

**Supplementary Material V: Data extraction forms**

Study details	Population and setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Note by review team
<p><b>Year:</b> 2015</p> <p><b>Country:</b> United Kingdom (UK)</p> <p><b>Authors:</b> Aldridge R.W., Hayward A.C., Hemming S. et al.<sup>1</sup></p> <p><b>Citation:</b> Aldridge R.W., Hayward A.C., Hemming S. et al. Effectiveness of peer educators on the uptake of mobile X-ray tuberculosis screening at homeless hostels: a cluster randomised controlled trial. <i>BMJ open</i> 2015; <b>5</b>: e008050.</p> <p><b>Aim of study:</b></p>	<p><b>Source population(s):</b> Homeless people</p> <p><b>Eligible population:</b> Hostels for homeless people in London, UK</p> <p><b>Selected population:</b> Homeless people at hostels in London, UK</p> <p>All hostels in London who participated in 2 previous screening sessions were eligible for inclusion. Eligible hostels had not been screened in the 6 months prior to the scheduled mobile X-ray Unit (MXU) screening session.</p> <p><b>Excluded population:</b></p>	<p><b>Method of allocation:</b> Sites were randomized to intervention or control group by Sealed Envelope™ <a href="http://www.sealedenvelope.com/">http://www.sealedenvelope.com/</a> which ensured allocation concealment until interventions were assigned. To ensure comparability between intervention and control arms, hostels were stratified on the basis of their size (binary variable indicating whether hostels had more than 43 beds) and previous screening uptake level (binary variable indicating whether hostels had greater than 50% historical</p>	<p><b>Primary outcomes:</b> The number of eligible clients at a hostel venue screened for active pulmonary tuberculosis by MXU</p> <p><b>Secondary outcomes:</b> Secondary analysis was also conducted by subgroups, for large and small hostels separately, and low and high previous screening uptake level using the binary categorical variables described previously for these analyses.</p> <p><b>Method of analysis:</b> The study statistician conducted analysis blinded to the allocation of</p>	<p><b>Primary results:</b> <u>Control sites:</u> - 1,192 residents - Median uptake of 45% (inter-quartile range (IQR):33,55)</p> <p><u>Intervention sites:</u> -1,150 eligible residents - Median uptake of 40% (IQR:25,61)</p> <p>Poisson regression to account for the clustered study design, hostel size and historical screening levels, there was no evidence that peer educators increased uptake (adjusted risk ratio 0.98; 95% confidence interval (95%CI): 0.80,1.20).</p> <p><b>Secondary results:</b> No evidence was found for peer educators</p>	<p><b>Limitations identified by author:</b> - The study design was not powered to detect a difference in tuberculosis cases identified by the two arms as this would require considerably larger sample sizes and would have meant repeated screening at hostels, potentially diluting the effect of the intervention during the study - Unable to collect individual data as part of the study as this would have required individual consent and would have been challenging logistically given that screening took place within an operational setting where any data collection would have</p>

<p>To compare current practice for encouraging homeless people to be screened for tuberculosis by a mobile digital X-ray unit in London, UK, with the additional use of volunteer peer educators who have direct experience of tuberculosis and homelessness.</p> <p><b>Study design:</b> Cluster randomised controlled trial</p> <p><b>Quality score:</b> +</p> <p><b>Applicability:</b> ++</p>	<p>- Hostels with uptake levels over 80% were excluded from the study – as low chance of intervention having impact</p> <p>- Not allowing peers on the venue</p> <p><b>Setting:</b> Homeless hostels in London, UK</p> <p><b>Sample characteristics:</b> Majority of hostels had 43 or less beds, reported a historical screening uptake of &gt;50% and provided no incentives for screening.</p>	<p>uptake).</p> <p>A cluster randomised design was chosen as the intervention was aimed at the hostel sites rather than individuals clients</p> <p><b>Intervention(s) description:</b> Peers moved around the hostel in conjunction with hostel staff and spoke to residents in order to encourage them to attend screening.</p> <p><b>Comparator/control(s) description:</b> Encouragement by hostel staff</p> <p><b>Baseline comparisons:</b> Proportion of people screened for TB</p> <p><b>Study sufficiently powered?:</b> Yes, power calculation done before hand, met the sample size</p>	<p>intervention or control arms.</p> <p>Poisson regression analysis was used to analyse outcome events at screening hostels. Bed occupancy level was included as the exposure variable, screening uptake as the outcome (or indicator) variable, and hostel venue as a random effect to account for clustering at each site. The analysis was adjusted by inclusion of the randomisation stratification factors of historical uptake rates and bed size.</p> <p><b>Modelling method and assumptions:</b> Clustered analysis, assuming that characteristics of the populations at respective hostels were comparable.</p> <p><b>Time horizon:</b> February 2012 and</p>	<p>increasing uptake of screening for any of the other secondary analyses. The study team noted no adverse events.</p>	<p>interrupted the flow of screening and caused unacceptable delays for service users</p> <p>- Peers may lack technical knowledge and the confidence with which to challenge some of the client misconceptions and concerns that reduce screening uptake</p> <p>- Most effective when complemented i.e. delivered in conjunction with professionals</p> <p><b>Limitations identified by review team:</b></p> <p>- Hostels with high uptake were excluded = bias risk</p> <p>- Most sites were not naïve to peer intervention</p> <p><b>Evidence gaps and/or recommendations for future research:</b></p> <p>- Any difference in uptake with previous screening sessions?</p> <p>- Effectiveness of using</p>
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		requirement of 1045 individuals, or approximately 21 hostels in each arm	October 2013		<p>peers as a standalone intervention versus peers working alongside professionals and this remains an important research question.</p> <p><b>Source of funding:</b> NIHR and Welcome Trust.</p> <p><b>Conflict of interests:</b> None for most authors - AS (last author) is clinical lead for the Find and Treat service including the mobile digital X-ray unit.</p>
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Study details	Population and setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Note by review team
<p><b>Year:</b> 2012</p> <p><b>Country:</b> Germany (Frankfurt/Main)</p> <p><b>Authors:</b> Goetsch U., Bellinger O.K., Buettel K.L., Gottschalk R.<sup>2</sup></p>	<p><b>Source population(s):</b> Homeless &amp; drug users</p> <p><b>Eligible population:</b> Homeless &amp; drug users recruited from homeless and drug services in Frankfurt/Main</p>	<p><b>Method of allocation:</b> Not applicable (NA)</p> <p><b>Intervention(s) description:</b> Community health worker educated staff and users of services for homeless and drug users about TB</p>	<p><b>Primary outcomes:</b> Feasibility and sustainability of a TB programme focussing on TB education and voluntary X-ray investigation in homeless and drug users</p> <p><b>Secondary</b></p>	<p><b>Primary results:</b> It is feasible when included in already existing public health services</p> <p><b>Secondary results:</b> - No. CXR: 10/month in homeless &amp; 9/month in drug users After intervention</p>	<p><b>Limitations identified by author:</b> - Selection bias, illegal immigrants might avoid authorities - Small number of TB patients makes it difficult to say anything about age and gender differences - No data on length of</p>

<p><b>Citation:</b> Goetsch U., Bellinger O.K., Buettel K.L., Gottschalk R. Tuberculosis among drug users and homeless persons: impact of voluntary X-ray investigation on active case finding. <i>Infection</i> 2012; <b>40</b>: 389-95.</p> <p><b>Aim of study:</b> To evaluate the feasibility and sustainability of the program, its coverage and both the case-finding rates and characteristics of cases. Also to assess the treatment outcomes</p> <p><b>Study design:</b> Before and after comparison</p> <p><b>Quality score:</b> -</p> <p><b>Applicability:</b> +</p>	<p><b>Selected population:</b> All subjects seen at the Public Health Department for chest X-rays (CXR) and fulfilling the criteria for homeless (stayed at shelter for &gt;2 nights) /drug users (attend day-care facilities, night shelter for drug users or needle exchange programme)</p> <p><b>Excluded population:</b> Patients with tuberculosis (TB) symptoms detected in clinics and notified through the Protection against Infection Act</p> <p><b>Setting:</b> Community health worker (CHW) went to services to promote CXR – CXR performed at Public Health Department</p> <p><b>Sample</b></p>	<p>transmission and promoted voluntary CXR at Public Health Department 1x/year or at least 1x/2years</p> <p>Community Health Worker obtained the medical history through standardised questionnaire</p> <p>CXR read by TB physician – referral and follow up test in a clinic could be initiated immediately</p> <p>Suspicion for active TB – CHW took care of further diagnostics and follow up</p> <p>Active TB needed hospitalisation for treatment</p> <p>CHW kept contact with doctors/social workers 2x/month, later monthly</p> <p>Contact tracing in shelter</p> <p>HIV was only notified in active TB</p>	<p><b>outcomes:</b> Estimate the coverage of the programme, assess other risk factors and determine TB rates &amp; treatment outcome in the 2 groups</p> <p><b>Method of analysis:</b> - t-test or analysis of variance for continuous variables - chi-square test or Fisher’s exact test for categorical data</p> <p><b>Modelling method and assumptions:</b> - Multivariate logistic regression effect of risk groups, birth place, age &amp; gender</p> <p><b>Time horizon:</b> 1 May 2002 – 30 April 2007</p>	<p>46/month in homeless &amp; 25/month in drug users</p> <p><u>Coverage:</u> - Screening 1x/2 years: 18% of drug users &amp; 26% of homeless - Screening every year: 10% of drug users &amp; 15% of homeless (based on the range of drug users &amp; homeless people between 6,416 and 9,000 individuals in Frankfurt/Main) - Chao’s heterogeneity model: 18-26.3% 1 CXR/2 years - 2002-2004: 18.0% - 2003-2005: 19.3% - 2004-2006: 26.4% - 2005-2007: 23.4% and 10-15% CXR/year - 2002-2004: 10.0% - 2003-2005: 10.7% - 2004-2006: 15.0% - 2005-2007: 23.4%</p> <p><u>Case finding:</u> - 39 TB cases in 5 years: 14 drug users &amp; 25 homeless = 8.7% of total TB cases in Frankfurt - 19 cases smear +, 7</p>	<p>drug use and homelessness</p> <p>- The impact of HIV can’t be estimated - Unknown fluctuations of the study population make the denominator unstable</p> <p><b>Limitations identified by review team:</b> - Patients had to travel to the public health department - Comparison over time, important confounder - Not adjusted for distance from service to public health department</p> <p><b>Evidence gaps and/or recommendations for future research:</b> Use a control group and use of mobile CXR unit to increase screening uptake</p> <p><b>Source of funding:</b> Not recorded (NR)</p> <p><b>Conflict of interests:</b> None</p>
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	<p><b>characteristics:</b> 4,529 CXRs in 3,477 people - 66% homeless - 34% drug users</p> <p><u>Homeless:</u> - 40.9 years <math>\pm</math> 12.5 years - 90.1% male - 29.6% foreign born</p> <p><u>Drug users:</u> - 35.8 years <math>\pm</math> 8.3 years - 76.2% male - 28.0% foreign born (increased over study period <math>\rightarrow</math> 2002: 15%, 2007:37%)</p>	<p>patients</p> <p><b>Comparator/control(s) description:</b> Before intervention – no CHW who gave TB education and promoted CXR</p> <p><b>Baseline comparisons:</b> Coverage of CXR screening before and after intervention</p> <p><b>Study sufficiently powered?:</b> Low number of active TB cases</p>		<p>smear –ve but culture +ve - 13 cases clinical/radiological diagnosis - Case finding rate 861/100 000 CXRs - Drug users 10/14 HIV +ve, homeless 1/25 HIV +ve (p&lt;0.001)</p> <p>No significant difference in case-finding rates according to gender (906/100,000 for men vs. 601/100,000 for women; p = 0.43), place of origin (906/100,000 for natives vs. 752/100,000 for foreign born; p = 0.61) or between the risk groups (888/100,000 for the homeless vs. illegal drug users (816/100,000; p = 0.80).</p> <p>Logistic regression model with the risk factors age, gender, risk group and place of origin: age was the only variable to be associated with the risk of TB and the variable risk group was an effect modifier</p>	
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				<p><u>Treatment completion</u>  - 76.3% (29/38)  completed treatment  (one patient left  Frankfurt to unknown  destination before  completion of  treatment, excluded  from analysis of  treatment completion) –  of which 19 homeless  people and 10 drug  users  - 5 people needed  admission because of  non-compliance (3 drug  users, 2 homeless)  - 5 people died of other  causes than TB (3  homeless and 2 drug  users)  - 4 people stopped  treatment (lack of  compliance) – 10.5%</p> <p>No difference in the  treatment outcome  between the two risk  groups (p = 0.96), and  age, gender or HIV-  status did not have any  significant effect on  treatment outcome.</p>	
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Study details	Population and setting	Method of allocation to intervention/control	Outcomes and methods of analysis	Results	Note by review team
<p><b>Year:</b> 2012</p> <p><b>Country:</b> Spain, Barcelona</p> <p><b>Authors:</b> Ospina J.E., Orcau A., Millet J-P. et al.<sup>3</sup></p> <p><b>Citation:</b> Ospina J.E., Orcau A., Millet J-P. et al. Community health workers improve contact tracing among immigrants with tuberculosis in Barcelona. <i>BMC public health</i> 2012; <b>12</b>: 158.</p> <p><b>Aim of study:</b> To evaluate the effectiveness of an intervention with CHW to improve contact tracing among immigrants</p> <p><b>Study design:</b></p>	<p><b>Source population(s):</b> Migrants</p> <p><b>Eligible population:</b> Migrants in Barcelona</p> <p><b>Selected population:</b> All TB cases registered by the TBPCP (the Barcelona TB Control Program) between January 1st 2000 and December 31st 2005, and resident in the city of Barcelona were included</p> <p><b>Excluded population:</b> Not registered TB patients</p> <p><b>Setting:</b> Barcelona TB program</p> <p><b>Sample</b></p>	<p><b>Method of allocation:</b> All TB cases registered at TBPCP</p> <p><b>Intervention(s) description:</b> Community health workers (CHW) actively follow up the cases and contacts, visit the cases at home, accompany case to outpatient appointments, provide counselling and information on treatments. Educational sessions in health care centres, private homes and immigrant associations. Assistance with obtaining residence permits, housing, food banks, public dining halls and health card application.</p>	<p><b>Primary outcomes:</b> The influence on contact tracing of CHW intervention</p> <p><b>Secondary outcomes:</b> The influence on contact tracing of other variables: sex, age, hospital of diagnosis, district of residence, birthplace, HIV, homeless</p> <p><b>Method of analysis:</b> - Descriptive analysis was performed by calculating proportions - The median and interquartile range were calculated for quantitative variables - Categorical variables were compared using the X<sup>2</sup> test. Odds ratio (OR) and 95% CI were calculated as a measure of</p>	<p><b>Primary results:</b> - The increase in contact tracing coverage of contacts of smear positive PTB and all clinical forms of TB in the intervention period was statistically significant * 81% (post) vs 65.7% (pre) *OR = 1.6 (95% CI = 1.2-2.0) * Adjusted OR 1.8 (95% CI: 1.3-2.5) p &lt; 0.001</p> <p>- CHW intervention had an aOR of 2.4 (95% CI: 1.3-4.3) p=0.005 to fail contact tracing for smear-positive cases and an aOR of 1.8 (95% CI: 1.3-2.5); p = 0.001 for all TB cases</p> <p><b>Secondary results:</b> - Factors associated with failure to conduct contact tracing for</p>	<p><b>Limitations identified by author:</b> - Variation in characteristics between both periods; an increase of cases between 25-39 years of age, from Latin America and India, Pakistan and from inner-city in the CHW group. The increase in immigrants would most likely have worsened contact tracing and therefore our figures may have underestimated the benefit of the CHW intervention.</p> <p><b>Limitations identified by review team:</b> - Wide 95% CI's smear +ve making the OR less precise for: * Hospital D * Area of origin * District of residence unknown *HIV +ve</p>

<p>Quasi-experimental study with historical pre-post comparison</p> <p><b>Quality score:</b> +</p> <p><b>Applicability:</b> ++</p>	<p><b>characteristics:</b> 572 cases pre-intervention &amp; 388 post-intervention</p> <p><b>Pre-intervention</b> - 202 (35.3%) were from Latin American countries - 136 (23.8%) from India or Pakistan - 92 (16.1%) from North Africa - 142 cases (24.8%) from other countries</p> <p>- Majority men - 25-39 years - 72.2% Pulmonary TB - 35.3% smear +ve - 34.4% lived in inner city</p> <p><b>Post intervention</b> - 152 (39.2%) were from Latin American countries - 112 (28.9%) from India or Pakistan - 42 (10.8%) from North Africa - 16 (4.1%) from Sub-Saharan Africa - 66 cases (17%) from other countries</p>	<p><b>Comparator/control(s) description:</b> Pre-intervention</p> <p><b>Baseline comparisons:</b> Pre- /post-intervention contact tracing was compared</p> <p><b>Study sufficiently powered?</b> Yes; 95% CI sufficiently narrow</p>	<p>association.</p> <p><b>Modelling method and assumptions:</b> Stepwise backward logistic regression; variables lacking significant association measures in univariate analysis were assumed not to be confounders.</p> <p><b>Time horizon:</b> 1st 2000 and December 31st 2005</p>	<p>smear +ve TB include:</p> <ul style="list-style-type: none"> <li>* Diagnosed in hospitals B and D</li> <li>* Birthplace in India-Pakistan or North Africa</li> <li>* Unknown district of residence</li> <li>* HIV infection</li> <li>* Homeless</li> </ul> <p>- Factors associated with failure to conduct contact tracing for all forms of TB include:</p> <ul style="list-style-type: none"> <li>* Male</li> <li>* Hospitals B and D</li> <li>* Birthplace other than Latin American countries</li> <li>* Unknown district of residence</li> <li>* Incarceration history</li> <li>* Homeless</li> <li>* Index who had culture-negative or extra-pulmonary TB or had a normal chest X-ray</li> </ul> <p>- Of all TB cases identified among foreign born people, 79.4% were seen by CHWs, 12.4% were contacted directly by</p>	<ul style="list-style-type: none"> <li>* Homeless</li> </ul> <p>- Wide 95% CI's all TB: making the OR less precise for:</p> <ul style="list-style-type: none"> <li>* District of residence unknown</li> <li>* Incarceration</li> <li>* Homeless</li> </ul> <p>95% CI's crossing 1 in hospital D</p> <p><b>Evidence gaps and/or recommendations for future research:</b> - Studies on cost-effectiveness of the CHW interventions in the TB programs</p> <p><b>Source of funding:</b> NR</p> <p><b>Conflict of interests:</b> None</p>
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	<ul style="list-style-type: none"> <li>- Majority men</li> <li>- 25-39 years</li> <li>- 73.2% Pulmonary TB</li> <li>- 39.2% smear +ve</li> <li>- Almost 50% lived in inner city</li> </ul>			<p>the public health nurse and the remaining 8.2% could not be contacted</p> <ul style="list-style-type: none"> <li>- Active follow up in 194 TB cases and contact census, a total of 293 counselling sessions, 147 linguistic mediation session, 264 individualised and 97 group educational sessions about TB, 280 home visits, 70 hospital visits and 5,935 telephone calls (a median of 15.3 calls per case) were performed</li> </ul>	
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<p><b>Year:</b> 2011</p> <p><b>Country:</b> Portugal</p> <p><b>Authors:</b> Duarte R., Santos A., Mota M. et al.<sup>4</sup></p>	<p><b>Source population(s):</b> Drug users in Vila Nova de Gaia, Portugal</p> <p><b>Eligible population:</b> Drug users in Vila Nova de Gaia</p>	<p><b>Method of allocation:</b> Before and after 2004 – intervention was implemented in 2004</p> <p><b>Intervention(s) description:</b> <u>After 2004:</u></p>	<p><b>Primary outcomes:</b> Diagnosis of active TB, treatment compliance before and after intervention</p> <p><b>Secondary outcomes:</b> OR and 95%CI to measure association</p>	<p><b>Primary results:</b> <u>2001-2003:</u> - 125 drug users observed in CDP of which: * 52 drug users were screened for TB (100% male, mean age 32 years) * 73 drug users were</p>	<p><b>Limitations identified by author:</b> - Not a controlled trial - Risk for bias - Unknown what part of the intervention contributed to the outcome</p>

<p><b>Citation:</b> Duarte R., Santos A., Mota M. et al. Involving community partners in the management of tuberculosis among drug users. <i>Public Health</i> 2011; <b>125</b>: 60-2.</p> <p><b>Aim of study:</b> To evaluate the effect of the intervention on diagnosis of TB and treatment compliance</p> <p><b>Study design:</b> Retrospective review of records Comparison before and after intervention (2004)</p> <p><b>Quality score:</b> -</p> <p><b>Applicability:</b> +</p>	<p>(VNdG), Portugal</p> <p><u>Population VNdG:</u> 290,000</p> <p>Estimated number of drug users = 4.3-6.4 per 1,000 inhabitants</p> <p><b>Selected population:</b> Screening and treatment records for all drug users visiting Chest Disease Centre (CDP) between 2001-2007</p> <p><b>Excluded population:</b> NR</p> <p><b>Setting:</b> All drug users screened and treated at the outpatient TB clinic (Chest Disease Centre) 2001-2007 were reviewed</p> <p><b>Sample characteristics:</b> <u>2001-2003:</u> - 125 drug users @CDP - 52 screened (100%</p>	<p>Intervention to improve early identification and treatment of drug users with TB.</p> <p>The key partners (outpatient TB clinic, drug users support centres, shelters and street teams, local public health department and the local hospital) identified drug users in their population</p> <ul style="list-style-type: none"> <li>- Promotion of health-seeking behaviour</li> <li>- Notification card for screening in CDP</li> <li>- Elimination of potential barriers: <ul style="list-style-type: none"> <li>* Street teams offered free transport</li> <li>* All care at CDP free of charge</li> </ul> </li> <li>- Encouraged referral but tried to manage TB screening locally</li> <li>- Seriously ill: immediate referral to CDP/local hospital (with transport and attendance)</li> </ul>	<p><b>Method of analysis:</b> OR and 95%CI were used to measure the strength of the association</p> <p><b>Modelling method and assumptions:</b> Improve early identification and treatment of drug users with TB</p> <p><b>Time horizon:</b> 2001-2003 Intervention 2005-2007</p>	<p>referred to CDP because of symptoms or following discharge from hospital with diagnosis TB</p> <p>Of all drug users observed at CDP; 82 drug users (65.6%) were diagnosed with active TB of which 11 drug users (13.4%) were identified by screening</p> <p><u>Treatment compliance:</u> - 47.6% poor compliance - 35.4% stopped TB treatment</p> <p><u>TB in VNdG 2001-2003:</u> - 515 TB cases of which 82 were drug users - 32 TB cases died of which 15 were drug users (OR 4.66, 95%CI 2.24 - 9.70). - TB/HIV co-infection: 63 (71%)</p> <p><u>2005-2007:</u> (after implementation of the programme) - 465 drug users were screened for TB (86%</p>	<p><b>Limitations identified by review team:</b></p> <ul style="list-style-type: none"> <li>- Retrospective design = risk of bias</li> <li>- Methods not well described</li> <li>- Unknown what percentage did not come for screening (how many people recruited for screening)</li> <li>- Difference in time zone = risk for confounders, might have been on the political agenda, been on the news etc. = bias</li> <li>- Low precision of estimates of effects (indicated by wide 95%CI) probably due to small sample size</li> </ul> <p><b>Evidence gaps and/or recommendations for future research:</b></p> <ul style="list-style-type: none"> <li>- Case-control trial to compare 2 different cities (one with intervention other without intervention)</li> <li>- Check cost-effectiveness</li> </ul> <p><b>Source of funding:</b></p>
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	<p>male, mean age 32 years) - 73 for symptoms or following discharge with diagnosis TB</p> <p><u>2005-2007:</u> - 465 screened (86% male, mean age 36 years) - 30 for symptoms or following discharge with diagnosis TB</p> <p><b>Study definitions:</b> Active TB: culture <i>M. tuberculosis</i> or clinical &amp; radiology criteria Latent TB: asymptomatic individuals with normal chest radiography and positive TST (TST &gt; 5 mm in immune-compromised persons, TST &gt; 10 mm in immune-competent persons)</p>	<p><u>At CDP:</u> - Screening: symptom questionnaire, tuberculin skin test (TST) &amp; CXR: annual screening/after contact/symptoms - Directly observed therapy short-course (DOTS) at CDP, combined with other medical treatment/ drug abuse treatment - CDP offered HIV testing in case of active TB</p> <p><b>Comparator/control(s) description:</b> <u>Before 2004:</u> - Drug users referred to CDP with a diagnosis of TB after diagnosis from hospital - Treatment was not compulsory - To improve compliance: info was provided, psychosocial support, full treatment to patient and family (if</p>		<p>male, mean age 36 years) - 30 drug users were referred to CDP because of symptoms or following discharge from hospital with diagnosis TB</p> <p>Of all drug users seen at the CDP, 59 drug users (11.9%) were diagnosed with active TB of which 36 drug users (61%) were identified by screening</p> <p><u>Treatment compliance:</u> - 23.7% poor compliance - 10.2% stopped treatment</p> <p><u>TB in VNdG 2005-2007:</u> - 386 TB cases of which 59 were drug users - 19 TB cases died of which 8 were drug users (OR 4.66, 95%CI 1.79 - 12.15) - TB/HIV co-infection: 37 (64%)</p> <p><u>Conclusion:</u> The number of screened</p>	<p>None</p> <p><b>Conflict of interests:</b> None</p> <p><b>Ethical approval:</b> Yes, approved by the CDP de Vila Nova de Gaia body</p>
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		<p>needed), transport &amp; free breakfast.  - No active screening policy</p> <p><b>Baseline comparisons:</b>  Number of TB cases screened</p> <p><b>Study sufficiently powered:</b>  NR but wide 95% CI</p>		<p>drug users had increased, therapy was available to a higher proportion of TB cases and active TB treatment compliance had improved significantly</p> <p><b>Secondary results:</b>  - Drug users screened for TB without symptoms: OR 21.8; 95%CI 13.0-36.3  - Drug users with active TB: OR 10.1; 95% CI 4.44-23.0  - Poor compliance: OR 0.34; 95% CI 0.16-0.72  - Treatment stopped OR 0.21; 95% CI 0.08-0.54  - % of drug users under TB cases OR 0.95; 95%CI 0.66-1.37</p> <p>- Mortality due to TB decreased from 18.3% in 2001- 2003 to 13.6% in 2005-2007 among drug users (OR 0.7, 95%CI 0.28 - 1.78).</p> <p>- TB/HIV co-infection decreased from 63 (71%) in 2001-2003 to</p>	
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				37 (64%) in 2005-2007 (OR 1.37, 95% CI 0.68-2.78).	
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Study details	Population and setting	Intervention/comparator	Outcomes and methods of analysis	Results	Note by review team
<p><b>Year:</b> 2011</p> <p><b>Country:</b> UK</p> <p><b>Authors:</b> Jit M. Stagg H.R., Aldridge R. et al.<sup>5</sup></p> <p><b>Citation:</b> Jit M. Stagg H.R., Aldridge R. et al. Dedicated outreach service for hard to reach patients with tuberculosis in London: observational study and economic evaluation. <i>BMJ</i> 2011; <b>343</b>: d5376.</p> <p><b>Aim of study:</b> To assess the cost effectiveness of the Find and Treat</p>	<p><b>Source population(s):</b> Hard-to-reach individuals</p> <p><b>Eligible population:</b> Hard-to-reach individuals with active pulmonary tuberculosis</p> <p><b>Selected population:</b> Hard to reach individuals with active pulmonary tuberculosis screened or managed by the Find and Treat service</p> <p><b>Excluded population:</b> - Cases with extra-pulmonary tuberculosis - Latent tuberculosis - Suspected</p>	<p><b>Method of allocation:</b> NA</p> <p><b>Intervention(s) description:</b> All individuals are screened on voluntary basis. 1. Mobile X-ray screening clinic visited locations where high-risk groups could be found (homeless shelters, drug treatment centres, criminal services, street outreach etc.) 2. Raise awareness 3. Under take case holding 4. Provide support for treatment completion (supported by peer workers)</p>	<p><b>Primary outcomes:</b> Incremental costs, quality adjusted life year (QALY), for the Find and Treat service.</p> <p><b>Secondary outcomes:</b> Cost-effectiveness ratios for the Find and Treat service</p> <p><b>Method of analysis:</b> NR</p> <p><b>Modelling method and assumptions:</b> - Discrete, multiple age cohort, compartmental model to model a population of individuals with active tuberculosis</p> <p>4 groups:</p>	<p><b>Primary results:</b> The model estimated that, on average, the Find and Treat service identifies 16 and manages 123 active cases of tuberculosis each year in hard to reach groups in London. The service has a net cost of £1.4 million/year and, under conservative assumptions, gains 220 QALYs. The incremental cost effectiveness ratio was £6,400-£10,000/QALY gained (about €7300-€11,000 or \$10,000-\$16,000 in September 2011).</p> <p>- 22.9% of patients detected by the mobile screening unit with the longest delays between symptom onset and</p>	<p><b>Limitations identified by author:</b> - Absence of randomisation of tuberculosis cases to be either managed or not managed by the Find and Treat service - The service also manages extremely hard to reach individuals, who are often already lost to follow-up at the time of referral or who would never present for care without the mobile screening unit. Hence the comparison of cases with retrospective controls probably underestimates the incremental benefit of the service, although we cannot be certain without a randomised</p>

<p>service for diagnosing and managing hard to reach individuals with active tuberculosis in London</p> <p><b>Study design:</b> Economic evaluation using a discrete, multiple age cohort, compartmental model of treated and untreated cases of active tuberculosis.</p> <p><b>Type of economic analysis:</b> Cost-effectiveness</p> <p><b>Economic perspective:</b> Healthcare taxpayer perspective</p> <p><b>Internal validity:</b> Yes</p> <p><b>Quality score:</b> ++</p> <p><b>Applicability:</b> +</p>	<p>tuberculosis</p> <ul style="list-style-type: none"> <li>- Cases merely receiving prophylaxis (and hence unlikely to have active tuberculosis)</li> <li>- Cases for which the diagnostic delay could not be calculated</li> <li>- Cases younger than 16 years</li> </ul> <p><b>Setting:</b> London, United Kingdom.</p> <p><b>Sample characteristics:</b></p> <ul style="list-style-type: none"> <li>- 48 mobile screening unit cases</li> <li>- 188 cases referred for case management support</li> <li>- 180 cases referred for loss to follow-up</li> <li>- 252 control cases, TB cases that presented to a TB clinic themselves, without intervention of the Find and Treat service (current method of passive case finding)</li> </ul>	<p><b>Comparator/control(s) description:</b> Controls: passively detected cases with active pulmonary tuberculosis (individuals who presented to London tuberculosis services on their own accord without screening and referral to the Find and Treat service - notified to the Health Protection Agency's enhanced tuberculosis surveillance system between 1 January 2009 (when the system began recording risk factor information) and 9 August 2010. Controls were age matched with actively detected cases (within five year age categories) and had to display one or more risk factors (a history of homelessness or imprisonment, drug</p>	<ul style="list-style-type: none"> <li>- Active untreated tuberculosis</li> <li>- Active treated tuberculosis with up to 125 days of continuous treatment</li> <li>- Active treated tuberculosis with more than 125 days of continuous treatment</li> <li>- Lost to follow-up</li> </ul> <p>4 final outcomes:</p> <ul style="list-style-type: none"> <li>- Completion of treatment</li> <li>- Death due to tuberculosis related causes</li> <li>- Death due to other causes</li> <li>- Other final outcomes that the Find and Treat service is not expected to change (such as patients being transferred out of London or stopping treatment for clinical reasons).</li> </ul> <p><u>Assumptions:</u></p> <ul style="list-style-type: none"> <li>- The cost of a new mobile unit £600,000 were added to the</li> </ul>	<p>treatment presentation were unlikely to present for treatment without the activities of the Find and Treat service</p> <ul style="list-style-type: none"> <li>- 35.4% of mobile screening unit patients were asymptomatic on detection, and hence would not have presented for treatment without the unit.</li> <li>- Once on treatment, mobile screening unit cases managed by the Find and Treat service had a much lower risk of loss to follow-up than passively presenting controls (loss to follow-up probability after one year: 2.1% for cases, 17.2% for controls)</li> <li>- Cases referred to Find and Treat because of complex case management issues had higher rates of completing treatment (61.2% after one year) and lower rates of loss to follow-up (3.3% after one year) than controls</li> </ul> <p><b>Secondary results:</b></p> <ul style="list-style-type: none"> <li>- Every year the service</li> </ul>	<p>study</p> <ul style="list-style-type: none"> <li>- Did not incorporate secondary transmission into the economic evaluation, even though the mobile screening unit in particular probably averts several secondary cases by finding highly infectious individuals.</li> <li>- Did not measure the effect of the Find and Treat service on reducing the likelihood of patients developing and transmitting acquired drug resistance (as a result of poor treatment adherence). Drug resistance increases the duration and costs of treatment, as well as the risk of severe disease, thus prevention could be an important benefit of the service.</li> </ul> <p><b>Limitations identified by review team:</b> Small group of PTB in intervention group</p>
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	<p><b>Economic analysis data source:</b> Find and Treat database for information (including risk factors and clinical information) of individuals, diagnosed with PTB (between Sep 2007- Sep 2010)</p> <p>The control group (TB cases that presented on their own accord to a TB clinic) was obtained from the Health Protection Agency between Jan 2009 and Aug 2010. Risk factors and clinical information for the controls were obtained from the enhanced tuberculosis surveillance system.</p>	<p>or alcohol abuse, or mental health problems).</p> <p><b>Baseline comparisons:</b> Compared: - Having no Find and Treat service, - Having only one part of the service (the mobile screening unit or the case management component) - Having both parts of the service</p> <p><b>Study sufficiently powered:</b> NR but a small number of PTB cases in the Find and Treat group</p>	<p>costs of the first year of the service, with discounted costs and outcomes totalled over five years - Costs of £8,300 and £75,000 for treatment of DS-TB and MDR-TB - Only 50% of asymptomatic cases with a positive result from the mobile screening unit would progress to symptomatic disease - Find and Treat cases would be lost to follow-up at the same rate as enhanced tuberculosis surveillance controls (17.2% per year) in the absence of the service, rather than at the higher rate we estimated for this extremely hard to reach group (34.7% per year). - Even without Find and Treat involvement, these cases could still passively re-engage</p>	<p>has a net cost of £1.4 million and gained 220 QALYs - Incremental cost effectiveness of the Find and Treat service was £6,400/QALY gained - Both components of the service are cost-effective at the same threshold. The mobile screening unit had an incremental ratio of £18,000/QALY gained, whereas the case management component had an incremental ratio of £4,100/QALY gained (In the most unfavourable (and highly unlikely) scenario, which combined all the unfavourable assumptions, the mobile screening unit and case management components had incremental ratios of £26,000/QALY gained and £6,800/QALY gained, respectively)</p> <p>0.5% of mobile screening unit patients</p>	<p><b>Evidence gaps and/or recommendations for future research:</b> Include a larger intervention group, longer follow up study</p> <p><b>Source of funding:</b> Grant from the English Department of Health grant reference number 0150305</p> <p>PJW was partly funded by centre funding from the Medical Research Council. IA and HS are partly funded by the National Institute for Health Research.</p> <p><b>Conflict of interests:</b> None</p>
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			with treatment at the same rate as enhanced tuberculosis surveillance controls (51% per year).  <b>Time horizon:</b> Sep 2007 – July 2010	and 5.3% of other Find and Treat patients had multidrug or extensively drug resistant infection	
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### List of Abbreviations

aOR = adjusted Odds Ratio; CDP = Chest Disease Centre; CHW = Community Health Worker; CXR = Chest X-Ray; HIV = Human Immunodeficiency Virus; IQR = Inter-Quartile Range; MXU = Mobile X-ray Unit; NA = Not Applicable; NIHR = National Institute for Health Research; NR = Not Recorded; OR = Odds Ratio; p = p-value; PTB = Pulmonary Tuberculosis; QALY = Quality Adjusted Life Year; TB = Tuberculosis; TBTCP = The Barcelona TB Control Program; TST = Tuberculin Skin Test; UK = United Kingdom; VNdG = Vila Nova de Gaia; 95%CI = 95% Confidence Interval

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