Methods: assay in immigrants from high prevalence areas, close contacts of active TB cases. Antigens, might improve LTBI diagnosis in this population. M. tuberculosis to the identification of truly infected BCG-vaccinated immigrants. The new T-tries the low specificity of the tuberculin skin test (TST) represents an obstacle to future occurrence of severe active disease cases. The new T-cell interferon-gamma based assays (TIGRA) for LTBI diagnosis hold promise to be more sensitive than the TST in this high-risk vulnerable population.

Background: Diagnosis of latent tuberculosis infection (LTBI) in immunosuppressed patients, like patients with chronic renal failure (IRC), is hampered by the low sensitivity of the tuberculin skin test (TST). However, accurate identification of contacts with IRC latently infected with M. tuberculosis might help to prevent future occurrence of severe active disease cases. The new T-cell interferon-gamma based assays (TIGRA) for LTBI diagnosis hold promise to be more sensitive than the TST in this high-risk vulnerable population.

Aim: To assess the performance of the QuantiFERON-TB Gold In-Tube (QFT-IT) and the T-SPOT. TB (TS.TB) tests in patients with IRC and exposed to M. tuberculosis in a low-prevalence area.

Methods: TIGRA and TST were simultaneously performed in 22 patients with IRC (mean age 67.7±16.1 years, 13.6% BCG-vaccinated) recently exposed to a patient affected by smear-negative, culture-positive pulmonary tuberculosis.

Results: Indeterminate results due to low positive control values were more frequent with QFT-IT (3/22, 13.6%) than with TS.TB (0/22). TST was positive in 1 (4.5%) patient; 6/22 (27.3%) tested positive with TS.TB and 5/22 (22.7%) with QFT-IT. Conclusions: The results of this single contact tracing indicate that among patients with IRC recent contacts of a tuberculosis case TIGRA identify as infected by M. tuberculosis more subjects, as compared to the TST: furthermore, in this population indeterminate results were more common with QFT-IT than with TS.TB.

P2514 Impact of the QuantiFERON-TB and T-SPOT.TB tests in contact tracing among patients with chronic renal failure
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Background: Identification and treatment of contacts with latent tuberculosis infection (LTBI) are key components of tuberculosis (TB) control strategies in areas with low prevalence of disease. In immigrants from high prevalence countries the low specificity of the tuberculin skin test (TST) represents an obstacle to the identification of truly infected BCG-vaccinated immigrants. The new T-cell interferon-gamma based assays (TIGRA), based on M. tuberculosis-specific antigens, might improve LTBI diagnosis in this population.

Aim: To assess the performance of the QuantiFERON-TB Gold In-Tube (QFT-IT) assay in immigrants from high prevalence areas, close contacts of active TB cases.

Methods: QFT-IT and TST were simultaneously performed in the setting of TB contact tracing among immigrants from high TB prevalence countries. Agreement was evaluated using the kappa statistics.

Results: In 62 TB contacts (mean age 35.7±11 years, 66% BCG-vaccinated) the TST was positive in 90.3% while 53.2% were positive with QFT-IT (p=0.001): 1 subject tested QFT-IT- indeterminate and was TST-positive. TST provided more positive results among BCG-vaccinated contacts (92% vs 83% in non BCG-vaccinated, p=0.08). Overall concordance between QFT-IT and TST was 64% (k=0.23): agreement was complete among TST-negative contacts.

Conclusions: Rates of LTBI among contacts immigrants from TB endemic countries is significantly lower when determined by QFT-IT, than by TST. These results suggest that the application of TIGRA to contact tracing among immigrants might reduce the number of candidates to preventive treatment, possibly based on higher specificity of LTBI detection.

253. Interferon-gamma release assay tests for diagnosing tuberculosis infection and disease

P2513 Impact of the QuantiFERON-TB GOLD In-Tube test in contact tracing among immigrants from high prevalence countries
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Background: Diagnosis of latent tuberculosis infection (LTBI) in immunosuppressed patients, like patients with chronic renal failure (IRC), is hampered by the low sensitivity of the tuberculin skin test (TST). However, accurate identification of contacts with IRC latently infected with M. tuberculosis might help to prevent future occurrence of severe active disease cases. The new T-cell interferon-gamma based assays (TIGRA) for LTBI diagnosis hold promise to be more sensitive than the TST in this high-risk vulnerable population.

Aim: To assess the performance of the QuantiFERON-TB GOLD In-Tube (QFT-IT) and the T-SPOT. TB (TS.TB) tests in patients with IRC and exposed to M. tuberculosis in a low-prevalence area.

Methods: TIGRA and TST were simultaneously performed in 22 patients with IRC (mean age 67.7±16.1 years, 13.6% BCG-vaccinated) recently exposed to a patient affected by smear-negative, culture-positive pulmonary tuberculosis.

Results: Indeterminate results due to low positive control values were more frequent with QFT-IT (3/22, 13.6%) than with TS.TB (0/22). TST was positive in 1 (4.5%) patient; 6/22 (27.3%) tested positive with TS.TB and 5/22 (22.7%) with QFT-IT.

Conclusions: The results of this single contact tracing indicate that among patients with IRC recent contacts of a tuberculosis case TIGRA identify as infected by M. tuberculosis more subjects, as compared to the TST: furthermore, in this population indeterminate results were more common with QFT-IT than with TS.TB.
P2516
The QuantiFERON testing and the diagnosis of tuberculosis
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Aim: To study the use of QuantiFERON testing as an additional diagnosis method for the TB infection.

Methods: We used an ELISA type method, specifically, the following QuantiFERON kit: QuantiFERON-TB GOLD.

Results: In the Bacteriology laboratory from the Clinic Of Lung Diseases last between 17.10.2006 and 17.07.2007, 209 samples have been tested for QuantiFeron. From all the samples, 106 (50.71%) came back positive, 95 (44.49%) came back negative and 10 (4.78%) were declared undetermined. By comparison with the microscopic and Lowenstein Jensen culture examination results, in 111 cases (<5.77%) the results were identical with the QuantiFERON testing. The advantage of the latter is that it is faster and the biological samples for the testing are easier to obtain.

Conclusion: The given results suggest that QuantiFERON testing could be an additional reliable method for laboratory diagnosis of tuberculosis.

P2517
Mycobacterium tuberculosis infection in Mazovia Region in Poland — population study using interferon — gamma release assay and tuberculin skin test
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Introduction: Mycobacterium tuberculosis infection (MTBI) is still a problem in Poland. Although the incidence of tuberculosis has been continuously decreasing for last 60 years, it is estimated, that around 20% of Polish population have been infected with MTB. Tuberculin skin test (TST) used to be the only one method to detect the latent infection. Currently a new tool for detection of MTB has developed – interferon gamma release assays.

Aim of the study: To assess the prevalence of MTBI in the population of Mazovia Region in Poland.

Methods: The study group consisted of 183 individuals. All participants were interviewed on possible risk factors for MTBI using a questionnaire and underwent interferon-gamma whole blood assay (QuantiFERON-TB Gold™, QFT) as well as tuberculin skin test (TST). The positive TST was defined as more than 10 mm diameter and QFT as equal or higher than 0.35 IU/ml.

Results: 86% of study population were BCG vaccinated. The prevalence of MTBI in tested group was, on average, 29%, with only one person (6%) infected in a group of younger than 30, and 31% in a group of older participants. A higher risk of MTBI was associated with older age (<0.0001) and with previous TB contact. There was no difference between men and women. INF gamma level correlated positively with age (<0.0001) and with skin induration diameter (<0.01).

Conclusions: About one quarter of Polish population seems to be infected with MTB with the vast majority of cases among people over 50th year of life. IFN gamma assays have a useful role in screening younger population who are BCG vaccinated.

P2518
Use of QuantiFERON-TB gold™ blood test as first step for immigrant tuberculosis screening in a UK city
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Background: NICE guidelines for tuberculosis (TB) screening recommend chest X ray (CXR) for immigrants from countries with TB incidence >40/100,000 and tuberculin skin test (TST) for people with normal CXR from high TB prevalence countries. Previous audit found a very low rate of active or latent TB infection detected through screening immigrants from countries with TB incidence >200/100,000 but high rates of positive TST in those from higher incidence countries. We piloted a revised policy for screening using QuantiFERON-TB gold™ (QFT) as first line test.

Methods: Initially TST was offered to immigrants from countries with TB incidence >40/100,000 and TST to those from countries with incidence >30/100,000. When increased resources for QFT became available all immigrants from countries with TB incidence >200/100,000 had QFT. Data was prospectively collected from 1st January to 31st December 2007.

Results: 315 QFT were done with 98 positive (31%) and 6 (1.9%) indeterminate results. Of the 98 patients with a positive QFT 77 (79%) had previous BCG vaccination. 23 immigrants with positive QFT had TST of which 12 were positive, 1 immigrant had received prior therapy for TB and 10 had previous TB contact. On review of case notes for 93 patients with positive QFT, all were diagnosed with latent TB infection, with no cases of active TB.

Conclusions: We believe QFT blood testing is appropriate for screening new entrants from high risk countries. Patients only require one contact with health services potentially reducing costs and improving compliance. Although this group had unknown HIV status and most came from countries with high rate of HIV indeterminate QFT result was low (<2%).

P2519
The role of QuantiFERON-TB gold test in diagnosis of tuberculosis meningitis
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Objectives: To evaluate the diagnostic value of whole interferon-gamma assay, QuantiFERON-TB Gold in Tube (QFT-G) in tuberculosis meningitis.

Methods: Through a perspective study enrolling patients with suspected TB meningitis, in 2007– Jan. 2008 we performed QFT-G together with classic laboratory methods.

Results: The study included 21 patients, 17 male and 4 female; mean of age was 29.6 (age range 10 month-64 years). Previously BCG vaccinated was 16 patients and 4 had a history of TB. The symptoms and physical examination at the admission may suggest TB meningitis: fever, headache and meningsmas at 21, cranial nerve palsies at 4, monon/ehemi paresis at 5, altered mental status at 14 and seizures at 5 subjects. TST was positive at only one patient. 9 patients had CSF pleocytosis <100 elements/ml, 9 between 100 and 200 and 2 patients >500. In 19 cases we have high CSF protein level and in 12 low CSF glucose. All patients had negative smear and only 9 had positive culture. We performed QFT-G from whole blood and from CSF at all patients. In blood samples, 66 subjects had QFT-G positive, 12 (57.1%) QFT-G negative at 2 (9.6%) and indeterminate. In CSF, 3 patients had negative results and 18 QFT-G indeterminate. We diagnosed with TB meningitis 1 patients: 6 had QFT-G and culture positive, 4 only culture and one only QFT-G.

We initiated quadruple antituberculous therapy with favorable response at 7 patients; one had sequelas (hydrocephalus) and we had 3 dead.

Conclusions: QuantiFERON-TB Gold could improve the prognosis of TB meningitis by a rapid diagnosis and an early and accurately treatment initiation. Further study is necessary to establish the value of interferon gamma release testing in CSF.

P2520
Interferon-gamma release assay (IGRA) in BCG vaccinated Greek army recruits reveals that most positive tuberculin skin tests (TST) are due to BCG and not to latent tb infection
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Introduction: IGRA’s are considered a useful tool in differentiating between latent tb infection and previous BCG vaccination. This is imported for Greece where BCG is still compulsory and tb still a problem.

Population-Methods: 960 Greek army recruits (age 19-39, mean: 24.8), BCG vaccinated at age 5-10 were tested with TST. All recruits with TST>9mm and a number of those with TST=0mm were tested with IGRA (Quantiferon-TB Gold). Results: i) 899 recruits had TST=0mm, 22 of them were tested with IGRA and one was positive. He was vaccinated in 1990 and had BCG scar, ii) two recruits had TST=1-4mm, None had positive IGRA, iii) nine had TST=5-9mm, one had positive IGRA, iv) 31 had TST=10-15mm, only one had positive IGRA and v) 28 had TST>15mm, only 5 had positive IGRA.

Conclusions: a) IGRA was quite specific, since it was negative in 23/24 recruits with TST<5mm. b) IGRA revealed that in most recruits with positive TST (even >15mm) this is a result of previous vaccination and not latent tb infection. We conclude that IGRA is an absolutely indicated in BCG vaccinated young adults with even strongly positive TST before considering treatment for latent tb.

P2521
A screening for latent tuberculosis infection among candidates to anti-tumor necrosis factor-alpha agents using a whole blood interferon-gamma test
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Background: Patients treated with anti-Tumor Necrosis Factor (TNF)-Alpha agents are at increased risk of tuberculosis reactivation. The performance of the Tuberculin Skin Test (TST) in these patients is often impaired by chronic immunosuppressive therapies. We present here our experience among subjects screened at the S Maria Hospital, Terni, Italy, using the QuantiFERON-TB Gold in tube (QFT-G IT).

Materials and methods: all patients being screened for latent tuberculosis infection from October 1st 2007 were prospectively enrolled. The screening was carried out using whole blood interferon-gamma test to screen all patients for latent tuberculosis infection (LTI). The QuantiFERON-TB Gold in Tube (QFT-G IT) was performed and the results were compared with TST.

Results: 37 patients were screened for LTI and 31 had TST performed. All had a history of BCG vaccination. 23/31 patients had positive QFT-G with the great majority being indeterminate (20/23). There was no case of active TB. All patients were negative on TST. The QFT-G has proven to be an absolute useful tool for screening patients with high risk of reactivation of latent tuberculosis infection.
out with the QFT-G IT and the TST. QFT-G IT was performed at the Microbiology Department of the Telserinstitut Hospital, Perugia; the TST was performed according to international guidelines.

Results: as of February 4th 2008, 27 patients (mean age 51, range 26-77, male 66.7%) were enrolled. 41% were chronically treated with steroids, 26% with methotrexate. The agreement between TST and QFT-G IT was high (κ=0.645). 15% of the QFT-G IT gave an indeterminate result, always associated to a negative TST, 81% a negative and 4% a positive result.

Conclusions: preliminary data among this peculiar cohort of subjects show that the agreement with the TST was good, but that still indeterminate results coupled with a negative TST, raise the question about the sensitivity of the screening, even using 2 tests.

P2522
Response to M. tuberculosis selected RD1 peptides in Ugandan HIV-infected patients with smear positive pulmonary tuberculosis
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Background: Tuberculosis (TB) is the most frequent co-infection in HIV-infected individuals still presenting diagnostic difficulties. Recently an assay based on IFN-gamma response to RD1 peptides selected by computational analysis was developed whose presence was detected during active M. tuberculosis replication.

Objectives: To investigate the response to selected RD1 peptides in HIV-1-infected subjects with or without active TB in Uganda, a country endemic for TB and to evaluate the change of this response over time.

Design: 30 HIV-infected individuals were prospectively enrolled, 20 with active TB and 10 without. Among those with TB, 12 were followed over time.

Methods: IFN-gamma response to selected RD1 peptides and RD1 proteins was evaluated by ELISPOT. Results were correlated with immune, microbiological and virological data.

Results: Response to RD1 peptides evaluated as SFC cells was significantly higher in subjects with active TB compared to those without. Among the 12 TB patients studied over time a significant decrease of IFN-gamma response was found at completion of therapy. A ratio of RD1 peptides ELISPOT counts over CD4 cell counts greater than 0.21 yielded 100% sensitivity and 80% specificity for active TB. Conversely, response to RD1 intact proteins was not statistically different between subjects with or without TB, however a ratio of RD1 proteins ELISPOT counts over CD4 cell counts greater than 0.22 yielded 89% sensitivity and 70% specificity for active TB.

Conclusions: Response to selected RD1 peptides is associated with TB disease and may be used as a marker of TB infection/disease and to define the reasons for the indeterminate response. Further development of this test is needed.

P2523
Support of ex vivo IFN-gamma release assays in the diagnosis of tuberculosis infection in HIV/AIDS patients
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Objective: Bulgaria has a low prevalence of HIV infection but the chance of HIV/TB co-infection is raised due to intermediate incidence of TB (40/100,000 population). The aim of this study was to estimate the utility of ex vivo IFN-gamma release assays (IGRAs), Quantiferon® TB Gold In-Tube (QFT) and T-SPOT.TB™ (SPOT), in supporting the diagnosis of MTB infection in HIV/AIDS patients.

Methods: By using IGRAs, 105 HIV/AIDS patients have been enrolled. All of them had clinical and/or radiological features consistent with the suspect of MTB infection. Data was analyzed by using Mann-Whitney non-parametric t-test and Spearman rank order correlation test (GraphPad Prism software, Version 4.0, San Diego, CA, USA).

Results: 44/105 (42%) patients were positive in QFT and 37/105 (35%) in SPOT. For QFT indeterminate results were found in 7/105 (7%) and for SPOT in 14/105 (13%) ≤ 0.105 patients. Microbiological confirmation of active-TB was found in 16 subjects. QFT-positive results were detected in 14/16 (88%) patients and SPOT-positive in 10/16 (63%). Indeterminate were the results of 1/16 (6%) patients in the QFT and in 5/16 (31%) in the SPOT. MTB infection was not microbiologically confirmed in 89 HIV-positive subjects. Of these 30 (34%) were positive in QFT and 27 (30%) in SPOT. Six out of 89 (7%) subjects were indeterminate by QFT, compared with 30 (31%) by SPOT.

Conclusions: IGRAs proved useful for aiding the diagnosis of tuberculosis infection in immunocompromised HIV/AIDS patients, especially those with smear- and culture-negative results. QFT test was more convenient and appeared more sensitive than the SPOT test, with fewer indeterminate results, in our studied population.

P2524
Clinical utility of T-cell-based assay for the diagnosis of extrapulmonary tuberculosis
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Objective: To evaluate the QuantiFERON TB-2G (QFT-2G) response in patients with active extrapulmonary tuberculosis (E-TB) in order to determine whether a negative QFT-2G test might be a marker for active E-TB infection compared with tuberculin skin test (TST) in clinical practice.

Material and methods: The subjects consisted of 35 patients with confirmed E-TB, 30 with probable E-TB, and 45 with not having E-TB. TST and QFT-2G test were performed for all of these patients between January 2005 and December 2007.

Results: While the positive rate of TST for TB infection was 57%, that of QFT-2G test was 86% for patients with confirmed E-TB. While the positive rate of TST for TB infection was 60%, that of QFT-2G was 80% for patients with probable E-TB. However, the positive rate of TST was 51% for patients that did not have E-TB, that of QFT-2G test was 9%. QFT-2G test showed significantly lower percentage compared to that of TST for sensitivity and specificity of TST for the diagnosis of active E-TB was 57% and 49%, respectively. By comparison, the sensitivity and specificity of QFT-2G test were 86% and 84%, respectively. Concerning the results of TST and QFT-2G test separated by the site of E-TB disease, although the positive rates for both tests in patients with miliary TB were lower than that in patients with other E-TB diseases, there was no significant difference.

Conclusions: QFT-2G test is a feasible diagnostic method in routine clinical practice and useful for an accurate diagnosis of patients with active E-TB compared TST.

P2525
Indeterminate results of QuantiFERON TB-2G test performed in routine clinical practice
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Objective: Whole-blood interferon-γ release assay (QuantiFERON TB-2G, QFT-2G) test can give indeterminate results. We assessed the prevalence of indeterminate results among QFT-2G tests.

Methods: The subjects were 704 patients suspected of TB infection between January 2005 and December 2007. The QFT-2G test and tuberculin skin test (TST) were performed for all subjects. If there was prevalence of indeterminate results of QFT-2G test, this test has been performed for all of these patients between January 2005 and December 2007.

Results: Among 704 patients, 72 (10%) were indeterminate results of QFT-2G test. The indeterminate results consisted of positive control failure in 68 patients and negative control failure in 4. Although the indeterminate results of TST were performed for all patients with indeterminate results, 12 patients (17%) changed to determinate results.

Conclusions: Indeterminate results of QFT-2G test in routine clinical practice are never infrequent. We must take care in judging of QFT-2G test for patients with elderly or immunocompromised hosts because the possibility of determinate results of QFT-2G test may be low even if this test was repeated.

P2526
Indeterminate results of the QuantiFERON®TB Gold (QFT) in hospitalized patients at risk for MTB infection/disease
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Introduction: Indeterminate results with the QFT assay can be due either to a low IFN-gamma response to the mitogen or a high background response. Low IFN responses or high background levels may be seen more frequently in hospitalized patients. The objectives of this study were to evaluate the incidence of indeterminate results in the QFT assay in hospitalized patients at risk for MTB infection/disease and to define the reasons for the indeterminate response.

Materials and Methods: From February 2006 to January 2008, 691 specimens for QFT were performed by the Infectious Diseases Laboratory at the University of Louisville, a university-based, CLIA-certified, high-complexity laboratory which receives specimens from 11 healthcare facilities in the Louisville, Kentucky area.

Results: Of the 691 QFT specimens, there were 515 (74.5%) negative results, 108 (15.6%) positive results, and 68 (9.8%) indeterminate results. Of the positive results, reactivity as seen to ESAT-6 in 16 (31%), CFP-10 in 38 (57%) and to both ESAT-6 and CFP-10 in 54 (11%). Of the 68 indeterminate results, 15 were due to elevated nil values (≥ 0.70 IU/mL) and 53 were due to an insufficient response to the mitogen control (≥ 0.50 IU/mL).

Conclusions: A definitive interpretation of a QFT result, either positive or negative, can be obtained in 90% of hospitalized patients at risk for MTB infection/disease.
Indeterminate results are rare and are due mostly to inadequate IFN-gamma response to the mitogen, which indicates that these results in this patient population are most likely due to immunosuppressive conditions. The QFT appears to be a reliable assay for use in a referral laboratory setting.

P2527

**Radiological findings of inactive tuberculosis do not correlate with M. tuberculosis-specific T-cell immunity in high-risk patients**

**Background:** Radiologic findings are often used to identify patients with likely inactive tuberculosis (TB) infection, although their specificity is largely unknown. The aim of this study was to assess the correlation of two M. tuberculosis-specific immunologic assays, Quantiferon-TB Gold In-Tube (QFT-IT) and T-SPOT.TB (TS.TB) with radiological findings suggestive of inactive TB in a population of high-risk immunocompromised patients.

**Methods:** Sixty-nine patients at first diagnosis of hematologic cancer (53 Hodgkin lymphoma, 16 non-Hodgkin lymphoma) were prospectively enrolled before starting anti-cancer chemotherapy. Fifty patients (72.4%) underwent chest CT and 19 had a chest radiogram. Two radiologists, independently and blinded to demographic or clinical data, assessed all exams for the presence of abnormalities suggestive of inactive TB. QFT-IT and TS.TB were performed simultaneously.

**Results:** TB were found by at least one observer in 20 patients: inter-observers agreement was 87% (k=0.56). At least one blood test was positive in 22 patients. Agreement between blood tests and radiologic abnormalities was extremely low, with k value close to zero; thus identifying random concordance (k=0.05 for QFT-IT and k=0.21 for TS.TB).

**Conclusions:** Chest radiologic findings interpreted as due to previous TB infection do not correlate with the results of two M. tuberculosis-specific T-cell-based assays for the diagnosis of latent TB infection.

P2530

**The sensitivity and specificity of QuantiFERON-TB Gold in immunocompromised and immunocompetent patients**

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**Objectives:** To evaluate the role of QuantiFERON-TB Gold in Tuberculosis (QFT-G) in TB diagnosis.

**Methods:** We performed QFT-G at 157 patients with suspected TB in Dec. 2006- Jan. 2008.

**Results:** The study included 48 children and 109 adults, mean age of 37.49; previously BCG vaccinated = 91. We have 96 (61.3%) immunocompetent patients and 61 (38.7%) immunocompromised: 24 were HIV positive (CD4 < 200 at 18), 14 had chronic C or B hepatitis, 2 cirrhosis with HCV, 3 chronic renal failure, 3 cancer, 1 rheumatoid arthritis and 4 silicosis. TST was positive at 24 patients, but only at 2 immunocompromised. All patients had negative smear and only 23 had positive culture.

**Conclusions:** The results of QFT-G test was positive at 71 (45.3%) patients, negative at 69 (43.9%) and indeterminate at 17 (10.8%). From 61 immunocompromised, 31 (50.8%) QFT-G positive were confirmed with TB, at 15 (24.6%) QFT-G negative TB was excluded, 5 (8.2%) had false negative results, 1 (1.6%) false positive and 9 (14.8%) indeterminate results. In group of 96 immunocompetent, 37 (38.5%) QFT-G positive was confirmed with TB, at 42 (43.7%) with QFT-G negative TB was excluded, 7 (7.3%) had false QFT-G negative, 2 (2.1%) false positive and 8 (8.4%) indeterminate. The sensitivity of the QFT-G was 86.1% at immunocompromised and 84.09% at immunocompetent, and the specificity was 93.7% vs. 95.4%.

**Conclusions:** QuantiFERON-TB Gold had a good sensitivity and specificity even at immunocompromised patients. The false negative QFT-G results seem to be associated with severe pre-existing disease of the more than immunocompromised status. The frequency of indeterminate tests is similar at immunocompetent and immunocompromised patients.

P2531

**Comparison of a T-cell-based assay with tuberculin skin test in patients with latent and active tuberculosis**

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**Background:** Diagnosis of active and latent M. tuberculosis infection (LTBI) remains a challenge. The diagnosis of LTBI relies on the tuberculin skin test (TST) that has many drawbacks.

**Objective:** The aim of this study was to evaluate the reliability of the TST and the interferon-gamma enzyme-linked immunosspot assay (ELISpOT) in TB patients and health care workers with known exposure to M. tuberculosis and healthy volunteers. We also investigated whether a rapid diagnosis of active pulmonary TB can be established by enumeration of M. tuberculosis-specific T lymphocytes from induced sputum.

**Method:** We conducted a prospective study enrolling a total of 91 participants with culture-proven TB patients and health care workers with known exposure to M. tuberculosis and healthy volunteers. The sensitivity of the ELISpOT and TST were 93.1% and 38.1%, while their specificities were 76.7% and 42.5%, respectively. Negative predictive value and positive predictive values of ELISpOT and TST were 92%, 36.7%, and 56.7%, 25.8%, respectively. 40% of the TB contacts were positive by ELISpOT and 83.3% by TST. Overall, agreement between ELISpOT and TST was slight (k=0.34). There were no significant correlation between the level of exposure and the ELISpOT like TST.

There are few data from high burden countries on the utility of T cell assays for the rapid diagnosis of active TB.

**Methods:** We evaluated the utility of two standardized ELISA-ECD/10 IFN-g release assays (IGRAs; TSOTB and QFT-GIT) and two non-standardized antigen-driven assays (using PPD and HBHA), in TB suspects from Cape Town, South Africa. The gold standard was sputum culture positivity. Participants (n=67) were classified as definite TB (culture +), non-TB, probable TB and uncertain diagnosis (culture pending).

**Results:** Of the 67 TB suspects 27 had definite TB, 9 non-TB, 4 probable TB, 2 had an uncertain diagnosis and 34% were HIV positive. 18/27 (67%) of the definite TB subjects were sputum smear positive. The sensitivity, and specificity % of TSOTB-TB and QFT-GIT were (90, 22) & (74, 33), respectively. Spot counts or IFN-g levels were 1.5 to 3 fold higher in TB than in non-TB patients but the overlap was large. HBHA had a S & S of 41 and 78%, respectively (cut-point of 5 SFC/10^6 PBMC).

**Conclusions:** In Africa, due to high rates of LTBI standardized IGRAs have poor specificity for the diagnosis of active TB and furthermore cannot be meaningfully used as rule out tests.
Of these TB patients, TST was negative in 72.4%, and ELISPOT was negative for 6.9%. Induced sputum ELISPOT results were undefined in 69% of active TB patients.

**Conclusions:** The sensitivity of the ELISPOT assay is greater than that of TST. ELISPOT offers a more rapid exclusion of TB in suspected cases and a more accurate approach when compared with TST.

**P2532**
Frequency of discordant results in interferon-γ release assay serial testing for latent tuberculosis infection in health care workers

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**Background:** Limited data is available on the serial testing with interferon-γ (IFN-γ) release assays (IGRAs) in health care workers in countries with low prevalence of latent tuberculosis infection (LTBI).

**Aim:** To determine the frequency of IGRA conversions and reversions in repeated testing in individuals and to identify predictors of further IFN-γ response.

**Methods:** 129 health care workers were repeatedly tested for LTBI using the IGRA QuantiFERON® -TB Gold in Tube. On initial evaluation both tuberculin skin test (TST, 2 TU, PPD RT 23 SSI) and IGRA were performed. IGRA results were interpreted following the manufacturer’s instructions.

**Results:** The initial frequency of positive IGRA results was 10.1% (13/129) and decreased to 7.0% (9/129) on repeated testing after 119 ± 16 days. Discordant results were observed in 6.2% (8/129): 5 (3.9%) reversions, 1 (0.8%) conversion and 2 (1.6%) converted from negative to indeterminate results. Concordance in IGRA testing was significantly associated with TST induration (median 20 mm vs. 0 mm in concordantly positive vs. negative results and reversions, p < 0.001 and 0.014, respectively). A cut-off > 10 mm induration predicted concordance or reversion (p=0.005). Initial IFN-γ antigen values of concordantly positive individuals were not significantly higher compared to reversions (median 4.076 vs. 0.767 IU/mL; p=0.558).

**Conclusions:** In serial testing IGRA reversions occur more frequently than conversions. Initial TST induration may predict concordant IGRA results over time better than initial IFN-γ antigen values. Clinical significance and prognostic value of IGRA conversions and reversions need further study.

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