The role of entry-screening procedures in the identification of MDR-TB cluster cases amongst patients arriving in Europe from the Horn of Africa, 2016-17

Peter Helbling, Stefan Kröger, Walter Haas, Sergio Brusin, Daniela Maria Cirillo, Ramona Groenheit, Jean-Paul Guthmann, Hanna Soini, David Hendrickx, Marieke J. van der Werf

Presented by Dr. Günter Pfaff
Ministry of Social Affairs and Integration
Baden-Württemberg, Germany
Background

In April and May 2016, the Swiss and German National Mycobacterial Reference Laboratories independently triggered an outbreak investigation after four patients were diagnosed with multidrug-resistant tuberculosis (MDR-TB).

Outbreak investigations identified a cluster of 36 MDR-TB cases among migrants in 2016-17 in eight European countries.
Migration routes of patients with multidrug-resistant Mycobacterium tuberculosis arriving in Europe from the Horn of Africa

Objectives

Identify in how far migrant TB entry screening procedures in countries affected by the MDR-TB cluster were able to detect cluster cases.

If cluster cases were not detected by screening, clarify the reason why.
Methods

We conducted an email-based short survey amongst national epidemiology contact points of countries known to be affected by the MDR-TB cluster to:

• describe country migrant entry TB screening procedures;
• identify the screening status (screened vs not screened) of cluster cases;
• document the occasion of their diagnosis.
Results

*Six out of eight* national epidemiological contact points responded to the survey by email.

<table>
<thead>
<tr>
<th>Country</th>
<th>Cluster cases</th>
<th>Responses with screening info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>2</td>
<td>na</td>
</tr>
<tr>
<td>Finland</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Germany</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Italy</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1</td>
<td>na</td>
</tr>
</tbody>
</table>

36  32  89%
<table>
<thead>
<tr>
<th>Country</th>
<th>TB Screening Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>no</td>
<td>voluntary screening by interview offered to migrants from countries with high TB incidence.</td>
</tr>
<tr>
<td>France</td>
<td>no</td>
<td>screening highly recommended for asylum seekers originating from high incidence countries</td>
</tr>
<tr>
<td>Germany</td>
<td>yes</td>
<td>age ≥ 15 years (if not pregnant): screening by chest X-ray age &lt; 15 years: skin test or interferon gamma</td>
</tr>
<tr>
<td>Italy</td>
<td>no</td>
<td>screening performed in some regions</td>
</tr>
<tr>
<td>Sweden</td>
<td>no</td>
<td>voluntary screening by interview offered to migrants from countries with high TB incidence.</td>
</tr>
<tr>
<td>Switzerland</td>
<td>yes</td>
<td>Symptom screening by interview</td>
</tr>
</tbody>
</table>

Full review:
<table>
<thead>
<tr>
<th>Country</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>2</td>
</tr>
<tr>
<td>Germany</td>
<td>19</td>
</tr>
<tr>
<td>Italy</td>
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<td>Austria</td>
<td>2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1</td>
</tr>
</tbody>
</table>
Cases per country (total = 36)
Finland 1  France 2  Germany 19  Italy 2  Sweden 1  Switzerland 8  Austria 2  United Kingdom 1

Screening status

Screened (27; 75%)
Germany 19  Switzerland 8

Not screened, identified when symptomatic (5; 14%)
Finland 1  France 1  Italy 2  Sweden 1

Screening status unknown (4; 11%)
France 1  Austria 2  UK 1
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Finland 1     France 2     Germany 19     Italy 2     Sweden 1     Switzerland 8     Austria 2     United Kingdom 1

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Occasion of diagnosis

Identified through screening (13; 48%)
Germany 10
Switzerland 3

Identified in contact tracing (2; 7%)
Identified when symptomatic (12; 44%)
Germany 9
Switzerland 5
Description of MDR-TB cluster cases *not* identified upon screening

**Germany** *(n=9)*
- 7 pulmonary, 1 pleural, 1 bone
- None reported TB symptoms at time of screening
- 1 pulmonary TB case was pregnant and did not receive an X-ray.

**Switzerland** *(n=5)*
- 3 pulmonary, 1 pleural, 1 lymphatic intrathoracic
- 1 did not report TB symptoms at time of screening
- 3 reported symptoms not deemed sufficient for further medical investigation (2 were extrapulmonary TB cases)
- 1 was referred for chest X-ray, which was deemed normal
Conclusion

Systematic entry screening programmes, where mandatory, contributed to MDR-TB cluster case identification for migrants with active disease.

However...

- sensitivity of the screening methods used for identifying TB varied
- only half of those screened were diagnosed as a result of screening.

It remains essential:

• to provide easy, barrier-free access to host-country health systems after arrival;
• to ensure health care workers are aware of the possibility of TB in persons originating from high incidence countries.
Acknowledgements