TB SCREENING: Are we doing enough?

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INTRODUCTION

• Malaysia has been classified as TB intermediate burden country by WHO. Incidence 25-100/ 100,000 population (WHO; 2009)

• Selangor being 2\textsuperscript{nd} highest TB burden after Sabah

• TB Case detection in Selangor relies heavily on \textbf{Passive Case Detection}.

• The success depends on: patients motivation, degree of diagnostic suspicion by HCW and quality of laboratory services.  
  
  (Dujardin et al; 1997)
INTRODUCTION

- Symptomatic patient in OPD in Selangor under screened
- Low Case Detection Rate

TB Screening Among Symptomatic Patients in OPD, Selangor 1999 –June 2011

TB Case Detection Rate 1997 –June 2011

Despite well-organized NTP which provide easy access and free-of-charge services
INTRODUCTION

- Undiagnosed and delayed TB diagnosis will lead to:

  - increased period of infectivity in the community
    \approx \text{later increased incidence & prevalence}

  - delayed in treatment

  - severe form of disease

  - increase mortality
INTRODUCTION

- **Why it happened?**
  - No symptomatic patient to screened?
  - HCW not able to identify signs & symptoms of TB?
  - too busy?
  - Ignorance??

- **Aim:**
  - to determine the baseline percentage of TB symptomatic attendance in Health Centre
  - to determine percentage of TB screening among symptomatic cases in Health Centre
  - to determine the predictors that associated/ may urge HCW towards TB screening
METHODOLOGY

- **Type of study**: Retrospective/ Cross-Sectional

- **Time**: October 2009

- **Place of study**: Government Health Centres in Selangor

- **Sampling**: Stratified Random Sampling
  (urban Vs rural)

- **Data**: OPD Card
  Secondary Data
  Patients presented with signs & symptoms of TB

- **Analysis**: SPSS versi 13.0
Dependent Variable:
TB Screening

Independent Variables:

Sociodemographic Factors

Nationality
Race
Age
Institution (prison, elderly, orphan)

History/ Symptoms/ Signs

History of Contact with TB Patient
Co-morbidity
Cough >1/52
Cough >2/52
Fever
LOA
LOW
SOB
Chest Pain
Night Sweat
Abnormal lungs (PE)
RESULTS & DISCUSSIONS

Statistical Analysis: SPSS 13.0
Total patients in OPD
3,688

New OPD Patient
1,172

With URTI Symptoms
318

Final Cases
293

Dropped due to incomplete recording – 25
Distribution of cases according to treatment centre

- Selayang Baru: 8%
- Serendah: 7%
- Ulu Yam: 7%
- K. Selangor: 17%
- Jeram: 7%
- Kg. Bandar: 9%
- TPG: 11%
- Seksyen 7: 9%
- MMJ: 8%
- Batu Arang: 7%
- Beranang: 6%
- Bangi: 4%

12 Health Centre from 6 Districts
31% from total New OPD patients
**RESULTS**

- **Description of Respondents:**
  - Malaysian (98.6%)
    Non-Malaysian (1.4%)
  - Female (51.5%)
    Male (48.5%)
  - Adult (55.6%)
    Children <15yo (44.4%)
  - Mean age 21.61 ± 16.87 yo
    Minimum age 1yo
    maximum age 73yo
## RESULTS

### History
- Contact with TB Patient 3.1% (n=9)
- Present with co-morbid 3.4% (n=10)

### Signs & Symptoms
- $1/52 < \text{Cough} < 2/52$ 17.1% (n=50)
- Cough $>2/52$ 7.2% (n=21)
- Cough $>1/52$ 24.2% (n=71)
### RESULTS

#### Signs & Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>84.3%</td>
<td>(n=247)</td>
</tr>
<tr>
<td>Productive cough</td>
<td>61.4%</td>
<td>(n=180)</td>
</tr>
<tr>
<td>and/or haemoptysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOA</td>
<td>16.0%</td>
<td>(n=47)</td>
</tr>
<tr>
<td>LOW</td>
<td>3.1%</td>
<td>(n=9)</td>
</tr>
<tr>
<td>SOB</td>
<td>5.8%</td>
<td>(n=17)</td>
</tr>
<tr>
<td>Chest pain</td>
<td>4.1%</td>
<td>(n=12)</td>
</tr>
<tr>
<td>Night sweat</td>
<td>1.4%</td>
<td>(n=4)</td>
</tr>
</tbody>
</table>
RESULTS

- **Undergone TB Screening**
  - Physical Examination 15.7% (n=46)
  - Chest x-ray 4.1% (n=12)
  - Sputum AFB 2.7% (n=8)
  - Mantoux Test 2.4% (n=7)
  - ESR 3.1% (n=9)

- **Screening of Patients with history of TB Contact**
  - Screening with CXR and/sputum AFB 100% (n=9)
  - Positive TB 66.7% (n=6)

- **Treatment**
  - All positive cases 100% (n=6)
## Analysis

### Has Association

<table>
<thead>
<tr>
<th></th>
<th>$X^2$</th>
<th>DF</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. History of Contact with PTB Patient</td>
<td>94.061</td>
<td>1</td>
<td>&lt;0.0005</td>
</tr>
<tr>
<td>2. Nationality/ Imigran</td>
<td>21.994</td>
<td>1</td>
<td>&lt;0.0005</td>
</tr>
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<td>3. Cough &gt;2/52</td>
<td>96.466</td>
<td>1</td>
<td>&lt;0.0005</td>
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<td>4. LOW</td>
<td>27.333</td>
<td>1</td>
<td>&lt;0.0005</td>
</tr>
<tr>
<td>5. Night sweat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. <em>Abnormal</em> lung examination</td>
<td>18.754</td>
<td>2</td>
<td>&lt;0.0005</td>
</tr>
</tbody>
</table>

### Has No Association

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<th>DF</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>1. Race</td>
<td>7.769</td>
<td>3</td>
<td>0.051</td>
</tr>
<tr>
<td>2. Co-morbidity</td>
<td>0.598</td>
<td>1</td>
<td>0.439</td>
</tr>
<tr>
<td>3. Institution (prison, elderly, orphan)</td>
<td>0.058</td>
<td>1</td>
<td>0.810</td>
</tr>
<tr>
<td>4. Cough &gt;1/52</td>
<td>1.399</td>
<td>1</td>
<td>0.237</td>
</tr>
<tr>
<td>5. Productive cough</td>
<td>0.192</td>
<td>1</td>
<td>0.661</td>
</tr>
<tr>
<td>6. LOA</td>
<td>2.907</td>
<td>1</td>
<td>0.088</td>
</tr>
<tr>
<td>7. Chest pain</td>
<td>0.723</td>
<td>1</td>
<td>0.395</td>
</tr>
<tr>
<td>8. SOB</td>
<td>1.042</td>
<td>1</td>
<td>0.307</td>
</tr>
<tr>
<td>9. Fever</td>
<td>1.106</td>
<td>1</td>
<td>0.293</td>
</tr>
</tbody>
</table>

Level of significant p<0.05
**DISCUSSION**

**Imigrant**

- Screening of TB among immigrant for tuberculosis infection in this hard-to-reach population is feasible in most health centres (FOC).

- Prevalence of LTBI & active TB is high among vulnerable population. (Beweir R; 2000)

- Low adherence to treatment is an important public health concern.

  Missed → Default → MDRTB → XDRTB

- New strategies are needed to address this problem.
History of contact with TB patient

- All patient presented with h/o contact were screened

- History may sensitized health care provider

- Move from **PASSIVE CASE DETECTION** to **ACTIVE CASE DETECTION**

  (Chang et al; 2007)
Cough >2/52

- Many study use as proxy indicator

- National TB prevalence survey:
  Vietnam 2/52-3/52
  Indonesia >3/52

- Combination of history & physical examination increase suspicion
Further study on other associated factor should be done; eg: KAP among Health Centre staff, KAP among patient/ community, Clinical audit

**Limitation:**

- Incomplete data
- Information bias from secondary data
- No clinical reevaluation
CONCLUSIONS & RECOMMENDATION
• Average of 25% patients presented with URTI symptoms among New OPD patients in Selangor Health Centre

• About 6.1% (71 cases out of all New OPD) were fit for TB Suspect Case
  - chronic cough and/or fever and/or other symptoms

• But only 22.5% (16 cases) of TB Suspect Case were undergone TB screening (by any means)
  or 1.3% out of all New OPD

• A mechanism is needed to increase HCW suspicion of TB, so that proper investigations can be done during 1st visit
• Knowing the Nationality (imigran) of patient may urge HCW towards TB screening

• Taking a proper history on Contact with PTB Patient may increase index of suspicion

• Cough >2/52 with LOW and Night Sweat can be used as proxy indicator for **TB Suspect Case** in OPD

• All patients with respiratory symptoms should undergone lung examination
Limitation:

- Incomplete data
- Information bias from secondary data
- No clinical reevaluation
TB HEALTH ALERT CARD

For: 1) Contact of TB patient
2) Person with cough more than 2 weeks

The World Health Organization (WHO) has issued Malaysia as an intermediate TB burden country.

If you have coughed more than 2 weeks and:
- productive coughing blood and/or
- fever and/or
- loss of appetite and/or
- loss of weight and/or
- shortness of breath

YOU SHOULD IMMEDIATELY UNDERGO TB SCREENING AT ANY NEAREST HEALTH CENTRE OR HOSPITAL OUTPATIENT DEPARTMENT.

Present this card to the doctor for further action.

District Health Office Tel (60) 03 789 1234, Fax (60) 03 789 2345, Website www.DistrictHealthOffice.gov.my

TO THE DOCTOR

The person presenting this Health Alert Card: 1) may have been exposed to TB patient or
2) have been experienced symptoms of TB.

Make sure this person is screened for TB.

Symptomatic CCR, quinup ARB, ESR, Mantoux Test
Aerythropoietic CCR (adult), Mantoux Test (children)

TB: Tuberculosis is a notifiable disease under the Prevention and Control of Infectious Disease Act 1988 and you are required to notify TB cases to the nearest District Health Office.

Disease Control Division
Selangor State Health Office
Level 1, Wisma SunwayMas,
Persiaran Kajang Jaya 1,
40100 SHAH ALAM, SELANGOR.

Tel: 03-5122 7367 Fax: 03-5123 7329 / 5122 7369

THANK YOU
REFERENCES


2) B Dujardin, G Kegels, P Mercenier: Tuberculosis Control: did the program fail or we did fail the program? *Tropical Medicine and International Health* 2, 715-718 (1997).


DEFINITION

- **Outpatient**
  All patient attended OPD in Government Health Centre

- **New Outpatient**
  Patient presented to OPD with new disease. Including:
  
  i) Newly registered patient  
  ii) OPD patient presented with new disease  
  iii) Chronic patient presented with new disease

- **Upper Respiratory Tract Infection**
  Any patient with symptoms of fever and/or cough and/or running nose