher in the NRT plus counselling group (n=100) than in the counselling alone (n=100) or usual care (n=100) groups. The difference between the groups was significant for validated point prevalence abstinence at 3 months (65%,33%, 27% respectively, p=0.045) and at 12 months (27%, 16%, 14%, p=0.03). There was no significant difference between counselling alone and usual care, or in reduction in cigarette consumption between the treatment groups. The NRT preferred was Nicotine transdermal patch 43%,nicotine gum 27%, Nicotine inhalator 12%, Nicotine sublingual tablet 11%, Nicotine nasal spray 7%

Conclusions: NRT given with brief counselling to patients is an effective smoking cessation intervention.

PS100

"An assessment of oral health status, tobacco use and cancer awareness among tea plantation workers, Nilgiri hills, Tamilnadu India"

Delfin Lovelina Francis

Public Health consultant, Tagore Dental College and Hospital

Background: Tea is an important agro-industry of India, which contributes immensely to the countries economy. Tea garden population constitutes approximately 1/12th of tea growing state's population. Poor socio-economic conditions, ignorance due to illiteracy, over-crowded and unhygienic living conditions in the residential colonies make tea garden population vulnerable to various communicable diseases and malnutrition. Hence this study was contemplated with an aim to assess the oral health status, tobacco use and cancer awareness among tea plantation workers, Nilgiri Hills, Tamil Nadu, India.

Methodology: A cross-sectional descriptive study was conducted to assess the tobacco use and cancer awareness among tea plantation workers, Nilgiri Hills. Data was collected using a pretested Questionnaire, which included Demographic data, tobacco habits, its frequency and form. The data collected was analysed using SPSS version15.

Results: Results showed that among 900 study population, 57% had no formal education, 34.5% had not visited dentist before. 64.5% had indigenous brushing habits. A very high prevalence of periodontal disease, tobacco chewing, deep rooted beliefs and customs regarding dentition and dental treatment was observed in this community. Prevalence of oral mucosal lesions in the study population was due to tobacco usage and lack of awareness regarding the deleterious effects of the products used.
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PS101

Role of pictorial warning on cigarette packets in tobacco cessation—A questionnaire survey among cigarette smokers in Chennai.

Delfin Lovelina Francis

Dental Public Health consultant, Tagore Dental College

Background: Warning labels on cigarette packages are meant to communicate such smoking-associated risks. The study is designed to find out the effectiveness of pictorial warnings present on cigarette packets in India for tobacco cessation among cigarette smokers.

Methodology: A questionnaire was distributed to 800 current smokers attending an outpatient department of a college. Statistical analysis was done to find association between socioeconomic status and effectiveness of pictures to quit cigarette smoking.

Results: 48% smokers perceive text warning is an efficient method to create awareness. 56%emphasized the importance of pictorial warning and greater area to be covered. 43% felt that warning on cigarette packets helped them to quit smoking.

Conclusions: Though pictorial warning is an effective method to improve the awareness among smokers on the ill effects of smoking, the size, area covered and the position of the picture on cigarette packets needs to be reviewed to improve the quit rate.

PS102

Smoking habits and awareness about anti-smoking acts among General Public in Gurgaon, Haryana, India.

Clement Joy Kingsly Francis

Social Worker

India is the world's third largest tobacco-growing country. Despite the facts, that the harmful effects of tobacco chewing and smoking are widely known, many young people start smoking during adolescence, largely because they believe that smoking will boost their social acceptability and image. This study was contemplated with an aim to assess tobacco/smoking habits and awareness about anti-smoking act among general public in Gurgaon, Haryana, India.

Method: A structured questionnaire of 14 related to tobacco/smoking habits and awareness about anti-smoking act were asked to general public and their response was recorded. Random sampling method was used and data was collected from a cross-sectional survey. Anti-tobacco counselling was given on the spot and followed.

Results: The study population consisted of total 430 individuals, male 364 (84.65%) and females 66(15.34%). Around 286 (78.57%) from 364 male were indulged in some form of tobacco usage (smoker=32.86%, tobacco chewer= 16.78%, both=11.18%, alcohol+tobacco user=21.67%). In the present study, most common cause of tobacco use was pleasure 40.5%, inducing factor were friends 53.1% followed by parents and siblings. 36.20% patients used tobacco as second hand exposure in job places. 54.8% were aware about the anti-smoking act in public places, so only 8.6% people from all males enrolled, were smoking in public places.

PS103

Role of pictorial warning on cigarette packets in tobacco cessation—A questionnaire study among cigarette smokers in Chennai city, India

Clement Joy Kingsly Francis

Social Worker

Background:

The use of pictorial warning labels on cigarette packages is one of the provisions included in the first ever global health treaty by the WHO against the tobacco epidemic. There is substantial evidence demonstrating the effectiveness of graphic health warning labels on intention to quit. This study was designed to find out the effectiveness of pictorial warnings present on cigarette packets in India for tobacco cessation among cigarette smokers.

Methods and Material:

A structured questionnaire consisting of demographic details, health consequences of smoking and the effectiveness of various pictorial warnings on cigarette packets were distributed to 800 current smokers in Chennai. Statistical analysis was done using SPSS version 17.

Results:

62% percent of respondents showed definite evidence of dependence of smoking. 41% of the smokers perceive text warning is an efficient method to create awareness about ill effects of smoking. 60% percent emphasized the importance of pictorial warning and greater area to be covered for pictorial warnings. However, only 32% of the respondents felt that warning on cigarette packets helped them to quit smoking.

Conclusions:

The size, area covered and the position of the picture on cigarette packets needs to be reviewed to improve the quit rate.

PS104

Public Private Mix collaboration model of smoking cessation under PAL program an experience from NepalDee

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Background: Practical Approaches to Lung Health(PAL) improves the quality of respiratory disease management of patients with COPD, bronchial Asthma, Tuberculosis and other acute & Chronic upper/lower respiratory infections in resource limiting setup.

Intervention/response: This intervention was conducted with an objective to enhance smoking cessation through Public Private Mix (PPM) collaboration model by involving different health workers/practitioners working in community level including Private Practiceners. Phase wise manner in three districts, workshop was organized during 2012-2014. Multimedia Audio-visual & Power Point presentation was used to update knowledge skills, adverse effect management as well as methods of how to quit tobacco smoking. Structured interactive session was conducted with two way communications to make the session more interactive & informative.

Results and lessons learnt: All levels of Health care provide (Doctor, Nurse, paramedics) were trained recent advances of smoking cessation. They were discussed public health program, function of Practical Approaches to lung health, smoking cessation, management of COPD, Bronchial Asthma, Stop TB strategy TB reach program to meet the MDG.

Conclusions: Health care providers including Private Practiceners were also got opportunity to update & enhance their knowledge, smoking cessation program which will help control of tuberculosis, COPD, Bronchial Asthma.

PS105

TOBACCO USE, SMOKING QUIT RATES, AND SOCIO-ECONOMIC PATTERNING AMONG INDIGENOUS TRIBE OF RURAL MANGALORE—A CROSS SECTIONAL STUDY

Eby Aluckal

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Tobacco is a major health challenge in India with various tobacco products available for use which are known to have deleterious effects. The 'koragas' are an aboriginal tribal community found mainly in the south Indian states. A cross-sectional survey was conducted among 726 indigenous koraga community people of rural Mangalore, India. Regression analyses were undertaken to examine determinants of current smoking, smoking quit rates, tobacco use by type and quantity consumed. The weighted prevalence of current smoking and tobacco chewing were higher in men compared with women (51.3% vs. 4.9%), (95% CI-48.1-52.5 vs. 3.9-5.6) and (5.0% vs. 1.0%), (95% CI-4.1-5.8 vs. 0.6-1.3) respectively. The quit rate was higher in women (45.5% vs. 28.4%). Illiterate individuals were more likely to be current smokers of any type compared to those with secondary/higher education (72.3% vs. 21.3%) (odds ratio, OR=3.24), although cigarette smoking was higher in men of high SES. International prevention and cessation initiatives will need to be tailored to the social context of these particular areas of Mangalore to effectively influence the use of cigarettes and equally harmful indigenous forms of tobacco.

PS106

An experience of home nursing of a TB/AIDS patient under DOTS in Japan

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A man aged 36 years who had been diagnosed with AIDS with pneumocystis carinii pneumonia developed pulmonary TB. After several weeks' hospitalization for chemotherapy of smear positive TB, he was discharged. For regular continuation of TB treatment and clinical management of AIDS, the doctor requested the home nursing care, but several home care service stations declined to accept the case. Finally a nursing station in cooperation with a public health center took care of the patient providing general management for AIDS complications together with DOTS for TB.

Conclusion: In Japan domiciliary care of AIDS patients may be not available, especially when complicated with such a condition as TB. We report a case of a TB/AIDS who was successfully accepted by a nursing station with comprehensive care for both TB (DOTS) and AIDS, which we assume to be possible due to good coordination among an attending doctor, a public health center and a nursing station.

PS107

Strengthening the national HIV health information system through the use of an electronic reporting system: Experience of monitoring, evaluation and monitoring interface in DRCongo

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FHI 360, Kinshasa, National Program of Fight against AIDS; For countries like the Democratic Republic of Congo, using an electronic reporting system could solve part of the problem. October 2014 FHI 360, with funding from CDC/PEPFAR

DESCRIPTION collaboration with FHI360 team has strengthened national HIV health information system:

i) revision and harmonization of national indicators and tools

ii) the gradual computerization of the information system on the health of HIV peripherally and centrally using the database on the site

LESSONS LEARNED: in May 2015, all 35 health zones in Kinshasa province ERS used to transfer programmatic monthly HIV centrally. The availability of data show the following results:

i) 88% for the period January to December 2014, with 51% of health districts have recorded 90% of monthly reports.

ii) 92% for the period from January to March 2015.83% of health districts have recorded 90% of monthly reports.

June 2015, 17% of health zone data managers has reached "the data coach" quality.

i) 83% for January-December 2014

ii) 93% for the period January-March 2015

NEXT STEPS: In collaboration with FHI360 team will continue to strengthen and extend the ERS in two major provinces and improve the quality of data on HIV by strengthening the national improvement of data quality system. ´

PS108

Perception towards buying condoms and tobacco products among Migrant male population in Chennai, India—a cross sectional study

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In India, sexual transmission is responsible for 87.4 percent of reported HIV cases making use of condoms as an effective preventive strategy. With a growing economy, migration has become an inevitable consequence among the Indian population. Migration for work takes people away from the social environment of their families and community, leading to an increased likelihood to engage in risky behaviour. Since literature has also shown a high prevalence of tobacco use amongst this population, this study was aimed to assess the perception of male migrant tobacco users towards buying condoms and also compare their ease, comfort level when they buy a tobacco product.

Among the 154 participants who participated, a statistically significant difference was seen in their mean comfort level to buy a condom (2.56) when compared to that of a tobacco product (4.99).

This study showed that migrant Indian males were more comfortable to buy tobacco products for their use than condoms. This finding assumes significance as the sale and use of tobacco products is restricted by Indian law, while the sale of condom is promoted by governmental agencies as an effective method for spacing and prevention of many sexually transmitted diseases, including HIV.

PS109

Quality of life and HIV—a bibliometric analysis of publication trends between 1995 to 2013

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With an increased longevity achievable with current therapeutic strategies for persons with HIV infection, quality of life (QoL) has emerged as a significant medical outcome measure. Though lacking clarity, assessment of QoL assumes significant as a constellation of HIV-related symptoms negatively affect it. Nevertheless present literature has focused on the various domains of QoL in different setting, an analysis of their pattern of publication and their impact on the vertical transmission of knowledge is vital for a holistic approach in the management of HIV. Hence the present study was aimed to study the trends of publications in peer reviewed journals during 1993-2013 using a new article level metric measure, the Relative Citation Ratio (RCR).

The trend of publications seems to increase from a mere 69 publications in 1995-97 to 423 articles published between 2010-2013. However the mean RCR seems to be constant throughout the study period, with an overall mean RCR value of 1.42.

Data from the present findings sheds light that though the publication trend is increasing, the relative citation of the articles published on QoL is constant, well below the acceptable average. Hence efforts should be directed to improve the quality of research in this field.

PS110

CLINICAL AND LABORATORY FINDINGS OF PEDIATRIC HIV-TB: SITUATION IN WEST-JAVA INDONESIA

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Background

Human Immunodeficiency Virus (HIV) infection causes derangement of the immune system causing the body becomes susceptible to various opportunistic infections, the most common is tuberculosis (TB). Indonesia includes in countries with high TB burden, high HIV burden, and high MDR-TB burden. Difficult in diagnosing TB in HIV children and limited data information regarding HIV-TB creates its challenges particularly in Indonesia.

Methods

Pediatric HIV-TB registry from January 2005 until September 2016 were reviewed to know nutritional status, parental HIV status, the clinical symptoms, and immunological status at the first time of diagnosis. Data were presented in frequency.

Results

Of the 146 pediatric HIV-TB, mostly were under five, 119 (81.5%) had severe malnutrition, only 34(23.2%) parents identified their HIV status. Chronic diarrhea presented in 126(86.3%), long-lasting fever in 111(76.0%), 62 (42.4%) had oral thrush, and 129(88.3%) had lymph node enlargement. Immunological status of 61 children showed normal, mild, moderate, and severe immunodeficiency in 11(18%), 4(6.5%), 12(19.6%), 34(55.7%), respectively. Viral load was not investigated in our setting.

Conclusions

Most of the children diagnosed in late clinical stage of HIV. Until now there are lack of diagnostic assessment of TB-HIV in children Lack of parent's knowledge could be one of the cause.

PS111

Psychological impact of tuberculosis on parents of children attending TB Clinic at The Indus Hospital, Karachi.

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Interactive Research Development[1], The Indus Hospital[2]

Background:

The psychological aspects of tuberculosis have been a topic of interest over the centuries. Parents of children with TB endure many kinds of psychological stresses. This study aims to explore the prevalence of depression, anxiety and stress and associated risk factors in parents of children on treatment for susceptible, DR-TB and on Isoniazid prophylactic therapy.

Method: We conducted a prospective study from September 2015 till February 2016 at the Indus Hospital TB clinic. A random sample of 137 parents out of 187 were selected for evaluation with a short version of the Depression Anxiety Stress Scale.

Results:

Out of 137 parents 106 (77.4%) were mothers. The overall prevalence of anxiety among parents was 44.5% of these 56 (53%) were mothers, while 5 (16%) fathers scored high on the anxiety scale. Anxiety was significantly higher in mothers ($p<0.05$).Prevalence of depression among parents was 30%; while gender had no effect on depression. Overall 107 (78%) subjects scored high on the stress scale, of these 100 (94%) were mothers and only 7 (23%) were fathers.Female gender was significantly associated with higher stress levels ($p<0.05$).

Conclusion:

Our study sample shows a high prevalence of psychological impact on parents of children with TB requiring early intervention in the form of parental/family counseling awareness.

PS112

CHANGES OF BODY MASS INDEX IN 100 PEDIATRIC PATIENTS TREATED FOR PULMONARY TUBERCULOSIS IN AN OUTPATIENT DEPARTMENT OF A TERTIARY HOSPITAL IN QUEZON CITY

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Fe Del Mundo Medical Center

Objective: To determine the changes of Body Mass Index (BMI) in 100 patients aged 2-18 years old who completed treatment for pulmonary Tuberculosis at an Outpatient Department, in a tertiary hospital in Quezon City for 2012-2014

Methods/Design: Descriptive study

Setting: Patients seen from January 1, 2012 to December 31, 2014

Patients/Participants: 100 patients with completed treatment for pulmonary Tuberculosis

Main Outcome Measure(s): Data collected include age, gender, BMI before and after 6 months TB treatment, and BMI percentiles determined by BMI-for-age growth chart by Centers for Disease Control (CDC)

Results: A total of 100 medical records were reviewed. After 6 months of TB treatment, majority (66%) had increased BMI, 27% with no change in BMI, and 7% had decreased BMI. Comparison between pre and post completion of TB treatment, an increase from 70%to 79% was noted among patients with normal BMI. An initially 25% underweight patients before the treatment was decreased to 10% after the treatment.

Conclusion/Recommendations: The completed TB treatment for majority of pulmonary TB patients had their nutritional status improved as a positive outcome of TB treatment. Subjects can be expanded. This study can be a reference for promotion of TB treatment in society.

PS113

Impact of counseling on Isoniazid Preventive Therapy (IPT) outcome at the TB Clinic Indus Hospital, Karachi Pakistan

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Back ground

Profession of counseling growing globally and plays important role among different domains of life such as mental health, carrier concerns, or treatment based counseling. Encouraging patients for IPT has always been a challenge for health care professionals at hospital settings. This study aims to assess the impact of counseling on Isoniazid Preventive Therapy (IPT) outcome.

Method

We investigated the effects of counseling for IPT completion from July 2015 till August 2016 at the Indus Hospital TB clinic on a sample of TB patients; they were counseled regarding IPT initiation, significance, compliance, and follow-up, for children under five years of age living in close contact with patients on TB treatment.

Results:

Total 178 contacts from 133 index families were started on IPT, 92/133 were counseled. Completion rate among contacts of counseled families was 67% (81/121), default 27%(33/121) while default rate in contacts of families not counseled was 40% (23/57), and completion rate of 54% (31/57).Outcome of treatment completion and adherence is significantly associated with counseled cases P (<0.05).

Conclusion:

Our study sample shows, counseling for compliance is an essential part for IPT which reduces the poor adherence.

PS114

Latent tuberculosis infection among children aged 0-14 years in Japan

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Background: The notification rate of pediatric tuberculosis (TB) in Japan is one of the lowest in the world (0.3/100,000 child population in 2014). However, research on the background information of pediatric latent TB infection (LTBI) cases in Japan are scarce. In this study, we collected background information of pediatric LTBI cases in Japan from national tuberculosis surveillance data to analyze the current status of it.

Methods: We obtained data of pediatric LTBI cases (0-14 years) registered in the national tuberculosis surveillance system in 2011 and 2012 and analyzed on their background, the methods of diagnosis, treatment regimens and outcomes.

Results: Approximately 900 children were received LTBI treatment in 2011 and 2012. Infants were often treated irrespective of the results of diagnostic tests. Approximately 70% of the index cases of these LTBI cases were from the same household. More than 96% of the cases were treated by Isoniazid mono-therapy but about 2% were administered Rifampicin alone. Thirteen cases in 2011 and 3 cases in 2012 were discontinued treatment for LTBI due to the side effects, but more than 95% of the cases completed treatment for LTBI.

Conclusions: The majority of pediatric LTBI cases were identified through contact investigation and treatment was safely delivered.

PS115

ASSOCIATION OF FACTORS WITH SUCCESSFUL TREATMENT OUTCOME OF CHILDHOOD TUBERCULOSIS IN BARANGAY COMMONWEALTH, QUEZON CITY: A 2-YEAR RETROSPECTIVE STUDY

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Introduction: Reports on the association of factors of childhood tuberculosis with treatment outcome are limited in the Philippines. This retrospective cohort study aims to determine the association of factors of childhood tuberculosis with successful treatment outcome.

Methodology: Medical records of children 0-14 years old with tuberculosis treated from January, 2013 to July 15, 2015 at National Government Center, Dona Nicasia and Commonwealth Health Centers of Barangay Commonwealth, Quezon City were reviewed. The association of socio-demographic, anthropometric and clinical factors with treatment success was analyzed by univariate and multivariate logistic regression.

Results: There were 267 subjects. Children were mostly 4 years or younger (157, 59%), belonged to families along poverty threshold (135, 54%). Majority gained weight after treatment (223, 84%). Two hundred fifty nine (97%) completed treatment. Three (1%) were cured. Five (2%) defaulted. No cases of death or treatment failure were reported. Weight gain (p=0.001) and absence of comorbidity such as ATP (p=0.015), scabies (p=0.015), parasitism (p=0.019), hearing defect (p=0.000) and brain cyst (p=0.000) were significant factors independently associated with treatment outcome. Weight gain was significantly associated with treatment success (p=0.042).

Conclusion: Weight gain is a factor of a successful treatment in childhood tuberculosis.

Key Words: *Childhood tuberculosis, weight gain*

PS116

Vitamin D3 in LTBI Prevention trial in Mongolia: a double-blind randomised controlled trial

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Introduction and Objectives

Both in vitro and animal studies provide evidence of a protective relationship between vitamin D and the risk of acquiring latent TB infection. Our primary hypothesis is that improving vitamin D status among healthy children without LTBI will enhance immune responses to and protect against TB infection in a high transmission setting.

Methods

We proposde to conduct a double-blind, placebo-controlled, randomized clinical trial of vitamin D supplementation to reduce the risk of TB infection among children ages 6 to 13 in Ulaanbaatar, Mongolia. Generalized estimating equations (GEE) with the binary distribution, log link function and exchangeable working correlation structure were used to identify risk factors for QFT-G test results.

This trial was registered with ClinicalTrials.gov (NCT02276755).

Results

About 10,000 school children were invited to participate. The blood was collected and screened for LTBI using the QuantiFERON-TB Gold in-tube assay (QFT-G) from 9147 eligible participants. Baseline questionnaire detailing SES and TB contacts were collected.

Conclusions

The main predictors for LTBI in Mongolian school age children were age, not centrally heated type residence, smoking and TB contact in the household. This is the first randomised controlled trial to investigate effects of vitamin D against TB infection.

PS117

The Educational Approach in TB Program by Using Video and Song Media for Increasing Community's Knowledge and Awareness in Medan City

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Tuberculosis is still mayor health problem, WHO report (2015) estimated one million cases per year in Indonesia. The Community Empowerment of People Against Tuberculosis (CEPAT) Program has objectives; to increase knowledge and awareness of TB key information, to improve case finding and health seeking behavior. Our previous research found the community knowledge and awareness about TB was 30% in low category.

The study was an operational research with pretest posttest design. There were 100 respondents from the religious meeting and the aerobic sport session in Medan City. The video contained testimony and experience of ex-TB patient and key message about TB, while the song contained yelling and motivation for seeking TB treatment, the medias were played every week for two months.

The result was 68% people had good knowledge and awareness (avarage score 9.7) before introducing the media, and increased up to 81% after the intervention (average score 11.89), there was a statistical significant difference (p=0.032). The perception showed 69% (TB service with free of charge) and 62% (the diagnostic with sputum examination).

We concluded that the usage of TB video and song as educational approach in CEPAT Program were very useful to increase community's knowledge and awareness of TB.

PS118

Risk Factors of Non-adherent to Tuberculosis Treatment among Community Patients undergoing DOTS in Japan

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Purpose Directly Observed Treatment, Short-Course (DOTS) in Japan is promoted gradually three stages of DOT programs with humanistic care according to treatment failure risk. This study aimed to investigate the risk factors of non-adherent to tuberculosis (TB) treatment among patients undergoing DOTS in Japan.

Method This cross-sectional quantitative study involved TB patients receiving DOTS, recruited from 32 public health centers in urban cities, Japan. Variables were medication adherence, demographics, patients' characteristics occurring by DOTS and cognition of DOTS collected in 2014. Analyses included logistic regression to examine the factors of non-adherent to tuberculosis treatment. The study commenced after receiving ethics committee approval and informed consent from participants.

Results Questionnaires were returned from 127 tuberculosis patients. Participants age was 63.3 ± 15.8 (range 22-90), 98 (77.8%) were male. Measured non-adherent patients were 31 (24.4%). Examining risk factors of non-adherent to tuberculosis treatment by logistic regression analysis, 'become worse' of physical condition after treatment start (OR: 10.36, 95%CI: 2.36-45.49), 'unchanged' of physical condition after treatment start (OR: 3.58, 95% CI: 1.17-10.96), 'refuse contact' from public health nurses or clinical nurses (OR: 3.53, 95%CI: 1.11-11.21) were extracted.

Discussion Preventing patients' non-adherence, treating conditions and improving care system for defending 'refuse contact' are necessary.

PS119

A motivation model to support TB patients to successfully completed treatment through Ex-TB Patient in Indonesia

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Background: Indonesia ranks third in the world for Tuberculosis (TB). Treatment for TB takes time and many side effect of medication made patients unable to complete treatment. JKM-TBCEPAT program trained community cadre for supporting patients in completing treatment. Solok District is one of the most successful districts for supporting patients in completing treatment (99% success rate). We aim to identify the motivation model for cadre and TB patients to support them to successfully complete treatment.

Methods: We conducted a qualitative study, by in-depth interviews among of 15 cadres and 12 Ex-TB Patients. We asked open-ended questions about their perceptions include experience taking medication, adherence, problems, solutions, perception of cadre, willingness to share experience and to be a volunteer to combat TB.

Result: 75% of the cadres are ex-TB patients. Cadres were motivated in supporting TB-Patients to complete treatment. Ex-TB patients who completed treatment are willing to share their experiences, their adherence, solutions, and efforts for treatment and willing to volunteer to support other TB patients.

Conclusion: The value of recognizing ex-TB patient experience is further exemplified in combating TB. Ex-TB patient as a cadre can reduce stigma, reinforce patients to complete treatment and significantly improves treatment adherence rates.

PS120

An attempt to use a computerized database for tuberculosis management in Hanoi city, Vietnam

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Introduction

In Hanoi, large-scale electronic data on tuberculosis are not yet available. We established a computer database, and investigated the role on tuberculosis management.

Methods

FoxPro programming language was used to build a database including logbook information on tuberculosis registry from all districts, bacteriological data, and medical records in a tuberculosis referral hospital in Hanoi.

Results

The system consisted of three modules. Data inputted twice in the "input-module" were confirmed in the "validation-module". Using a uniqueness score of the name, sex, year of birth, and manual assessment, all records from a single patient were linked in the "merging-module".

Incidence of the second appearance during 2005-2006 treatment registry was significantly different among the patients' initial outcome (1.2% [45/3,724], 48.3% [14/29], 12.7% [14/110], and 0.0% [0/157] for cure/treatment-complete, failure, transfer-out, and default, respectively; P<0.0001). Interval to the second appearance among transfer-out was significantly longer than failure group (median [interquartile range]; 52.5 [11.0-105.0] vs. 7.5 [0.0-15.0] days, respectively, P=0.0001). Transfer-out and failure of the first treatment were significantly associated with the second appearance (adjusted odd ratio [95% CI]; 62.91 [25.97-152.37] and 11.37 [4.53-28.57], respectively).

Conclusion

A computerized database has a potential to approach unsolved problems about tuberculosis management in Hanoi.

ABSTRACT

PS121

Withdrawn

PS122

Impact of Discontinuing Bacillus Calmette-Guérin Vaccination on Tuberculosis Epidemic in Taiwan

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Bacillus Calmette-Guérin (BCG) is a widely-used vaccine for tuberculosis (TB) control. However, its efficacy against pulmonary TB and duration of protection were reported inconsistently in previous studies. Active surveillance in Taiwan recently revealed that the burden of BCG-induced osteomyelitis/osteitis is nontrivial. With a declining trend of TB incidence, the risk of BCG might outweigh its benefit and therefore some countries consider to discontinue this universal vaccination. To investigate how BCG affects TB transmission, an age-structured compartmental model was built. This model was calibrated to the age distribution of population and notified TB incidence over time; TB incidence and disability-adjusted life years (DALYs) were then projected. Between 2015 and 2050, TB incidence would fall by 15.1% and 13.0% in the scenario of BCG continuation and discontinuation respectively. Discontinuing BCG programme would bring additional 14,251 DALYs, while 42 DALYs associated with BCG-induced osteomyelitis/osteitis can be averted over 25 years. These study results indicated the contribution of BCG in reducing TB incidence was restricted. Nevertheless, the burden of side effects was even smaller and far from offsetting the benefit of BCG. Further inclusion of cost analysis may provide more insight in designing BCG vaccination policy.

PS123

Improving the knowledge among the people as one strategy in Pre-elimination of Tuberculosis

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Tuberculosis is still a public health problem because TB is not effectively diagnosed and treated among the poorest and most vulnerable groups. Improving the knowledge and awareness about health and TB among people is required in line with strengthening the health system effort. Ensuring knowledge and awareness among the people can help to recognize TB symptoms and seek health care facilities. The objective of this study is to identify the knowledge of people about Tuberculosis in Bandung City.

This was cross sectional study involving 755 subjects selected by multistage random sampling in 3 sub-districts of Bandung City. The valid questionnaire was used to collect data and analyzed using distribution frequency. The data was collected from November-February 2016.

The results of this study were 40.53% of respondents had never heard about tuberculosis. Sources of information for respondents who have heard about tuberculosis are health provider (15.73%); 54.83% respondents believe that TB is a very serious disease; 23.18% respondents said that the symptoms of blood coughing, 18,68% coughing more than three weeks; 12,54% said weight loss is one of the symptoms of tuberculosis.

Elimination TB by increasing people's knowledge and awareness about health and TB will be achieved.

PS124

Comparative Study of Herbal Extract of Piper nigrum, Piper album and Piper longum on Various Characteristics of Pyrazinamide and Ethambutol Microspheres

Prashant Pingale, Ravindra R.P.

Associate Professor

Background: The effect of various species of piper used singly and in combination in an equal ratio. The *in-vitro* release and other characteristics of Pyrazinamide and Ethambutol formulated as microspheres are studied.

Design/Methods: Complex Coacervation and Modified Emulsion Method & Pyrazinamide, Ethambutol & Herbal bioenhancers

Results: The *in-vitro* drug release of drugs from formulations where *Piper nigrum* was used as bioenhancer was found to be about 66-70% in 12 hrs, when single bioenhancers were used. When bioenhancers used in combination the *in-vitro* drug release of drugs was increased up to 85-90% for combination of *Piper album* and *Piper longum* in an equal proportion, the same was about 35-40% in case of formulations where no bioenhancer was used. Parameters like percentage bioadhesion, permeability study using intestinal sac method etc. were also studied.

Conclusions: The microspheres found to be less than 130 micron in size. The DEE was found to be in the range of 27-67%. The bioadhesion of the microsphere were found to be 20-76% (increased in formulations where bioenhancers incorporated). The *in- vitro* release study by USP paddle apparatus, the important results from *in-vitro* release study relates to the very significant enhancement in drug release, due to presence of bioenhancer.

PS125

The Knowlegde About Tuberculosis Of Directly Observing Personals In Health Centre In North Jakarta

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Indonesia was ranked second in the world (WHO report). Directly Observed Therapy (DOT), which is one of component of Directly Observed Treatment Shortcourse (DOTS), must have sufficient knowledge about TB. This study was conducted to determine the level of knowledge of the person in charge of DOT in the primary health center. This study was involving 47 subjects. Interviews were conducted with all the subjects at the start of patient treatment, after information about TB and about their task were given by the attending physician and nurse. The pretest of the trained group showed subject with sufficient knowledge only 13.1%, while 86.9% has insufficient knowledge In the control group, pretest showed sufficient knowledge as much as 25% while the insufficient knowledge as much as 75%. Posttest performed 2 weeks after the training and the results showed that the interfered group who have sufficient knowledge as much as 21.7%, while 78.3% insufficient knowledge. On control group obtained sufficient knowledge as much as 39.1% and 60.9% insufficient knowledge. Additional training with basic important information, such as the one given through the TB program, failed to increased the knowledge. More effort should be given to make the DOT personal understand the importance of their task in TB treatment.

PS126

Treatment Outcomes and Associated Factors of Childhood Tuberculosis: Treated Under Dots Program in Health Centers of Mekelle Town, Tigray Regional State, Ethiopia

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Background: Tuberculosis in children has been less of a public health priority in recent years, despite the fact that TB is an important cause of childhood morbidity and mortality worldwide. WHO report in 2008 estimates 450,000 deaths from TB occurs in children each year, Nevertheless childhood TB remains neglected for various reasons, mainly the difficulty in diagnosing pulmonary TB. Therefore identifying potential risk factors associated with treatment outcomes is important activity to improve quality of TB care and treatment.

Method: A retrospective cross-sectional study was conducted in Mekelle town on pediatric TB patients treated in three health centers. The study employed a record review of patients registered for TB treatment from September 2007 to August 2011. Health facilities are selected purposively and patient's records were selected by simple random sampling. A total of 226 patients' record was collected from registers using data extraction format. Data entry was done using Epi info 3.5.1 and exported and analyzed by SPSS V 20.

Results: According to this study success of treatment was 84%. Among all patients treated under DOTS, 15 (6.6%) of cases had unfavorable outcomes, death 8/226 and default 7/226, 13(5.8%) were transferred out and outcome was unknown in 8(3.5%) of patients. Deaths were more frequent in older age groups 5-14 years, although there is high number of death in HIV co-infection, rural residents and extra-pulmonary tuberculosis than other forms. In multivariate analysis, independent predictors for unfavorable outcomes were HIV co-infection AOR=5.57 with 95% C.I=[1.6, 18.6] and patients from rural residence were more likely to have unfavorable outcomes OR=18.6 with 95% C.I =[2.4, 144]. **Conclusion:** The treatment success rate in this study was come within reach of to the minimum target set by WHO 85%. HIV contributes substantially to childhood TB burden and also cases from rural districts associated with high mortality and default from treatment.

Key words: Tuberculosis, Treatment outcomes, Children and Mekelle

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Lost to Follow-up amongst patients on Tuberculosis Treatment after Smear Conversion in Gauteng Province, South Africa

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Background

The purpose of this study was to determine the number of patients who stopped taking treatment after 2 months of tuberculosis (TB) treatment and smear conversion. The outcome of the study will contribute towards strengthening of interventions and increasing possible benefits of improved treatment outcomes.

Methods

A retrospective cohort study was carried out among all smear-positive pulmonary tuberculosis patients who were on treatment between January and December 2014. Collection of data was done using the electronic TB register (ETR.Net). Data accessed included demography, diagnosis and smear conversion results. A univariate analysis was performed to describe the demography of patients in the cohort.

Results

Of the 51,549 records in ETR.Net, 352 (0.7%) defaulted treatment after 2 months smear conversion. Whereas 330 (93.8%) were new cases, only 10 (2.8%) had relapsed, 8 were retreatment after default, 3 (0.9%) retreatment after failure and 1(0.02%) categorized as other. 120 (34%) of the defaulters were female, while 232 (65.9%) were males. Of the total defaulters recorded, only 3 (0.9%) were under 5years of age, 51 (14.5%) between 15 and 24 years, 130 (36.9%) between 25 and 34years, 97 (27.6%) between 35 and 44 years and 71(20.2%) consisted of ages between 45 and above 65 years.

Conclusion

This study depicted a high number of lost to follow up amongst young male adults compared to females. It is important to strengthen interventions to combat this behavior so that the ultimate program objectives can be met.