**Diabetes mellitus and latent tuberculosis infection: cross-sectional study within a large UK cohort**

**Supplementary information**

*Supplementary methods*

The study protocol is available at: <http://www.nets.nihr.ac.uk/projects/hta/086801>.

Recruitment

Individuals aged ≥16 years were invited to take part in the study through two strategies targeting high-risk groups between January 2011 and July 2015. Firstly, contacts of active TB cases (“contacts”) were invited to participate when attending appointments for TB screening (contacts are screened for active TB and LTBI as part of the routine public health response to active TB cases in the UK). Secondly, recent entrants to the UK were recruited through the registers of participating general practitioners and mass recruitment events in community settings such as places of worship. Recent entrants were eligible to participate if they entered the UK from a high incidence country (≥40 per 100,000 based on WHO data ([12](#_ENREF_12))) within the last five years and/or made frequent visits to a high incidence country (at least one year cumulatively spent in a high incidence country over the previous five years). Some recent entrants were also recruited through the same process as contacts, after referral following entry screening. Participants were recruited primarily in London, but also in Birmingham and Leicester. Participants with evidence of active TB at baseline were excluded.

Before recruitment, potential participants were asked screening questions to identify symptoms of possible TB (night sweats, unintended weight loss, or persistent cough). Individuals reporting a recent history of any of these were not recruited and were advised to contact their GP.

Exposure, outcome and covariates

Questionnaire completion was assisted by study nurses and translators were provided if necessary.

The main exposure of interest was a self-reported history of DM. Data were also collected on the method of DM control used (categorised as monitoring and/or diet only, oral hypoglycaemic medications, or insulin). Other self-reported covariates investigated were sex, age, country of birth (UK or elsewhere), ethnicity (classified according to standard practice in the UK’s Enhanced Tuberculosis Surveillance system), previous BCG vaccination (confirmed by sight of scar), previous TB diagnosis, previous contact with a TB patient (for contacts, this means contacts prior to the one resulting in recruitment to the study), HIV status, other immunosuppression, smoking status (never or ever smoker), social risk factors, and type of participant (contact or new entrant). Body mass index (BMI) was calculated as weight(kg)/height(m)2, with weight and height being either self-reported or measured by study nurses.

Participants were considered to have “other immunosuppression” if they reported a history of using anti-TNF- or other immunosuppressive drugs, solid organ transplant, haematological malignancy, jejuno-ileal bypass, chronic renal failure or haemodialysis, or gastrectomy. Social risk factors considered were current or past homelessness, imprisonment or problem drug use; participants were classified as having either no social risk factors or any social risk factor.

The outcome of interest was LTBI, defined as having a positive result for either or both of the two commercially available IGRAs, Quantiferon-TB Gold In-Tube (QFT-GIT – Qiagen) and TSpot.*TB* (Oxford Immunotec, Abingdon, UK). Each IGRA result was recorded as positive, negative or indeterminate according to the manufacturer’s instructions (TSpot.*TB* can additionally generate borderline positive and borderline negative results, which were treated as positive and negative, respectively). Participants usually received both IGRAs; however in some cases, notably community recruitment events, only the QFT-GIT was administered. Those who were negative on both assays, or negative on one and indeterminate on the other, were considered not to have LTBI. Participants with no valid IGRA results were excluded from this analysis.

Sample size

The sample size for the current cross-sectional analysis was determined by the number of participants recruited to PREDICT. Given that data were available for 756 diabetic and 8401 non-diabetic participants, we estimated that we would have 98% power to detect a difference in the prevalence of a positive IGRA of 50% from a baseline prevalence of 10%, with 95% confidence.

Statistical analysis

Binomial regression with a log link was used to estimate crude and adjusted prevalence ratios (PRs and aPRs) and 95% CIs for the relationship between DM and LTBI ([16](#_ENREF_16)). The outcome (LTBI) was common in the PREDICT cohort (approximately 28%), reflecting the targeted high-risk population, so odds ratios generated by logistic regression would not approximate the prevalence ratio ([16](#_ENREF_16)). For multivariable modelling, age and sex were treated as *a priori* confounders. Other covariates for adjustment were identified from a causal diagram of the relationships between potential confounders and outcomes using directed acyclic graphs, interpreted using dagitty.net ([17](#_ENREF_17)) (Figure S1). P values were derived from likelihood ratio tests. We assessed potential interactions between DM and age ([4](#_ENREF_4)) and DM and ethnicity ([18](#_ENREF_18)), as observed for active TB ([4](#_ENREF_4), [18](#_ENREF_18)). All analyses used a complete-case approach.

Age group was treated as a categorical variable (16-25, 26-35, 36-45 and >45 years) as this produced the best fit in univariate analysis (based on likelihood ratio tests comparing models using either continuous age or a linear term for age group). BMI was also treated as a categorical variable, classified as <18.5kg/m2, 18.5-25kg/m2 and ≥25kg/m2 (underweight, normal weight and overweight, respectively).

We conducted five sensitivity analyses. Firstly, we adjusted for age as a continuous variable using fractional polynomials ([19](#_ENREF_19)). Secondly, we repeated the primary analysis using Poisson regression with robust standard errors instead of log-binomial regression ([20](#_ENREF_20)), as there is debate about which of these methods is more appropriate for modelling epidemiological associations when the outcome is common ([21-23](#_ENREF_21)) (p values here were derived from Wald tests, as likelihood ratio tests cannot be used with robust standard errors). Thirdly, we restricted the analysis to contacts of active TB cases. In these participants, any LTBI is likely to be a result of recent infection, whereas recent entrants to the UK may have been infected many years ago in their country of origin. Fourthly, we included only participants who had concordant results for the two IGRAs. Finally, we repeated the primary analysis additionally adjusting for country of birth.

*Supplementary results*

713 participants were excluded from the analysis due to missing data on DM and/or LTBI status (Figure S1). Those who were included in the analysis were more likely to be male, aged 26-45 years and new entrants than those who were excluded (Table S1). There were also differences in ethnicity, with a higher percentage of participants of Pakistani, Bangladeshi and Mixed ethnicity, and a lower percentage of individuals of Indian ethnicity, in the group included in the analysis compared to those who were excluded.

Table S1: Comparison of participants who were included in the analysis and those who were excluded due to missing data on diabetes and / or IGRA status

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Included****[n (%)]** | **Excluded****[n (%)]** | **p** |
| Total |  | 9157 | 713 |  |
|  |  |  |  |  |
| Sex | Male | 4555 (50.0) | 317 (45.9) | 0.039 |
| (n = 9797) | Female | 4552 (50.0) | 373 (54.1) |  |
|  |  |  |  |  |
| Age group  | 16-25 | 2257 (24.7) | 176 (25.4) | 0.009 |
| (years) | 26-35 | 3145 (34.4) | 208 (30.0) |  |
| (n = 9846) | 36-45 | 1419 (15.5) | 97 (14.0) |  |
|  | >45 | 2331 (25.5) | 213 (30.7) |  |
|  |  |  |  |  |
| Country of birth | Non-UK | 7664 (83.9) | 567 (82.3) | 0.26 |
| (n = 9820) | UK | 1467 (16.1) | 122 (17.7) |  |
|  |  |  |  |  |
| Ethnicity | Indian | 3759 (42.1) | 328 (48.0) | <0.001 |
| (n = 9618) | White | 1112 (12.5) | 85 (12.4) |  |
|  | Black African | 1090 (12.2) | 94 (13.7) |  |
|  | Mixed | 873 (9.8) | 57 (8.3) |  |
|  | Pakistani | 878 (9.8) | 51 (7.5) |  |
|  | Bangladeshi | 695 (7.8) | 23 (3.4) |  |
|  | Black Caribbean | 220 (2.5) | 27 (4.0) |  |
|  | Black Other / Chinese / Other | 307 (3.4) | 19 (2.8) |  |
|  |  |  |  |  |
| Type of participant | Contact | 4670 (51.0) | 429 (60.2) | <0.001 |
| (n = 9870) | New entrant | 4487 (49.0) | 284 (39.8) |  |
|  |  |  |  |  |
| Previous BCG vaccination | No | 1418 (18.3) | 98 (17.7) | 0.74 |
| (n = 8312) | Yes | 6341 (81.7) | 455 (82.3) |  |
|  |  |  |  |  |
| Previous TB diagnosis | No | 8689 (96.4) | 638 (95.2) | 0.11 |
| (n = 9682) | Yes | 323 (3.6) | 32 (4.8) |  |
|  |  |  |  |  |
| Previous contact with TB case | No | 7679 (86.9) | 576 (88.1) | 0.40 |
| (n = 9487) | Yes | 1154 (13.1) | 78 (11.9) |  |
|  |  |  |  |  |
| HIV positive | No | 8487 (99.4) | 641 (9.5) | 0.65 |
| (n = 9183) | Yes | 52 (0.6) | 3 (0.5) |  |
|  |  |  |  |  |
| Other immunosuppressiona  | No | 8908 (97.4) | 662 (97.6) | 0.65 |
| (n = 9828) | Yes | 242 (2.6) | 16 (2.4) |  |
|  |  |  |  |  |
| Smoking | No | 7390 (81.0) | 558 (82.4) | 0.36 |
| (n = 9802) | Yes | 1735 (19.0) | 119 (17.6) |  |
|  |  |  |  |  |
| BMI (kg/m2) | <18.5 | 430 (5.0) | 29 (4.7) | 0.32 |
| (n = 9204) | 18.5 – 25  | 4224 (49.2) | 285 (46.3) |  |
|  | ≥25 | 3935 (45.8) | 301 (48.9) |  |
|  |  |  |  |  |
| Any social risk  | No | 8735 (95.4) | 688 (96.5) | 0.17 |
| factorb (n = 9870) | Yes | 422 (4.6) | 25 (3.5) |  |

a Other immunosuppressive factors considered were: history of using anti-TNF- or other immunosuppressive drugs, solid organ transplant, haematological malignancy, jejunoilealbypass, chronic renal failure or haemodialysis, gastrectomy.

bSocial risk factors considered were: current or past homelessness, imprisonment or problem drug use.

Participants who were included in the complete case analysis were similar to those with incomplete data in terms of IGRA positivity, reported DM prevalence, age group, sex and BMI category. However, there was evidence that those included were less likely to be immunosuppressed than those who were excluded. There were also some differences in the ethnic composition of the two groups, with greater representation of people of Indian and Pakistani ethnicity, and less representation of those of Black Caribbean ethnicity, in the complete case analysis (Table S2).

Table S2: Comparison of participants included in and excluded from the complete case analysis.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Included in complete case analysis****[n (%)]** | **Excluded from complete case analysis****[n (%)]** | **p** |
| Total | 9157 | 8336 (91.0) | 821 (9.0) |  |
|  |  |  |  |  |
| IGRA positive | No | 6027 (72.3) | 596 (72.6) |  |
| (n = 9157) | Yes | 2309 (27.7) | 225 (27.4) | 0.86 |
|  |  |  |  |  |
| Diabetes | No | 7659 (91.9) | 742 (90.4) |  |
| (n = 9157) | Yes | 677 (8.1) | 79 (9.6) | 0.14 |
|  |  |  |  |  |
| Sex | Male | 4178 (50.1) | 377 (48.9) |  |
| (n = 9107) | Female | 4158 (49.9) | 394 (51.1) | 0.52 |
|  |  |  |  |  |
| Age group  | 16-25 | 2054 (24.6) | 203 (24.9) |  |
| (years) | 26-35 | 2878 (34.5) | 267 (32.7) |  |
| (n = 9152) | 36-45 | 1304 (15.6) | 115 (14.1) |  |
|  | >45 | 2100 (25.2) | 231 (28.3) | 0.20 |
|  |  |  |  |  |
| Ethnicity | Indian | 3523 (42.3) | 236 (39.5) |  |
| (n = 8934) | White | 1024 (12.3) | 88 (14.7) |  |
|  | Black African | 1019 (12.2) | 71 (11.9) |  |
|  | Mixed | 816 (9.8) | 57 (9.5) |  |
|  | Pakistani | 832 (10.0) | 46 (7.7) |  |
|  | Bangladeshi | 646 (7.8) | 49 (8.2) |  |
|  | Black Caribbean | 194 (2.3) | 26 (4.4) |  |
|  | Black Other / Chinese / Other | 282 (3.4) | 25 (4.2) | 0.02 |
|  |  |  |  |  |
| Other immunosuppressiona  | No | 8132 (97.6) | 776 (95.3) |  |
| (n = 9150) | Yes | 204 (2.4) | 38 (4.7) | <0.001 |
|  |  |  |  |  |
| BMI (kg/m2) | <18.5 | 421 (5.1) | 9 (3.6) |  |
| (n = 8589) | 18.5 – 25  | 4107 (49.3) | 117 (46.3) |  |
|  | ≥25 | 3808 (45.7) | 127 (50.2) | 0.27 |
|  |  |  |  |  |

Full results from the multivariable model are shown in Table S3.

Table S3: Adjusted prevalence ratios for the association of diabetes mellitus and other baseline characteristics with latent tuberculosis infection from multivariate log binomial model (n = 8336)

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Prevalence ratio (95% CI)** | **p** |
| Diabetes | No | Referent |  |
|  | Yes | 1.15 (1.02-1.30) | 0.025 |
|  |  |  |  |
| Sex | Male | Referent |  |
|  | Female | 0.80 (0.74-0.85) | <0.001 |
|  |  |  |  |
| Age group | 16-25 | Referent |  |
| (years) | 26-35 | 1.27 (1.15-1.41) |  |
|  | 36-45 | 1.47 (1.31-1.65) |  |
|  | >45 | 1.32 (1.17-1.48) | <0.001 |
|  |  |  |  |
| Ethnicity | Indian | Referent |  |
|  | White | 0.81 (0.71-0.92) |  |
|  | Black African | 1.40 (1.27-1.54) |  |
|  | Mixed | 1.20 (1.07-1.34) |  |
|  | Pakistani | 1.15 (1.02-1.29) |  |
|  | Bangladeshi | 0.72 (0.61-0.85) |  |
|  | Black Caribbean | 0.68 (0.50-0.93) |  |
|  | Black Other / Chinese / Other | 0.97 (0.79-1.19) | <0.001 |
|  |  |  |  |
| Other  | No | Referent |  |
| immunosuppressiona | Yes | 0.75 (0.57-0.97) | 0.02 |
|  |  |  |  |
| BMI (kg/m2) | <18.5 | Referent |  |
|  | 18.5 – 25  | 0.97 (0.82-1.14) |  |
|  | ≥25 | 0.93 (0.79-1.10) | 0.52 |

a Other immunosuppressive factors considered were: history of using anti-TNF- or other immunosuppressive drugs, solid organ transplant, haematological malignancy, jejunoileal bypass, chronic renal failure or haemodialysis, gastrectomy.

Table S4 summarises the adjusted prevalence ratios by participant ethnicity.

Table S4: Estimated prevalence ratios for the association of diabetes mellitus with latent tuberculosis infection by ethnicity, adjusted for age group, sex, BMI category and immunosuppression.

|  |  |  |
| --- | --- | --- |
| **Ethnicity** | **Prevalence ratio (95% CI)** | **p** |
| Indian | 1.00 (0.85-1.18) | 0.96 |
| White | 0.58 (0.23-1.46) | 0.25 |
| Black African | 1.48 (1.16-1.90) | 0.002 |
| Mixed | 1.37 (0.95-1.98) | 0.09 |
| Pakistani | 1.41 (1.01-1.99) | 0.05 |
| Bangladeshi | 1.53 (0.91-2.57) | 0.11 |
| Black Caribbean | 1.26 (0.57-2.78) | 0.57 |
| Black other, Chinese or Other | 1.78 (0.97-3.26) | 0.06 |

Table S5 summarises the results of sensitivity analyses.

Table S5: Adjusted prevalence ratios for the association between diabetes mellitus and latent tuberculosis infection from multivariate log binomial model, in sensitivity analyses. All estimates are adjusted for sex, age group, ethnicity, other immunosuppression and BMI.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sensitivity analysis** | **n** | **Prevalence ratio (95% CI)** | **p** |
| Adjusted for age using fractional polynomials | 8336 | 1.15 (1.01-1.30) | 0.04 |
| Poisson regression with robust standard errors | 8336 | 1.15 (1.01-1.30) | 0.03 |
| Restricted to participants with concordant IGRA results | 6300 | 1.16 (0.97-1.40) | 0.11 |
| Restricted to contacts | 4238 | 1.29 (1.09-1.52) | 0.002 |
| Further adjusted for country of birth | 8322 | 1.14 (1.00-1.28) | 0.04 |

Figure S1: Causal diagram summarising the relationship between diabetes mellitus, latent tuberculosis infection and relevant covariates. Direct relationships between covariates and LTBI are shown by solid black lines, between covariates and DM by dashed black lines, other relationships by grey lines.



Figure S2: Recruitment of participants to PREDICT and inclusion in the LTBI/diabetes study.



**Questionnaire for contacts**

**Questionnaire- Participants**

***The UK Prognostic Study of the Interferon Gamma***

***Release Assay for Tuberculosis***

Thank you for your help with this research. The questionnaire will take approximately 10 minutes to complete. If you need any help please feel free to contact: xxx.

Please read each question carefully before you answer it, and try to answer every question. Either tick the appropriate box or write your answer in the space provided in BLOCK CAPITALS.

The information that you give us will be treated in strict medical confidence.

**Contact details**

|  |
| --- |
| **a) Name** |

Title: ………………… First names (s): ……………………… Surname: ……………………………….

|  |
| --- |
| **b) Identifiers** |

NHS number: ……………………………………… Local Patient ID: …………………………………….

|  |
| --- |
| **c) Address/telephone number** |

Address line one: ……………………………………………….

Address line two: ……………………………………………….

Town: ……………………………………………….

County: ……………………………………………….

Post code: ……………………………………………….

Telephone Number: ………………………………………………

|  |
| --- |
| **d) Locality of patient care** |

Primary Care Trust or Local Health Board (of patient’s residence): ……………………………………

Local Authority of patient’s residence: …………………………………………………………………...

Participant’s consultant: …………………………………………………………………………………...

Participant’s Nurse: ………………………………………………………………………………………...

**Personal details**

|  |
| --- |
| **a) Gender** |

[ ]  Male [ ]  Female

|  |
| --- |
| **b) Age** |

Date of birth: ……………………………. (day/month/year) Age: ……………………………. (years)

|  |
| --- |
| **c) Were you born in the UK?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If non UK born please state country of birth:* …………………………….

*If non UK born please state date of entry to the UK:* ……………………………. (month/year)

*Country of residence prior to arrival in the UK:* …………………………….

|  |
| --- |
| **d) Current or most recent job?** |

Health care worker:

[ ]  *Doctor* [ ]  *Nurse*

[ ]  *Dentist* [ ]  *Community care worker*

[ ]  *Other*

Social/Prison sector worker:

[ ]  *Social worker* [ ]  *Homeless sector worker*

[ ]  *Prison Detention Officer* [ ]  *Probation Officer*

[ ]  *Other*

Laboratory/pathology:

[ ]  *Microbiologist* [ ]  *Laboratory staff*

[ ]  *Pathologist* [ ]  *PM attendant*

[ ]  *Other*

Agricultural/animal care worker:

[ ]  *Works with cattle* [ ]  *Works with wild animals*

[ ]  *Other*

Education:

[ ]  *Full time Student* [ ]  *Lecturer*

[ ]  *Teacher (inc Nursery)* [ ]  *Other*

None:

[ ]  *Retired* [ ]  *Unemployed*

[ ]  *Child* [ ]  *Prisoner*

[ ]  *House wife/husband* [ ]  *Immigration Detainee*

[ ]  *Asylum seeker* [ ]  *Other*

Other: …………………………………….. [ ]

Not sure [ ]

|  |
| --- |
| **e) Ethnicity** |

[ ]  *White* [ ]  *Indian*

[ ]  *Black African* [ ]  *Pakistani*

[ ]  *Black Caribbean* [ ]  *Bangladeshi*

[ ]  *Black Other* [ ]  *Chinese*

[ ]  *Mixed/Other* [ ]  *Unknown*

**TB history**

|  |
| --- |
| **a) Contact criteria- indicate as appropriate\*** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Setting** | **Type** | **Room** | **Size of space/distance** | **Duration (hours)** |
| Household | Sexual/non sexual | Same room? | Within 3 feet? Volume of room? |  |
| Health care | Hospital, nursing home, community, other | Same room/ward or note? | Within 3 feet? Volume of room? |  |
| Education | Secondary, tertiary | Same class? | Within 3 feet? Volume of room? |  |
| Detention | Prison or immigration | Same cell, same wing, same prison? | Within 3 feet? Volume of room? |  |
| Homeless | Residential hostel, night shelter, sofa surfer, rough sleep, day centre | Same room, same wing, same hostel? | Within 3 feet? Volume of room? |  |
| Other congregate living settings | Elderly residential, special needs homes, ,  | Same room, same ward, same home? | Within 3 feet? Volume of room? |  |
| Travel | Air-travel, car, bus, train, ship | Sitting in same or next row? | Within 3 feet? Volume of room? |  |
| Workplace/social | Indoor or outdoor type: factory, crack house, restaurant, pub/bar, church, movie, store, garage, construction, office | Same room, open plan? |  |  |
| Other |  |  |  |  |

**\* To also collect information on sputum and culture result of index case**

**Adapted from Shams et al., and UK contact tracing module**

When did you last have contact with this person?: ………………. (day/month/year) / Not Known

|  |
| --- |
| **b) Prior to this recent contact, have you previously had contact with anyone else diagnosed with tuberculosis?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes:*

[ ]  Household [ ]  Non-household

*How many years ago:* …………………………….

|  |
| --- |
| **c) Have you previously received a diagnosis of tuberculosis?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, how many years ago:* …………………………….

*If yes,* *were you treated with at least 1 month of drug therapy?*

[ ]  Yes [ ]  No [ ]  Not sure

**Medical and Social History**

|  |
| --- |
| **a) Do you have a history of problem drug use?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, please select one or more categories:*

[ ]  Current drug use [ ]  Drug use in the last 5 years [ ]  Drug use more than 5 years ago

|  |
| --- |
| **b) Are you currently homeless or ever been homeless?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, please select one or more categories:*

[ ]  Currently Homeless [ ]  Homeless in the last 5 years [ ]  Homeless more than 5 years ago

|  |
| --- |
| **c) Have you ever been in prison?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, please select one or more categories:*

[ ]  Currently in prison [ ]  In prison in the last 5 years [ ]  In prison more than 5 years ago

|  |
| --- |
| **d) Do you have a history of diabetes?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, please state level of control:* ….….….

|  |
| --- |
| **e) Do you have a history of cancer?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, please state type:* ….….….

|  |
| --- |
| **f) Are you HIV positive?** |

[ ]  Yes [ ]  No [ ]  Not sure

|  |
| --- |
| **g) Do you have a history of smoking?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, please state how many a day and for how long:* ….….….

|  |
| --- |
| **h) Do you have a history of, or currently use, any of the following?** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Yes** | **No** | **Unknown** | **Type** | **Amount** |
| **Previous Transplant** |  |  |  |  |  |
| **Anti-TNF alpha** |  |  |  |  |  |
| **Steroids**  |  |  |  |  |  |
| **Immunosuppressive Drugs**  |  |  |  |  |  |

|  |
| --- |
| **i) Have you previously received a BCG vaccination?** |

[ ]  Yes [ ]  No [ ]  Not sure

*If yes, approximate year of vaccination:* ….….….

|  |
| --- |
| **j) Have you travelled outside the UK in the last three years (please do not include travel to Western Europe, US, Canada and Australia)?** |

[ ]  Yes [ ]  No [ ]  Not sure

*Please list where you travelled to with dates*

|  |  |  |
| --- | --- | --- |
| **Place** | **Date** | **Duration** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |
| --- |
| **k) Have you travelled or lived in any of these places before the three years (please do not include travel to Western Europe, US, Canada and Australia)?** |

[ ]  Yes [ ]  No [ ]  Not sure

**EuroQOL**

|  |
| --- |
| **By placing a tick in one box in each group below, please indicate which statements best describe your own health state today**  |

|  |
| --- |
| **Mobility** |
| I have no problems in walking about  |  |
| I have some problems in walking about |  |
| I am confined to bed |  |
|  |  |  |
| **Self-Care** |
| I have no problems with self-care |  |
| I have some problems washing or dressing myself |  |
| I am unable to wash or dress myself |  |
|  |  |  |
| **Usual activities** *(e.g. work, study, housework, family or leisure activities)* |
| I have no problems with performing my usual acitivities |  |
| I have some problems with performing my usual activities |  |
| I am unable to perform my usual activities |  |
|  |  |  |
| **Pain or discomfort** |
| I have no pain or discomfort |  |
| I have moderate pain or discomfort |  |
| I have extreme pain or discomfort |  |
|  |  |  |
| **Anxiety or depression** |
| I am not anxious or depressed |  |
| I am moderately anxious or depressed |  |
| I am extremely anxious or depressed |  |
|  |  |  |

Thank you for taking the time to fill in this questionnaire. Please return this questionnaire to the research nurse

***For Official Use only***

Name of Research Nurse:

Please enter study number:

Please enter ID of index case:

**For Official Use Only**

Weight*:* ….….…………………….. kgs

Height*:* ….….…………………….. metres

**Results of laboratory tests**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of test** | **Test** | **Unit** | **Type** |
| IGRA (\*2) | Quantiferon | iu/ml | Numerical |
|  | ELISPOT | Spots | Numerical |
| Full Blood Count | White Blood Cells (Leukocytes) | No/ml | Numerical |
|  | Red cells | No/ml | Numerical |
|  | Platelets | No/ml | Numerical |
|  | Haemoglobin | mg/ml | Numerical |
|  | Film | Comment | Text |
| Vitamin D status | 25 Hydroxyvitamin D | ng/ml or nmols/L | Numerical |
| TST  | Mantoux test | mm | Numerical |