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 malmoense* 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