Tuberculosis in Birmingham, UK.

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Birmingham, UK

- Population 1,085,400
- Growth of 88,400 since 2001
- Demographics*
  - White 58%
  - Asian 27%
  - Black 9%
  - Mixed 4%
  - Arab 1%

* Latest census awaited
Birmingham, UK
Birmingham Canals
Birmingham
Birmingham
Birmingham
Ethnic make up of Birmingham

Percentage of black and other ethnic minority groups in Birmingham 2001

Up to 10%
10% to 20%
20% to 40%
40% to 60%
60% and above
Tuberculosis Incidence
West Midlands TB Incidence
TB Incidence by Ethnic Group
Collaborative TB Strategy

Our ambition
To bring together best practice in clinical care, social support and public health to strengthen TB control, with the aim of achieving a year-on-year decrease in incidence, a reduction in health inequalities, and ultimately the elimination of TB as a public health problem in England.
Collaborative TB Strategy

• Improve access to TB treatment
  – (reduce delays in starting treatment, in 2013 only 40% of patients with pulmonary TB started treatment within 2 months of symptom onset)
Collaborative TB Strategy.

• Improve treatment and care services
  – Improve treatment completion of complex cases

• Systematically introduce new entrant latent TB screening
  – GP based screening scheme

• Ensure comprehensive contact screening
  – NICE guidelines / whole genome sequencing

• Tackle TB in underserved populations
  – Patients with social risk factors have lower completion rates
Collaborative TB Strategy.

• Ensure universal access to high quality diagnostics
  – Improve number of culture confirmed cases

• Reduce drug resistant TB
  – Using other parts of strategy and new clinical management plan
Birmingham and Solihull Tuberculosis Service

- Single nursing service
- Four acute hospital groups
  - Heart of England Foundation Trust
  - Sandwell and West Birmingham Hospitals
  - University Hospital Birmingham Foundation Trust
  - Birmingham Childrens Hospital
- Public Health England
- Birmingham City Council
## Active Cases Treated

<table>
<thead>
<tr>
<th>Year</th>
<th>Respiratory</th>
<th>Non Respiratory</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>295</td>
<td>149</td>
<td>444</td>
</tr>
<tr>
<td>2012</td>
<td>305</td>
<td>183</td>
<td>488</td>
</tr>
<tr>
<td>2013</td>
<td>263</td>
<td>157</td>
<td>420</td>
</tr>
<tr>
<td>2014</td>
<td>224</td>
<td>146</td>
<td>370</td>
</tr>
<tr>
<td>2015</td>
<td>198</td>
<td>98</td>
<td>296</td>
</tr>
</tbody>
</table>

## Latent Cases Treated

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>385</td>
</tr>
<tr>
<td>2012</td>
<td>471</td>
</tr>
<tr>
<td>2013</td>
<td>363</td>
</tr>
<tr>
<td>2014</td>
<td>345</td>
</tr>
<tr>
<td>2015</td>
<td>223</td>
</tr>
</tbody>
</table>
# Drug Resistant TB

<table>
<thead>
<tr>
<th>Year</th>
<th>MDRTB</th>
<th>XDRTB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>2012</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>2013</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>2014</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Treatment</td>
<td>24 (69%)</td>
</tr>
<tr>
<td>On Treatment</td>
<td>5</td>
</tr>
<tr>
<td>Transferred Out</td>
<td>3</td>
</tr>
<tr>
<td>Defaulted</td>
<td>2</td>
</tr>
<tr>
<td>Died</td>
<td>1</td>
</tr>
</tbody>
</table>
Testing for latent tuberculosis infection using interferon gamma release assays in commercial sex workers at an outreach clinic in Birmingham.


- Large number of sex workers in Birmingham are Romanian
- Attend for weekly STI screening and check up’s
- Screened for active and latent TB

- Latent TB treated with weekly rifapentine and isoniazid
Testing for latent tuberculosis infection using interferon gamma release assays in commercial sex workers at an outreach clinic in Birmingham.


- 107 women tested
- 41/107 (38%) IGRA positive
  - 2 cases of active TB
- 18/19 patients started on treatment completed
Isoniazid-resistant tuberculosis in Birmingham, United Kingdom, 1999-2010.

• Munang et al. QJM. 2015 Jan;108(1):19-25

• Cases of H-resistant tuberculosis in Birmingham between January 1999 and December 2010 (n = 89) were compared with drug-susceptible cases (n = 2497). Treatment regimens and outcomes at 12 months from diagnosis were evaluated by case note review.

• RESULTS:
• For 76/89 (85%) patients with full treatment details available, median treatment duration was 11 months (interquartile range 9-12 months).
• Only 27/72 (38%) patients with H-monoresistance were treated in line with national guidelines.
• Overall treatment success was 75/89 (84%).
• Treatment failure occurred in 6/89 (7%) patients, all developed multi-drug resistance.
Predictors of contact tracing completion and outcomes in tuberculosis: a 21-year retrospective cohort study.


- A total of 46,158 contacts were identified from 7365 index cases.
- Over the study period 17,471 (40.9%) failed to complete screening.
- Active TB or LTBI was diagnosed in 2220 (7.0%) contacts of cases of pulmonary TB (PTB) and in 222 (2.7%) contacts of cases of extra-pulmonary TB (EPTB).
- Working age adult males who were Black or from the Indian subcontinent least likely to complete screening.

Programmatic utility of tuberculosis cluster investigation using a social network approach in Birmingham, United Kingdom.


- Of 2055 TB cases notified, 56% could be typed.
- Clustering was associated with younger age, UK birth, Black Caribbean ethnicity, social risk factors, pulmonary TB and negative human immunodeficiency virus status.
- Only UK birth and presence of more than one social risk factor were associated with larger cluster size, while drug resistance was associated with smaller cluster size.
- Social network data from 139/431 clustered cases found new epidemiological links in 11/19 clusters with ≥5 members.
- Ninety-eight additional contacts were assessed, with one case of active TB and 24 with latent tuberculosis infection diagnosed.

- A social network approach increased knowledge of likely transmission events.
- Obtaining social network data for all typed and untyped TB cases may improve contact tracing and reduce unexpected transmission detected from molecular data.
The TB Team

- **TB Nurses**
  - Hanna Kaur – Lead TB nurse
  - Maria Labrador
  - Julie McLoughlin
  - Velma Buchanon
  - Brenda Thomas
  - Jeens Paraseil
  - Nicola Watkins
  - Caroline Piggott
  - Lyn Jones
  - Linda Nicholson

- **TB Clinicians**
  - Steve Welch (HEFT)
  - Gemma Hawthorne (HEFT)
  - Ed Moran (HEFT)
  - Patrician Glynn (UHB)
  - Naz Nathani (SWBH)
  - Guy Hagan (SWBH)
  - Martin Dedicoat (HEFT)

- **Public Health**
  - Roger Gajraj (PHE)
  - Kate Duffield (PHE)
  - Adrian Phillips (Birmingham City Council)
Thank you

• Questions?