extrinsic mechanism. Overall, this study represents the first identification of Myd88 as a regulator of adult tracheal epithelial cell phenotype.

Advances in screening and diagnosis of TB

S38 COMMUNITY-BASED EVALUATION OF IMMIGRANT TB SCREENING USING INTERFERON GAMMA RELEASE ASSAYS AND TUBERCULIN SKIN TESTING: YIELDS AND COST-EFFECTIVENESS

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Background Tuberculosis (TB) notifications in the UK continue to rise due to disease in the foreign-born immigrant population. UK guidelines on immigrant screening have recently been revised but accurate calculation of cost-effectiveness is hampered by a lack of empiric data on the comparative performance of tuberculin skin test (TST) and interferon-γ release-assays (IGRA) in immigrants arriving from countries with varying TB incidence.

Methods Prospective evaluation of TST and two commercially available IGRAs (QuantiFERON Gold in-tube (QFN-GIT) and T-SPOT.TB) in recent immigrants aged =16 years to quantify test positivity, concordance and factors associated with a positive result for all three tests. We computed yields at different incidence thresholds and the relative cost-effectiveness, using a decision-analysis-model stratified by HIV/drug-resistance, of screening using different latent TB infection (LTBI) screening modalities at varying incidence thresholds supplemented with/without port-of-arrival chest radiography.

Results 231 immigrants included; median age 29 (IQR 24–37). TST accepted by 80.9%, read in 93.6%; 30.3% positive. QFN-GIT and T-SPOT.TB positive in 16.6% and 22.5% respectively. Positive TST, QFN-GIT and T-SPOT.TB independently associated with increasing TB incidence in immigrants' countries of origin (p=0.008, 0.007 and 0.01 respectively). Implementing current guidance (depending on test) would identify 98%–100% of LTBI but also require 97%–99% of the immigrant cohort to be tested; raising the threshold to 150/100 000 (includes immigrants from Indian Subcontinent) would identify 49%–71% of LTBI but require half the cohort to be screened. The three most cost-effective screening strategies (which were more cost-effective than current guidance) were: no CXR at port-of-entry and screen with single-step QFN-GIT at 250/100 000 (Incremental cost-effective ratio (ICER) £21 565.3/per case averted), no CXR at port-of-entry and screen with single-step QFN-GIT at 150/100 000 (averted additional 7.8 cases of active TB, ICER of £31 867.1/per case averted) and no CXR at port-of-entry and screen with single-step QFN-GIT at 40/100 000 which averted a further 9.4 cases (ICER £34 753.5/per case averted).

Conclusions Immigrant screening in the UK could cost-effectively and safely eliminate mandatory CXR on arrival by emphasising systematic screening for LTBI with single-step IGRA. An intermediate incidence threshold for screening balances the need to identify as much imported LTBI as possible against limited service capacity.

S39 MIGRATION AND TUBERCULOSIS: THE START OF INTELLIGENT NEW ENTRANTS SCREENING

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Tuberculosis (TB) remains a problem in the UK, and almost three-quarters of active TB cases occur in the non-UK born. Most of these are likely infected abroad and strategies to detect latent TB in this population are being considered. We investigated how soon after arrival into the UK certain groups developed TB and the implications of this for numbers needed to screen and treat. Numbers of migrants arriving in 2005 from the top 6 countries of origin (of TB cases) were obtained from the Labour Force Survey (LFS). National TB surveillance (ETS) provided information on active cases from these countries. Estimates of interferon γ release assay (IGRA) positive cases (20%–28%), IGRA sensitivity (84%), and efficacy (65%) and completeness (85%) of chemoprophylaxis were obtained from Pareek *et al.* (Lancet ID 2011). The Abstract S39 table 1 shows numbers needed to screen and treat to prevent one case of TB developing in the UK in the 5 years after arrival. Numbers were relatively low, especially for Bangladesh and Somalia. The Abstract S39 table 1 also shows time between diagnosis and entry into the UK, which varied between countries of the Indian Subcontinent and sub-Saharan Africa and changed over time. While 45% of cases born in India had been in the country more than 10 years prior to arrival in 2000–2004, this was 32% in 2005–2009. Conversely, 57% of cases born in Zimbabwe were diagnosed within 2 years of arrival in 2000–2004, decreasing to 15% in 2005–2009. The relatively low numbers needed to treat among migrants from these high burden countries provide support for new guidance to expand latent infection treatment. The observed trends and differences in time since entry reflect underlying migration patterns, with higher but decreasing levels of migration from sub-Saharan Africa and an established and ongoing

Abstract S39 Table 1 Estimated numbers needed to screen and treat to prevent a TB case in the 5 years after arrival, and time since entry into the UK of TB cases, England Wales and Northern Ireland

	Estimated numbers needed to screen and treat, based on immigration in 2005					Time between diagnosis and arrival into the UK of TB cases reported in:					
		TB cases 2005–2009		Number per case		2000–2004			2005–2009		
Country of birth—top 6	Immigrants in 2005 *	All	Entry 2005 †	Screen	Treat	0–1 year	2–9 years	10+ years	0–1 year	2–9 years	10+ years
India	41 337	6403	546	163	33	25%	30%	45%	26%	42%	32%
Somalia	10 156	2883	293	75	21	34%	53%	13%	24%	57%	19%
Pakistan	15 533	4336	285	117	23	22%	32%	46%	20%	37%	43%
Bangladesh	3058	1123	101	65	13	24%	31%	45%	21%	38%	41%
Zimbabwe		1097	67	0	0	57%	40%	3%	15%	78%	7%
Nigeria	14 578	810	72	436	122	38%	37%	25%	28%	52%	20%
All countries	405 943	16 652	2130	411	82	29%	36%	35%	23%	46%	31%

*Population which entered the UK in 2005 that remain in the country as at Jan–Mar 2010 (LFS).
†Number of TB cases reported in 2005–2009 that were known to have entered the UK in 2005 (ETS).