Tuberculosis: management, control and prevention

Teaching resource for TB nurses and other TB stakeholders

**Notes to accompany PowerPoint presentation**

This presentation and these related teaching notes are designed to enhance understanding around the management, control and prevention of tuberculosis among a range of people working in primary and community care services.

The recently published Collaborative TB Strategy for England calls for broader involvement of primary care services: in particular to reduce delays in diagnosis and to introduce testing and treatment of latent TB infection for recent migrants from countries with the highest levels of TB. TB nurses are ideally placed to deliver this training as they are likely to have extensive knowledge of the subject, not only in terms of the disease itself but also with regard to what is happening in the local community. They also provide the added benefit of building stronger links between primary and secondary care services. This presentation can be used by a variety of other stakeholders but it is important that whoever delivers it has a sound knowledge of the subject and the structure of local services.

This presentation is designed to take 30-45 minutes. The format is a PowerPoint presentation and, as the presenter, you will talk through the slides.

You may wish to select specific slides for your presentation, rather than using them all. Slides 10 and 11 allow you to add information on local TB disease patterns. You may also wish to use local case studies instead of the case studies in the presentation; there are blank slides at the end of the presentation for this use.

Ideally the presentation will generate discussion in the audience. We suggest you print and hand out the presentation on the day; if you cannot do this, email it to the audience in advance and ask them to print their own copies.

Appendix 1, at the end of these notes, is a pre and post teaching review. You might want to spend a few minutes discussing these questions with your group before and after the teaching session (or as a written test, if you prefer) to understand their level of knowledge and how that changes as a result of this teaching session.

Slide 1:

**Front cover**

Slide 2:

**About this resource**

Slide 3:

**Aims and objectives of the teaching session**

An opportunity to ask the audience about anything in particular they would like to find out from this session. It may not be possible to cover everything but you could direct them to further information, if, at the end of the session, they want to find out more.

Slide 4:

**What is tuberculosis?**

A brief overview to introduce the disease.

Slide 5:

**Epidemiology of TB – section header**

Slide 6:

**TB notifications and rate, England, 2000-2014**

An opportunity to show the increase in case reports between 2000 and 2011, followed by an annual decline in the last three years.

Slide 7:

**TB notifications and rate by PHE Centre, England, 2000-2014**

An opportunity to point out the majority of TB is in London followed by the West Midlands.

Slide 8:

**Three-year average TB rates by local authority, England, 2012-2014**

Map of areas in the England showing which have a high incidence, highlighting the majority of TB in urban areas. You should present this in the context of your local area, for example in rural areas highlight how a low index of suspicion can lead to delayed diagnosis.

Slide 9:

**TB notifications and rates by place of birth, England, 2000-2014** Opportunity to discuss that the incidence and caseload of TB in UK born population has remained stable. However caseload of TB in non-UK born population increased until 2011, although for the last 3 years has declined.

Slide 10:

**Most frequent countries of birth for TB notifications and time, in years, between UK entry and notification (for non-UK born cases), England, 2014**

Highlight south Asia and sub-Saharan Africa as key areas. Note the difference in median time since entry, highlighting that very few people arrive in the UK with active TB.

Slide 11:

**Local epidemiology**

This is for your local area. You can click on the table in the slide and add the figures yourself using information obtained from enhanced tuberculosis surveillance (ETS) / London Tuberculosis Register LTBR. You can also use the PHE Fingertips website: <http://fingertips.phe.org.uk/profile/tb-monitoring> to obtain for example the number of TB cases and incidence by local authority, or proportion of cases completing treatment. For further data you can contact your local PHE Field Epidemiology Services team.

Slide 12:

**Local epidemiology**

Blank slide available for addition of a local map – available from

your local PHE Field Epidemiology Services team.

Slide 13:

**Aetiology, pathogenesis and transmission of TB – section header**

Slides 14, 15 and 16:

**Transmission and progression**

Opportunity to explain the process of transmission and potential progression of infection to disease. Either, TB is eliminated from the body with no lasting evidence of contact with TB. Or, the body forms a granuloma around the TB bacteria and the infection becomes Latent TB with positive skin test and IGRA. Or, the TB can cause active disease with symptoms, requiring prompt treatment.

Slide 17:

**Risk factors for TB – section header**

Slide 18:

**Vulnerable groups and risk factors**

An opportunity to discuss the groups at increased risk of developing TB and the risk factors that can affect the health status of those groups and people generally.

Slide 19:

**Stigma and TB**

An opportunity to discuss the stigma associated with TB, the impact this might have from a patient and service perspective and measures to minimize it.

Slide 20:

**Diagnosis and treatment of active TB – section header**

Slide 21:

**Typical presentation of TB in a Primary Care setting**

An opportunity to discuss how people with TB tend to present including signs and symptoms of TB and highlighting the similarities and differences of pulmonary and extra-pulmonary disease.

An opportunity to explain the variation of presentation:

* no single symptom is diagnostic of TB, symptoms may be very variable
* 25% may have no fever, night sweats or weight loss
* 5% pulmonary TB have a normal CXR
* classic pulmonary and extra-pulmonary TB presentation.

Sites of disease:

**Pulmonary:**

* in the upper or lower respiratory tract
* inside the lungs, in the alveoli
* infectious if active due to airborne nature of bacteria
* primary disease
* accounts for 50-55% of notifications of TB in England.

**Extra-pulmonary:**

* lymph node TB common form of extra-pulmonary TB
* pleural TB, as outside of lungs
* TB Meningitis, can be fatal or result in permanent disability
* miliary TB, advanced disease, rare, carried throughout the body in the bloodstream
* bone, joint or spinal TB
* urinary tract, bladder TB
* extra-pulmonary TB is non-infectious, found more often in HIV co-infection, immuno-suppressed individuals or children.

Refer audience to Appendix 2: TB NICE Guidance chart on sites of disease and tests requested in secondary care.

Slide 22:

**Think TB**

Consider which patients should cause concern and stress the need to think of TB as a possible diagnosis.

Slide 23:

**Diagnosis of TB in Primary Care**

Highlight that primary care should send the patient for basic TB investigations: sputums x3 for mycobacteria/AFB's, CXR and bloods; and refer to TB services at the same time – rather than waiting for negative results. This gives the TB team a head start to commence other investigations if these tests are normal; it also gives an early diagnosis to anyone who has abnormal initial test results. If these basic tests are normal it also does not mean that someone does not have TB, just that it is less likely or in early stages.

Information is provided about the type of tests required to diagnose extra-pulmonary TB but these are most likely to be conducted once the patient has been referred to secondary care

Slide 24:

**Treatment of active TB**

An opportunity to discuss the drug treatments for active TB. Highlight the year-long regimen for those with central nervous system involvement. ALL other sites six months of standard treatment advised.

Slide 25:

**Main treatment side effects**

General and specific side effects of the anti–tuberculous drugs:

* hepatatoxicity: the risk of deranged liver function is increased with alcohol and or drug use/ misuse, age, hepatitis infection, drug intolerance
* gastrointestinal upset, often settles in the first 2 weeks of treatment
* nausea, often settles in the first 2 weeks
* long bone and or joint aches
* skin rash and itching
* visual perception changes (rare)

It can be very difficult for some people to tolerate the side effects to treatment, length of treatment can be increased due to hepatatoxicity and or drug intolerance.

It is important that TB Specialist Services work hard to keep patients engaged with and adhering to their TB treatment. Support, regular review, treatment where possible (anti-histamine for rash/itching, anti-inflammatories for joint pain, pyridoxine for tingling, anti-emetics for severe nausea) or and directly observed treatment can aid this.

Slide 26:

**Directly Observed Treatment**

Opportunity to discuss the principle of DOT, how it is risk assessed and implemented by the specialist team. Need to highlight the need for support as well as supervision for patients who find it difficult to adhere to treatment. Advisable to highlight the role primary care settings could play within DOT provision, for example in local GP practice or pharmacy.

Slide 27:

**Diagnosis and treatment of latent TB infection (LTBI) – section header**

Slide 28:

**Active or latent TB?**

A third of the world’s population is infected with latent TB.

An opportunity to discuss the clear differences between active disease and latent infection especially the fact that people with LTBI are neither symptomatic nor infectious.

Key message: preventing active disease by treating people with LTBI can reduce the potential of physical suffering for the patient as well as preventing others from becoming infected.

Slide 29:

**Diagnosis and treatment of latent TB infection (LTBI)**

An opportunity to discuss the differences between active TB and latent TB infection (LTBI), tests used to diagnose LTBI, treatment and the role of treatment in reduction of active disease.

Slide 30:

**The national LTBI testing and treatment programme**

An outline of the LTBI programme and eligibility criteria with a map to show the countries of birth identified for screening. The programme runs nationally in areas of high TB burden (59 CCG areas with TB incidence >20/100,000 and/or case burden of more than 0.5% of national total), is fully NHS funded (including treatment) and has national indicators and data returns necessary for monitoring and evaluation. Please visit the website for further guidance and information.

Slide 31:

**LTBI testing and treatment algorithm**

Testing is usually in primary care with a single IGRA test, treatment in secondary care.

Slide 32:

**Control and Prevention of TB – section header**

Slide 33:

**TB Strategy for England**

Covers aims and 10 areas for action.

Slide 34:

**Contact tracing**

Explaining the process and need for contact tracing and screening.

Highlighting the cycle of transmission, infection and progression to active TB and new infection in new contacts. Highlighting how the cycle can be arrested through early diagnosis, contact screening and treatment of latent TB infection.

**The cycle of TB disease and infection**

Slides 35 and 36:

**Vaccination with BCG**

Opportunity to go through the UK BCG immunisation policy and to highlight that there are variations throughout the UK. Explain the service in your local area and how to refer targeted groups.

Slide 37:

**Challenges in TB:**

An opportunity to discuss:

* **Stigma:** causing late presentation and reluctance to share names of contacts. Patients can feel fear of death, emotional upset, “unclean”, talked about.
* **Under resourced services:** TB control is almost impossible if a TB service is poorly resourced, whether it be financial or human resources.
* **Under-served groups:** individuals with mental health issues, drug and/or alcohol misuse, a prison history, homelessness and some ethnic groups. Often present late to services and can be difficult to treat and keep engaged. Opportunity to mention London’s Find & Treat initiative.
* **Patients with complex needs:** similar to under-served groups; also those with co-morbidities and those with complex social, language and financial problems – such as asylum seekers and refugees.
* **Duration of treatment:** long course of treatment which requires patient-centred service provision to keep patients engaged with their care and treatment. This ensures treatment is completed effectively.
* **Multi-drug resistance:** specialist expertise needed to treat this complex group effectively, provision of DOT. Mention the MDR-TB network of the British Thoracic Society (BTS).
* **Mono-drug resistance:** more common and again requiring expert specialist TB care to ensure further resistance does not occur.
* **Delayed presentation:** early presentation key for effective, speedy recovery. People still die of TB in the UK due to delayed presentation, whilst also infecting others.
* **Delayed diagnosis:** again this can cause disease progression making treatment more challenging whilst infecting others. If your area is low incidence you may want to highlight the challenges this brings of decreased knowledge of TB and skills in identification and service provision variations.

Slide 38:

**TB Specialist Services and their role in TB Control – section header**

Slide 39:

**TB Specialist Services**

An opportunity to go through who the TB Specialist Team comprises and what they do. Also to highlight the need to refer early to specialist services.

Slide 40:

**Local TB Specialist Services**

Insert details of your local TB Specialist Services.

Slide 41:

**Case study 1**

Classic scenario of when DOT employed to manage risk of adherence issues in a vulnerable patient with complex needs.

Slide 42:

**Case study 2**

Highlights how few symptoms patients can present with. Issues in gaining microbiological confirmation of diagnosis.

Slide 43:

**Case study 3**

Discusses TB-HIV co-infection, the challenges this brings and the often a-typical presentation in this group.

Slide 44 and 45:

**Blank: for your case studies**

Slide 46:

**Further information and resources**

Offered by TB Alert, awareness materials such as posters and leaflets, including website links to download PDFs. *The Truth About TB* website giving advice and actual stories of those who have been affected by TB.

Slides 47-48:

**References and further reading**

Slides 49 and 50:

**Thanks and credit**

Appendices 1 and 2 below

Appendix 1

Pre and post teaching review of TB knowledge

1. What are the symptoms of TB?

Pre:

Post:

2. What measures are in place to control and prevent TB?

Pre:

Post:

3. What is the treatment for TB?

Pre:

Post:

4. When would you refer to TB Specialist Services?

Pre:

Post:

Appendix 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Site** | **Imaging** | **Biopsy** | **Culture** |
| Lymph node |  | * Node | * Node or aspirate |
| Bone/joint | * Plain X-ray and computed tomography (CT) * Magnetic resonance imaging (MRI) | * Site of disease | * Biopsy or paraspinal abscess * Site or joint fluid |
| Gastrointestinal | * Ultrasound * CT abdomen | * Omentum * Bowel | * Biopsy * Ascites |
| Genitourinary | * Intravenous urography * Ultrasound | * Site of disease | * Early morning urine * Site of disease * Endometrial curettings |
| Disseminated | * High-resolution CT thorax * Ultrasound abdomen | * Lung * Liver * Bone marrow | * Bronchial wash * Liver * Bone marrow * Blood |
| Central nervous system | * CT brain * MRI | * Tuberculoma | * Cerebrospinal fluid |
| Skin |  | * Site of disease | * Site of disease |
| Pericardium | * Echocardiogram | * Pericardium | * Pericardial fluid |
| Cold/liver abscess | * Ultrasound | * Site of disease | * Site of disease |
| **NICE clinical guideline 117**  **Tuberculosis: clinical diagnosis and management of tuberculosis, and measures for its prevention and control** | | | |