	Barnet Health Overview and Scrutiny COmmittee **13 October 2015**
Title	**TB Situational Report for Barnet**
Report of	Dr Andrew Howe, Director of Public Health
Wards	All
Status	Public
Urgent	No
Key	No
Enclosures	Appendix 1: TB Awareness Evaluation Report (June 2015) Appendix 2: Tuberculosis Report - Update from TB situational report for Health and Well Being Board (July 2015)
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Summary

Tuberculosis (TB) is a disease that is preventable and treatable yet it remains a major public health problem in London. Almost 40% of all cases nationally occur in London (41.2/100,000), which ranks as the city with the second highest TB rate in Europe, only behind Lisbon, Portugal (48.2/100,000).

Rates of TB in Barnet have dropped in the three-year average data, from 30.0/100,000 (2010-12) to 23.2 / 100,000 (2012-14). Although this is lower than the London average of 30.1 / 100,000 (2013), there are still hot-spots within the borough with rates above this level.

This report discusses some of the challenges in tackling TB, who is effected by TB, and what is happening, and what is planned, at both national and local levels to identify people with TB and provide the required treatment.

Recommendations

1. **The Health Overview and Scrutiny Committee to note the report and the steps taken by the public health team and other partners to reduce incidence of TB in Barnet.**
2. **The committee to note the recommendations accepted by the Health and Well Being Board on 30th July 2015.**

1. WHY THIS REPORT IS NEEDED

1.1.□.1 Following the presentation of the Annual report of the Director of Public health to the Health Overview and Scrutiny committee on 9th February, 2015 a further update has been requested to understand**.**

- The epidemiology of TB in more detail
- Reasons why TB is difficult to eliminate
- What is currently being done to tackle TB
- Further proposals to tackle TB

1.1.□.2 A report on TB went to the Barnet HWBB on 30th July and recommendations were agreed on supporting Tb awareness raising programmes and also providing strategic direction for the latent TB screening programme. This is attached in appendix 1.

1.2 Epidemiology of TB

1.2.□.1 Rates of TB

1.2.□.1.1 TB in Barnet is currently 23.2 / 100,000 based on a three year average from 2012-2014. This is a reduction from the previous three year (2010-12) which was 30.0/100,000. It is lower than the London average for the same period, 30.1 / 100,000, but is still higher than the England average of 14.8 / 100,000. In the past three years, rates of TB across Barnet, London and England have been dropping annually.

1.2.□.1.2 For context, India has a TB incidence rate of 171/100,000 which equated to a total of 1,243,905 new and relapse cases in 2013. With such scale comes a similarly high programme budget for TB control; $252m USD[1].

1.2.□.1.3 There is considerable difference in TB rates across London, which is largely the result of demographic differences. For example, Havering has a TB rate of 10.3 / 100,000, whereas Newham has a rate of 113.7 / 100,000. Population size is very similar in each borough, but the make-up of the populations are very different. Newham is one of the most ethically diverse London boroughs with 64.6% BME, while Havering is London's least ethnically diverse with just 17% from BME groups.

1.3 Who gets TB?

[1] WHO Tuberculosis country profiles www.who.int.tb.country/data/profiles/en/

1.3.□.1 Whilst rates of TB found among the UK-born population living in London are twice that of those living anywhere else in the UK, a high prevalence of TB in London occurs in people born outside the UK who develop active disease several years subsequent to their arrival in London[2].

1.3.□.2 In 2013, 83% of TB patients were born outside of the UK, and rates in the non-UK born remain nearly ten times greater than among those born in the UK. Majority of the cases in London are in people who have resided in the UK for long periods prior to being diagnosed with TB. The number of TB patients who were recent entrants to the UK (entered within the previous two years) has decreased. In 2013, only 266 and 9% of all TB patients were recent entrants to the UK

1.3.□.3 TB rates are highest in those born in India with those born in Pakistan and Somalia following in frequency (table 1). The 2012 London LA profiles for TB showed Barnet has similar profile to London. The majority of new cases were in people of Indian ethnicity (30%) and mixed/other ethnicity was the next most common and reflects people with a range of backgrounds (26%).[3]

1.3.□.4 The age/sex profile of cases shows that females aged 20-29 made up a larger than usual proportion, although patients were more often male across other age groups.

Table 1. Country of Birth for non-UK born London cases

Rank	Country of Birth	N=	% of non-UK born patients
1	India	756	32%
2	Pakistan	309	13%
3	Somalia	193	8%
4	Bangladesh	141	6%
5	Nigeria	101	4%

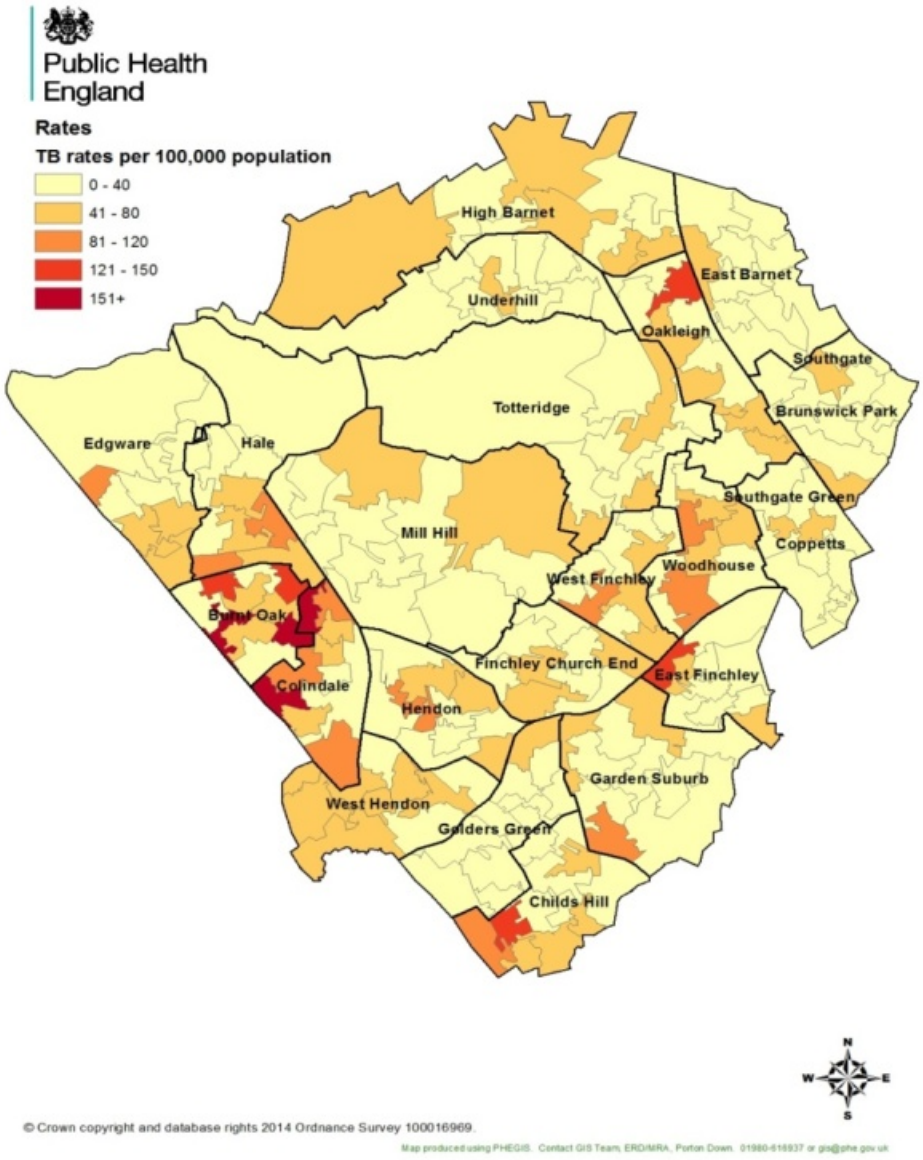
Source: TB in London annual report 2013. PHE

1.4 Where do people with TB live in Barnet?

1.4.□.1 Rates of TB vary across the borough of Barnet - see Figure 1. According to data received from PHE, the top three areas in Barnet are: Colindale, Burnt Oak and Oakleigh. It is important to note that these rates are based on small numbers.[4] Therefore, it is expected that specific figures for these areas within the borough will fluctuate year on year and area-specific data should be interpreted with care.

Figure 1. London Borough of Barnet TB Incidence Rate by LSOA, 2012

[2] London TB service specification 2013/14. November 2013.
[3] PHE. Local Authority TB Profiles, Barnet. October 2013. p. 4.
[4] Personal communication, Gail Morgan, TB Coordinator, North West London Health Protection Team, PHE.

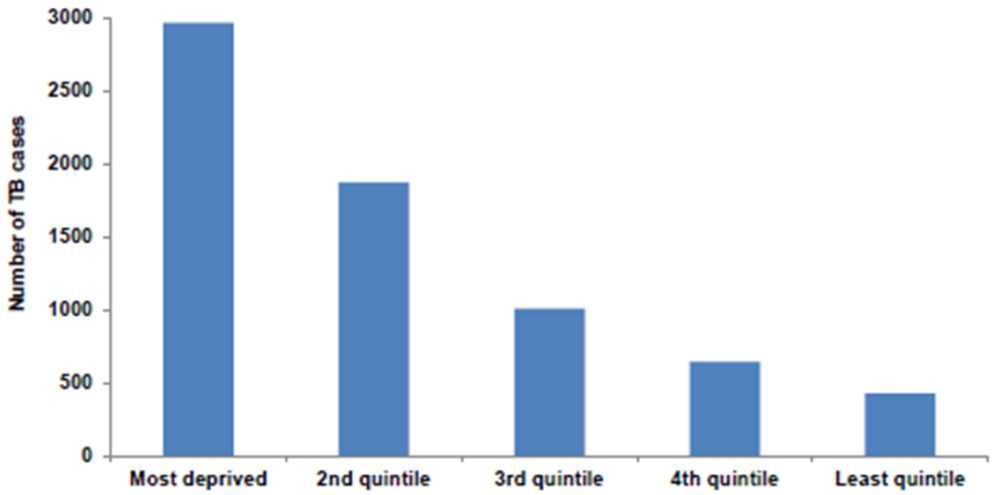


1.5 Challenges in reducing levels of TB

1.5.□.1 Similar to London and the UK, the majority of TB cases in Barnet arise due to reactivation of latent infection, thus the main challenge to reducing TB in Barnet is the identification and treatment of those with latent TB. Approximately 80% of people who develop active TB do so as a result of the reactivation of latent TB rather than through transmission from someone with active disease. The prompt identification of active cases of disease, supporting patients to successfully complete treatment and preventing new cases of disease is also important.

1.5.□.2 There is also a strong association between TB and social deprivation, with 70% of cases occurring among residents of areas in the two most deprived quintiles in the country (Figure 2), and 9% of all TB cases having at least one social risk factor (a history of alcohol or drug misuse, homelessness or imprisonment)[5]. In Barnet, the proportion of Tb patents with social risk factors – 3.9% is below the London average of 12.2%;it should be noted these percentages are based on small numbers

Figure 2. Number of TB case reports by deprivation quintile of area of residence, (IMD 2010), UK, 2013.



1.5.□.3 Another factor which challenges programmes aimed at tackling TB is the social stigma within many communities related to the disease. In some cultures, TB is associated with witchcraft. TB can be considered a 'curse' on a family, as the illness often affects multiple generations – we know that this is simply because TB is an airborne illness, which is more likely to be spread among people living in close proximity. Fear of discrimination can mean people with TB symptoms delay seeking help, making it much more likely that they will become seriously ill and infect others. This then perpetuates the myth that it is the TB treatment itself that causes deaths, as treatment is much less effective if left until the illness is in its advanced stages[6].

1.5.□.4 Furthermore, TB does not respect geographical boundaries, let alone the invisible borough boundaries, and as such tackling TB in Barnet must be part of the 2015 national strategy[7] .

[5] Public Health England. Tuberculosis in the UK. 2014 report. [Internet]. London: Public Health England; 2014. Available from: https://www.gov.uk/government/publications/tuberculosis-tb-in-the-uk

[6] TB Alert: http://www.tbalert.org/about-tb/global-tb-challenges/stigma-myths/?wb48617274=31A42E1E

[7] Collaborative Tuberculosis Strategy for England 2015 to 2020. Available from: https://www.gov.uk/government/publications/collaborative-tuberculosis-strategy-for-england

1.6 How is TB managed?

1.6.□.1 TB must be, and in to some extent, managed in both social and clinical contexts. The 2014 Annual TB Report[8] from PHE remind us that TB remains concentrated in the most deprived populations; in 2013, 70% of cases were resident in the 40% most deprived areas, nearly half (44%) of cases were not in employment and 10% had at least one social risk factor (history of alcohol or drug misuse, homelessness or imprisonment).

1.6.□.2 *Tackling TB, Local Government's Public Health Role*[9], produced by the LGA and PHE in 2014, highlights the importance of BCG vaccination for infants and young children. It continues, *"The most important factors are early detection and diagnosis, especially of infectious cases, and treatment completion. Early case detection and prompt initiation of treatment reduces onward transmission of the disease. Completing a full course of appropriate treatment is vital to prevent the disease relapsing, to prevent the development of drug resistant strains of TB, to prevent prolonged infectiousness and preventable death."*

1.6.□.3 Considerable evidence exists about what works in terms of TB prevention, treatment and control[10],[11] including published clinical and policy guidance[12],[13]. There is also clear evidence of the devastating consequences of failing to invest in TB services: disinvestment in services in New York in the 1970s and 1980s led to a tripling of cases and widespread community TB transmission, including major outbreaks of MDR-TB, which required more than one billion dollars of reinvestment to reverse.[14]

1.6.□.4 The target set by the Chief Medical Officer for England, based on the WHO target, for completion of treatment for TB is 85%. The percentage of patients completing treatment at 12-month has improved over recent years, as shown in table 2.

Table 2. Percentage of TB Patients in London Completing Treatment.

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[8] Tuberculosis in the UK: Annual Report 2014. PHE: https://www.gov.uk/government/publications/tuberculosis-tb-in-the-uk

[9] Available from: http://www.local.gov.uk/documents/10180/5854661/Tackling+Tuberculosis+-+Local+government's+public+health+role/20581cca-5ef1-4273-b221-ea9406a78402

[10] Abubakar I, Lipman M, Anderson C, Davies P, Zumla A. Tuberculosis in the UK--time to regain control. BMJ. 2011 Jul 31;343 (jul29 1):d4281–d4281.

[11] National Institute for Health and Care Excellence. Clinical guidance and management of tuberculosis, and measures for its prevention and control. CG117 [Internet]. 2011 [cited 2014 Feb 24]. Available from: http://www.nice.org.uk/nicemedia/live/13422/53638/53638.pdf

[12] Story A et al. Royal College of Nursing (Great Britain) BTS, Health Protection Agency (Great Britain) NNTA for SM. Tuberculosis case management and cohort review guidance for health professionals [Internet]. London: Royal College of Nursing; 2012 [cited 2014 Mar 10]. Available from: http://www.rcn.org.uk/%5F%5Fdata/assets/pdf%5Ffile/0010/439129/004204.pdf

[13] Department of Health - TB Action Plan Team. Tuberculosis prevention and treatment: a toolkit for planning, commissioning and delivering high-quality services in England [Internet]. London: Department of Health; 2007. Available from: http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_075638.pdf

[14] Frieden TR, Fujiwara PI, Washko RM, Hamburg MA. Tuberculosis in New York City—turning the tide. N Engl J Med. 1995 Jul 27;333(4):229–33.

Year	%
2002	74%
2003	76%
2004	78%
2005	79%
2006	82%
2007	83%
2008	85%
2009	86%
2010	86%
2011	86%
2012	86%

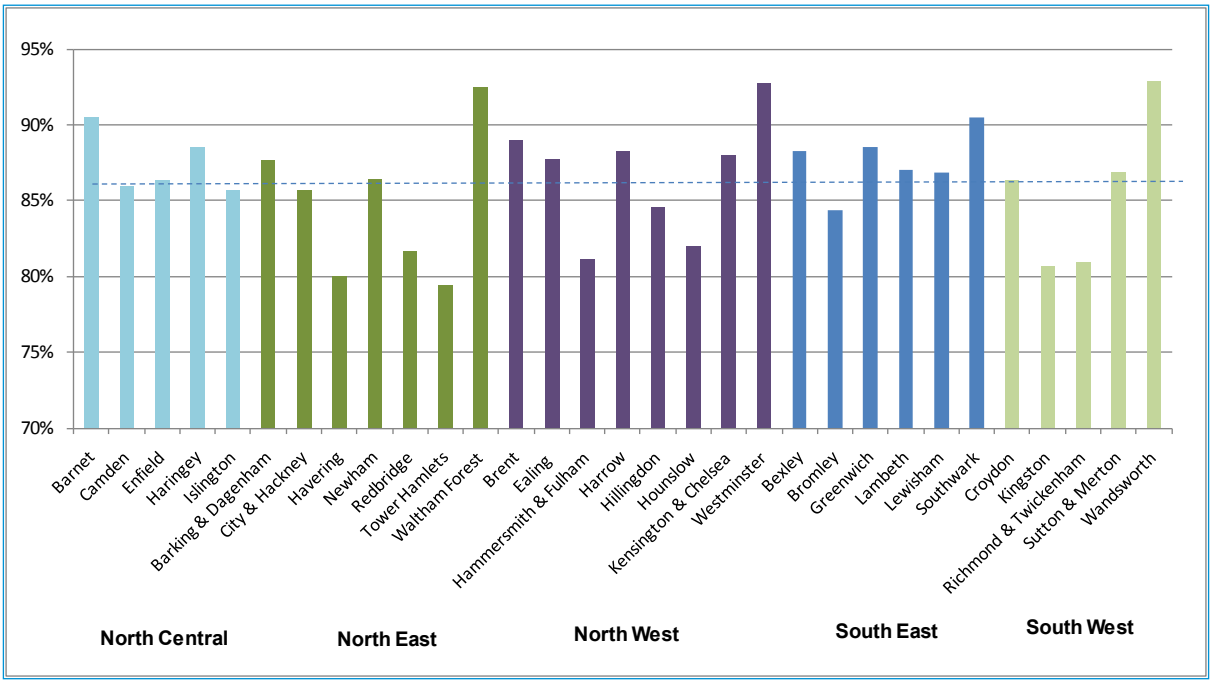
1.6.□.5 However, as figure 3 shows, treatment completion rates vary considerably across the boroughs, with Barnet ranking as one of the boroughs with higher completion rates at over 90%, which is higher than the London average.

1.6.□.6 Older patients were less likely to complete: just 74% of those aged 65 or older completed (206/278), with higher rates of death (18%, 50). Treatment completion was slightly lower among males (84%, 1,447/1,722 vs. 89%, 1,125/1,271): they were more likely to die (3.5%, 61 vs. 1.6%, 20) or be lost to follow up (5.1% 87 vs. 2.8%, 35).[15]

1.6.□.7 Treatment completion was similar among the UK born and those born abroad overall (87%, 444/513 vs. 86%, 2,104/2,442). Those born abroad were more often lost to follow up (4.7%, 114 vs. 1.2%, 6), while the UK born were more likely to die (3.7%, 19 vs. 2.3%, 57). The lowest completion rates were among the UK born white and black Caribbean ethnic groups, followed by white patients born outside the UK.

Figure 3. Treatment completion rates by PCT, 2010

[15] Tuberculosis in London, 2013. PHE Report available from: https://www.gov.uk/government/publications/tuberculosis-tb-regional-reports



1.7 Directly Observed Therapy (DOT)

1.7.□.1 DOT is a way of helping people during their treatment. Instead of a TB patient being sent home with medication, they might visit a local hospital or pharmacy, or a nurse might visit them at home.

1.7.□.2 DOT is used effectively in over 180 countries. Although it is more resource intensive, it has been shown in some studies to improve treatment completion. A Cochrane Review[16] found that "Overall, cure and treatment completion in both self-treatment and DOT groups was low, and DOT did not substantially improve this." However, it did note that the evidence related to injection drug users was poor, therefore, given the more chaotic lifestyles of drug users, DOT can be used as an effective method for ensuring completion of treatment.

1.8 How is TB being tackled currently?

1.8.□.1 National Strategy

1.8.□.1.1 Public Health England and Department of Health published the Collaborative TB Strategy for England, 2015 to 2020[17], in January 2015. The collaborative TB strategy brings together best practice in clinical care, social support and public health to strengthen TB control, with the aim of achieving a year-on-year decrease in incidence, a

[16] Directly observed therapy for treating tuberculosis. The Cochrane Library. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003343.pub4/full

[17] Collaborative Tuberculosis Strategy for England 2015 to 2020. Available from: https://www.gov.uk/government/publications/collaborative-tuberculosis-strategy-for-england

reduction in health inequalities and, ultimately, the elimination of TB as a public health problem in England.

1.8.□.1.2 The strategy outlines how it's intended that resources and services should be organised to tackle TB. It focuses on building on the assets already in the NHS and the public health system, to support and strengthen local services in tackling TB (particularly in areas of high incidence), to ensure clear lines of accountability and responsibility, and to provide national support for local action.

1.8.□.1.3 TB has been identified as a priority by PHE and NHSE, and indicators of TB incidence and TB treatment outcomes are included in the Public Health Outcomes Framework[18]. PHE and NHS England believe that concerted action, supported by national expertise, can significantly reduce the suffering and harm caused by the disease, meet the WHO End Strategy milestone of reducing TB incidence by 50% by 2025[19] and contribute eventually to the elimination of TB as a public health problem.

1.8.□.1.4 To achieve the strategy ambitions and make significant advances in TB control, improvements need to be made in the following key areas:

I. Improve access to services and ensure early diagnosis
II. Provide universal access to high quality diagnostics
III. Improve treatment and care services
IV. Ensure comprehensive contact tracing
V. Improve BCG vaccination uptake
VI. Reduce drug-resistant TB
VII. Tackle TB in under-served populations
VIII. Systematically implement new entrant latent TB screening
IX. Strengthen surveillance and monitoring
X. Ensure an appropriate workforce to deliver TB control

1.8.□.2 In order to achieve these ambitions, the London TB Control Board, along with sub-regional networks, will have a focus on the strategy ambitions.

1.8.□.3 Treating latent TB infection (LTBI) is effective and can be successfully implemented. The strategy comes with a resource of £10m (national allocation) to set-up an LTBI identification and treatment programme. This programme would be run through GP practices and focused on new registrations. The funding formula takes into account local CCG TB numbers and rates and although Barnet's overall rate is not one of the highest, there are areas in the south and west with high rates.

1.9 What is currently being done in Barnet?

1.9.□.1 TB awareness campaign

[18] Department of Health. Public Health Outcomes Framework [Internet]. London: Department of Health; 2013. Available from: https://www.gov.uk/government/publications/healthy-liveshealthy-people-improving-outcomes-and-supporting-transparency
[19] World Health Organization. The End TB Strategy [Internet]. World Health Organization; 2014. Available from: http://www.who.int/tb/post2015_TBstrategy.pdf

1.9.□.1.1 A TB awareness campaign was commissioned by public health and ran in Barnet from November 2014 – March 2015. TB Alert worked with national and local voluntary partners to deliver a series of workshops to community and faith leaders, and to clinical partners.

1.9.□.1.2 The aims of the campaign were:

- To raise awareness of the signs and symptoms of TB amongst those communities at high risk.
- To dispel myth about TB and ensure all members of the community are aware of their rights to accessing health services.
- To deliver training and support to relevant local authority staff, and to voluntary and faith groups working in Barnet so as to provide them with the skills to educate and support the communities with which they work.

1.9.□.1.3 To ensure that the message was relevant to the target communities, the public health team worked with TB Alert to develop a workshop programme. In Barnet the public health team worked with CommUNITY Barnet as they have an extensive network of smaller voluntary groups. Faith groups were also invited to attend the workshops through liaising with the Barnet Multi-Faith Forum and the CCG to promote the Royal College of General Practitioners online module, *Tuberculosis in General Practice*, which has been developed in partnership with Public Health England and TB Alert. And finally, clinicians including specialist TB nurses attended some of the events and engaged with members of the community in the awareness workshops.

1.9.□.1.4 Although extensive outreach was carried out in Barnet, engagement in the workshops was not as good as hoped. Feedback from CommUNITY Barnet was that many of those contacted did not feel that the workshops were relevant to them.

1.9.□.1.5 This belief was the same in the community/voluntary sector as it was within the local authority staff groups; there was limited interest in the workshop organised specifically for London Borough of Barnet staff.

1.9.□.1.6 In contrast, the campaign also ran in Harrow, which has a higher incidence of TB, and level of engagement was much higher

1.9.□.1.7 Full details and results of the campaign are available in the evaluation report [see appendix]. However, the headlines are:

- 3 community events occurred in Barnet with 27 attendees. These included, but not limited to, schools and children's centres, homeless charities, BME community groups, and people working with those with substance misuse issues.
- Unfortunately, there was poor sign-up to Barnet Council staff, which resulted in the event not going ahead. However, any interested staff were invited to attend an event in Harrow.

- Twenty-three attendees completed the pre- and post-session questionnaire assessing the change in knowledge of TB. Eight questions were asked, with an overall score out of 10. In the analysis by TB alert, the average pre-session score was 5.26 (n=23) and the average post-session score was 7 (n=21). There was evidence of an increase in knowledge of types of TB, symptoms, risk factors and transmission methods. There appeared to be no change in the perception that TB is "confined to specific communities". This shows that although there was increased knowledge, there is still work to be done.
- For the same Barnet attendees, the majority reported that they had or would use this knowledge in their work with the client group. Whether the organisations do so and if it has an impact on the population will become more apparent after phase 2 of the project.

1.10 **Next Steps**

- Phase 2 of the TB Awareness Campaign is a community grant programme whereby smaller charities, faith groups and community organisations can apply for a grant of up to £500 to run their own TB Awareness Campaign amongst their volunteers, members and client groups. The aim of the grant is to encourage voluntary groups to apply their learning from the workshops and implement their own programmes.

- Barnet CCG are discussing the development of a latent TB screening service with NCL Primary Care Leads. There is currently a question regarding whether this should be provided on an individual CCG or NCL wide basis. Barnet CCG are waiting for NHSE to provide the number of potential patients by GP practice. Once received this information will inform future arrangements.

2. REASONS FOR RECOMMENDATIONS

These recommendations allow the Health Overview and Scrutiny Committee to note the work by Public Health and partners in responding to the national TB strategy and steps that have been taken locally with respect to management of TB.

3. ALTERNATIVE OPTIONS CONSIDERED AND NOT RECOMMENDED

The Collaborative TB Strategy is part of a National programme and, therefore, opting out of the programme is not a viable option, hence it should not been considered.

4. POST DECISION IMPLEMENTATION

Following the consideration of the report, the Barnet Health Overview and Scrutiny Committee can consider if they wish to receive any further reports on this matter.

5. IMPLICATIONS OF DECISION

5.1 Corporate Priorities and Performance

The Barnet Corporate Plan 2015-2020 states that Public Health will be an integrated priority across all service areas. It states that "Public Health within the council ensures that increasing health and well-being and reducing health inequalities is a central theme to all activities across the council by 2020."

The Barnet Health and Wellbeing Strategy has four themes, one of which is Care When Needed. The recommendations of this report relate strongly to that theme. But it also relates strongly to overarching aim of "Keeping Well", which refers to a belief in 'prevention is better than cure.' Implementation of an LTBI programme would be a way of preventing a treatable disease from developing.

5.2 Resources (Finance & Value for Money, Procurement, Staffing, IT, Property, Sustainability)

The amount of funding is unknown at this stage. However, there is a £10m fund to be used nationally and each borough will receive a large proportion of this due to the high incidence of TB in the capital. The funding will be allocated to CCG's.

5.3 Social Value

The Public Services (Social Value) Act 2013 requires people who commission public services to think about how they can also secure wider social, economic and environmental benefits. The next steps for the TB work in Barnet will benefit all members of the community, but particular those in disadvantaged groups, such as homeless people and those with substance misuse problems, and also people from particular ethic background, who may live in economically disadvantaged areas of the borough.

5.4 Legal and Constitutional References

The 2012 Health and Social Care Act imposes duties on Councils to deliver a number of public health functions including taking steps to protect the health of the population.

The Care Act 2014 also imposes duties on local authorities to promote individual well-being (section 1) and promote integration of care and support with health services (section 3)

The Council's Constitution (Responsibility for Functions – Annex A) sets out the Terms of Reference of the Health Overview and Scrutiny Committee. The Committee's responsibilities include the following:

- To perform the overview and scrutiny role in relation to health issues which impact upon the residents of the London Borough of Barnet and the functions services and activities of the National Health Service (NHS) and NHS bodies located within the London Borough of Barnet and in other areas.
- To make reports and recommendations to Council, Health and Well Being Board, the Secretary of State for Health and/or other relevant authorities on health issues which affect or may affect the borough and its residents.

5.5 Risk Management

If the control of TB is not prioritised in Barnet, the rates will not fall or will start to increase leading to widespread community TB transmission and possible outbreaks of multi-resistant TB. This could cost hundreds of thousands of pounds to reverse. Studies have shown that for every pound invested in TB case finding, there is a return of £30 pounds in savings from averted illnesses and deaths.[20]

Barnet would also not meet the objective set by the London TB Control Board to reduce rates by 50% by 2018. This risk could be mitigated by following the recommendations set out in the final section of this report.

5.6 Equalities and Diversity

The National TB Strategy, which this reports' recommendations are based on, includes the following statement:

Equality statement Promoting equality and addressing health inequalities are at the heart of NHS England's and PHE's values. Throughout the development of the policies and processes cited in this document, we have:

- *given due regard to the need to eliminate discrimination, harassment and victimisation, to advance equality of opportunity, and to foster good relations between people who share a relevant protected characteristic (as cited under the Equality Act 2010) and those who do not share it.*
- *given regard to the need to reduce inequalities between patients in access to, and outcomes from, healthcare services and in securing that services are provided in an integrated way where this might reduce health inequalities*

For the purposes of the Public Sector Equalities Duty and by virtue of the Equality Act 2010, the relevant protected characteristics are age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex and sexual orientation.

5.7 Consultation and Engagement

An extensive consultation took place when developing the national strategy.

A wide range of stakeholders were consulted during the three-month consultation from 24 March to 24 June 2014. Approximately one quarter of the 111 responses were from local authorities, a quarter from the NHS, a quarter from PHE (including collective responses of local stakeholders made up of PHE, NHS, clinical commissioning groups, local government, the third sector and others) and a quarter from other stakeholder groups including the National Institute for Health and Care Excellence, the British Thoracic Society, local government, the Association of Directors of Public Health and third sector organisations. Once received, all consultation responses were analysed through a rigorous three-phase process.

The complete consultation is available on request.

6. BACKGROUND PAPERS

6.1 Tuberculosis in London, 2013. Pg39, Table Bii. PHE Report available from: https://www.gov.uk/government/publications/tuberculosis-tb-regional-reports

6.2 WHO Tuberculosis country profiles www.who.int.tb.country/data/profiles/en/

6.3 London TB service specification 2013/14. November 2013.

6.4 PHE. Local Authority TB Profiles, Barnet. October 2013. p. 4. HTTPS://WWW.GOV.UK/GOVERNMENT/PUBLICATIONS/TUBERCULOSIS-TB-REGIONAL-REPORTS

6.5 Personal communication, Gail Morgan, TB Coordinator, North West London Health Protection Team, PHE.

6.6 Public Health England. Tuberculosis in the UK. 2014 report. [Internet]. London: Public Health England; 2014. Available from: https://www.gov.uk/government/publications/tuberculosis-tb-in-the-uk

6.7 TB Alert: http://www.tbalert.org/about-tb/global-tb-challenges/stigma-myths/?wb48617274=31A42E1E

6.8 Collaborative Tuberculosis Strategy for England 2015 to 2020. Available from: https://www.gov.uk/government/publications/collaborative-tuberculosis-strategy-for-england

6.9 Tuberculosis in the UK: Annual Report 2014. PHE: https://www.gov.uk/government/publications/tuberculosis-tb-in-the-uk

6.10 Available from: http://www.local.gov.uk/documents/10180/5854661/Tackling+Tuberculosis+-+Local+government's+public+health+role/20581cca-5ef1-4273-b221-ea9406a78402

6.11 Abubakar I, Lipman M, Anderson C, Davies P, Zumla A. Tuberculosis in the UK--time to regain control. BMJ. 2011 Jul 31;343 (jul29 1):d4281–d4281.

6.12 National Institute for Health and Care Excellence. Clinical guidance and management of tuberculosis, and measures for its prevention and control. CG117 [Internet]. 2011 [cited 2014 Feb 24]. Available from: http://www.nice.org.uk/nicemedia/live/13422/53638/53638.pdf

6.13 Story A et al. Royal College of Nursing (Great Britain) BTS, Health Protection Agency (Great Britain) NNTA for SM. *Tuberculosis case management and cohort review guidance for health professionals* [Internet]. London: Royal College of Nursing; 2012 . Available from:

http://www.rcn.org.uk/%5F%5Fdata/assets/pdf%5Ffile/0010/439129/004204.pdf

6.14 Department of Health - TB Action Plan Team. Tuberculosis prevention and treatment: a toolkit for planning, commissioning and delivering high-quality services in England [Internet]. London: Department of Health; 2007. Available from: http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_075638.pdf

6.15 Frieden TR, Fujiwara PI, Washko RM, Hamburg MA. Tuberculosis in New York City—turning the tide. N Engl J Med. 1995 Jul 27;333(4):229–33.

6.16 Tuberculosis in London, 2013. PHE Report available from: https://www.gov.uk/government/publications/tuberculosis-tb-regional-reports

6.17 Directly observed therapy for treating tuberculosis. The Cochrane Library. Available from: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003343.pub4/full

6.18 Collaborative Tuberculosis Strategy for England 2015 to 2020. Available from: https://www.gov.uk/government/publications/collaborative-tuberculosis-strategy-for-england

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