

The majority were in clusters with <5 cases and therefore did not reach the HPA cluster investigation threshold of =5 cases in 24 months. Data will be presented for the entirety of 2010, therefore numbers are subject to change.

P51 TUBERCULOSIS OUTCOME FOLLOWING PRE-TREATMENT ASSESSMENT FOR DIRECTLY OBSERVED OR SELF-ADMINISTERED THERAPY: STILL ROOM FOR IMPROVEMENT?

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Setting and Methods London has high rates and large numbers of TB notifications. Treatment completion is generally <85% (the figure recommended by the WHO to achieve effective control). NICE TB guidelines (2011) advise using risk assessment to identify those individuals most likely to non-adhere to therapy and hence who require enhanced case management, including directly observed therapy (DOT), to complete treatment successfully. The North Central London TB Network piloted a risk assessment tool, derived from reported risk factors predisposing to non-adherence plus information from a patient profile study undertaken across London, in a cohort of 306 TB patients starting treatment between June and December 2008. On the basis of the individual's risk of non-adherence score they were broadly allocated to DOT or self-administered therapy (SAT). Here we evaluate treatment outcomes (completion and need for re-treatment) using the London TB register (LTBR) and individual case records.

Results Subjects receiving SAT had excellent treatment completion rates (91%), with 3% lost to TB service follow-up (Abstract P51 table 1). Those on DOT had a lower completion rate—which at 80% was less than the international standard. Ten per cent of DOT subjects were lost to follow-up (all after transfer out of NCL TB service care). Death rates were threefold higher in the DOT group. After 20 months median follow-up post treatment completion, 3 SAT and 0 DOT patients had been re-treated for TB.

Abstract P51 Table 1

	DOT (n=30)		SAT (n=276)	
Completed in NCL TB service	21	70.0%	233	84.4%
Died				
TB	1		2	
Not TB associated	0		4	
Unknown	1	6.7%	0	2.2%
Lost to follow-up	0		5	1.8%
Stopped	1	3.3%	8	2.9%
Transferred out				
LTBR				
Completed	0		12	4.3%
Lost to follow-up	1	3.3%	0	
Non LTBR				
Completed	3	10.0%	4	1.4%
Lost to follow-up	2	6.7%	1	0.3%
Overseas				
Completed	0		1	0.3%
Lost to follow-up	0		6	2.2%
Total completed	24	80.0%	250	90.5%

Conclusions The risk assessment tool appears to discriminate those patients who can receive SAT; though it should be noted that re-treatment was only required in this group—suggesting possible poor adherence with therapy in some individuals. Subjects on DOT did

well within NCL TB service, but were too often lost to follow-up if transferred elsewhere. It is unclear whether this reflects inadequate local data collection and communication by, and with, our service, or genuine loss from healthcare. Either way, this requires urgent attention. The planned introduction of enhanced case management within the London TB model of care may improve this.

P52 RISING PAEDIATRIC TUBERCULOSIS IN GREATER MANCHESTER: EPIDEMIOLOGY AND BCG VACCINATION STATUS OF CASES

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Background Tuberculosis cases in Greater Manchester (GM) have increased annually since 2004. The Paediatric TB clinic at Royal Manchester Children's Hospital has grown since its inception in 2004, but it is unclear as to whether this is due to a true increase in cases or a change in referral patterns. At the same time the uptake of BCG vaccine is sub-optimal.

Objectives To investigate the incidence, epidemiology and BCG vaccination eligibility and status of childhood tuberculosis cases in GM between 2006 and 2010.

Methods All children (≤16 years) notified through the Enhanced Tuberculosis Surveillance System between 1 January 2006 and 31 December 2010 were identified. Vaccination records were obtained from Primary Care Child Health Systems. Missing data were supplemented with examination of case-notes. Eligibility for BCG vaccine was determined by place of birth and ethnicity.

Results 215 children (89 male; mean age 8.8 years) were notified over the 5 years. A rise of 64.5% in overall number of cases was reported from 2006 to 2010. Pakistanis comprised 39.1% of TB cases, Black Africans 28.8% and white British 14.9%. The majority of children were UK-born (60.5%). Of non-UK born cases 67.1% entered the UK within 2 years of their diagnosis. Of 130 UK-born children, 111 were deemed eligible for BCG vaccination. Of these 85 (75.6%) received the vaccine. Of 85 children born outside the UK, vaccination status could not be determined in 8, and one child was ineligible for vaccination. Vaccination was confirmed in 53% of non-UK born children (BCG record or BCG scar). In children who had not received BCG, although the number of cases was very small, a threefold higher risk of more severe forms of infection (military, CNS involvement) was identified.

Conclusion There has been a significant rise in incidence of Paediatric TB in GM over the last 5 years. The reason for this remains unclear. However, BCG vaccination uptake rates were poor (75% of UK born individuals and 67% overall). Systems for identifying eligible children and immunising them need to be reviewed and strengthened both for high risk neonates and children entering the country.

P53 OUR EXPERIENCE OF AVOIDING UNNECESSARY BRONCHOSCOPES BY USE OF SPUTUM INDUCTION FOR THE INVESTIGATION OF SUSPECTED TUBERCULOSIS

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Introduction The majority of cases of pulmonary tuberculosis (pTB) are diagnosed by microscopy and culture of sputum. When a patient is unable to produce sputum spontaneously, further procedures are required to obtain suitable samples for examination. There is debate

about the relative merits of sputum induction (SI) and fiberoptic bronchoscopy (FOB; Brown M *et al*, 2007, Anderson C *et al*, 1995). SI is less invasive, cheaper, and unlikely to cause cross-infection, whereas FOB allows visualisation of the bronchial tree and other pathologies—especially cancer. At our hospitals, a diagnostic algorithm was devised to reduce the need for FOB for the diagnosis of pTB. Clinicians only requested bronchoscopy when three induced sputum samples were negative, unsuccessful, or contraindicated.

Method A retrospective cohort study, from 1 January 2008 to 31 December 2010. Patients undergoing SI for suspected pTB were identified from physiotherapy records, and the bronchoscopy database was interrogated for mycobacterial requests.

Results 521 induced sputum samples were sent from 214 patients. In total, 28 patients were diagnosed with pTB, 16 (57%) of whom were smear-positive. Non-tuberculous mycobacteria (NTM) were grown from four patients. Microbiological results of SI are listed in Abstract P53 table 1. Tuberculosis was diagnosed on the first sample in 25 cases (89%), the second in one (4%) case, and the third in two cases (7%). However, only 57% had at least three samples taken. Of 472 patients who underwent SI or FOB, 14 (3.0%) had both. Of those 14, three (21%) had positive samples for mycobacteria, two of which were *Mycobacterium tuberculosis*. All 14 had concordant culture results, whereas one case had a discordant smear result. In this case *Mycobacterium mageritense* was grown at both FOB and SI, although only the FOB sample was smear-positive.

Abstract P53 Table 1 Smear and culture results of sputum induction

	2008	2009	2010	Total
Number of patients referred for SI	64	53	97	214
Smear-pos, culture-pos tuberculosis*	10	1	5	16
Smear-neg culture-pos tuberculosis*	2	5	5	12
Total tuberculosis patients*	12 (19%)	6 (11%)	10 (10%)	28 (13%)

*Excluding four patients from whom non-tuberculous mycobacteria were grown.

Comment In this cohort, FOB carried out after SI did not increase the diagnostic yield. Fewer than 2% of those undergoing SI went on to have FOB, which suggests that clinicians were satisfied with SI and did not feel that bronchoscopy was required. However a systematic review and meta-analysis, and a larger, prospective study would be desirable.

P54 IMPACT OF A RAPID ACCESS SYSTEM FOR EARLY REFERRAL OF SUSPECTED TB CASES

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Introduction Early diagnosis and treatment of infectious tuberculosis (TB) is an important strategy for controlling the burden of disease by minimising the spread of infection and secondary disease in close contacts. Since 2005, we have developed a centralised rapid referral system in Leicester for the early assessment of suspected TB by a specialist physician. The system is triggered by a list of “red-flag” symptoms submitted on a proforma and/or appropriate coding by the reporting radiologist of all abnormal chest radiographs compatible with a possible diagnosis of TB.

Aims To evaluate whether differences exist in disease characteristics and time to diagnosis with availability of the rapid referral system.

Methods A retrospective analysis of data collected from patients referred to the Rapid Access TB clinic between the years 2005 and 2010 was conducted. A sub-group analysis was completed for the years 2007–2009 comparing cases referred to the rapid access clinic with those diagnosed by other (non-rapid referral) pathways.

Abstract P54 Table 1 Summary of sub-group analysis for the years 2007–2009 comparing cases referred to the rapid access clinic with those diagnosed by other (non-rapid referral) pathways

	Rapid access (n = 288)	Other pathways to diagnosis (n = 300)	Statistical significance (p value; χ^2 test)
Male gender (%)	54.2	51.2	>0.05
Mean age (years)	36.4	41.6	>0.05
Age groups (years)			
0–16	6	5	>0.05
16–36	155	145	>0.05
>36	127	150	>0.05
Ethnicity			
Indian sub-continent	191	226	>0.05
Black	32	43	>0.05
Disease type			
Non-pulmonary	26.4	48.4	0.04
Pulmonary smear negative	41.6	16.2	0.03
Pulmonary smear positive	32.0	35.4	>0.05
Average duration of symptoms (days)			
Non-pulmonary	78.4	122.1	0.03
Pulmonary smear negative	80.4	100.1	>0.05
Pulmonary smear positive	60.2	95.9	0.03
Contact tracing			
% Associated with contacts	81.6	90	>0.05
Mean number of contacts	4.57	4.91	>0.05

Results 1552 suspected cases of tuberculosis were referred through the rapid access system, with a positive diagnosis made in 566 (36.5%). Radiological coding of CXR reports was the primary trigger for 93.8% of referrals. No differences existed in age, gender or ethnicity of patients identified through rapid access or other pathways. A significantly higher proportion of cases identified through rapid access were pulmonary (Abstract P54 table 1). The rapid access system was associated with a significant reduction in the time to specialist assessment for both non-pulmonary and smear positive pulmonary TB.

Conclusions A rapid access system of referral that incorporates a red-flag coding system of potentially abnormal CXRs effectively identifies a significant proportion of pulmonary TB cases and reduces the time to assessment and treatment of smear positive pulmonary TB.

P55 TB RISK AFTER NEW IMMIGRANT GP REGISTRATION: A RETROSPECTIVE COHORT ANALYSIS

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Introduction Although 80% of all TB cases in the UK occur in foreign born persons, TB risk in the immigrant population is largely unknown due to uncertain estimates of migration. The evaluation of screening models to prevent immigrant TB depends on informed estimations of this risk.

Objective To evaluate TB risk in a cohort of immigrants with new immigrant GP registration status (Flag-4) in Leicestershire; and to estimate efficacy of a screening model that uses Flag-4 registration and testing with interferon gamma release assays (IGRAs) for identifying latent infection with *M tuberculosis* (LTBI).

Methods All Flag-4 registered immigrants between January 2000 and December 2010 were included and collated with TB notification data for the same period. TB cases arising in registered immigrants were included for estimation of case rate using Kaplan–Meier