

Tuberculosis Update



March 2006

A World TB Day update on the global and national tuberculosis situation and current initiatives contributing to the control of tuberculosis in the UK

Introduction from the Chief Medical Officer (CMO)



Tuberculosis is one of the most important public health challenges facing the world today. Since being appointed Chief Medical Officer I have highlighted tuberculosis as one of four infectious diseases needing intensified action to strengthen control in this country. My National Action Plan Stopping Tuberculosis in England published in October 2004, set out 10 major areas for action necessary to strengthen control and also contribute to international efforts to tackle the disease. An estimated one third of the world's population are infected with tuberculosis. Our long term goal to reduce, and ultimately eliminate, tuberculosis must be seen within the context of international action.

This newsletter highlights some of the current initiatives from the Health Protection Agency and others in support of the implementation of the national action plan. Updates on progress to date are provided by the Health Protection Agency Centre for Infections and Local and Regional Services, The National Institute for Health and Clinical Excellence, the charity TB Alert, Connecting for Health, the Royal College of Nursing, local NHS public health and clinical tuberculosis networks and academic departments. I am impressed by the level of innovation and partnership working involving communities, health and social care professionals, advocates and scientists reflected in these contributions. Few diseases demand such a level of collaboration to achieve effective control and ensure high quality patient care as tuberculosis. In addition to providing direct financial support to a number of specific local initiatives and service developments, the Department of Health has set up an overarching 'Steering Group' at national level, with representation from all the key stakeholders, to oversee the implementation of the National Action Plan and advise on priorities. The Steering Group and its Working Groups work closely with

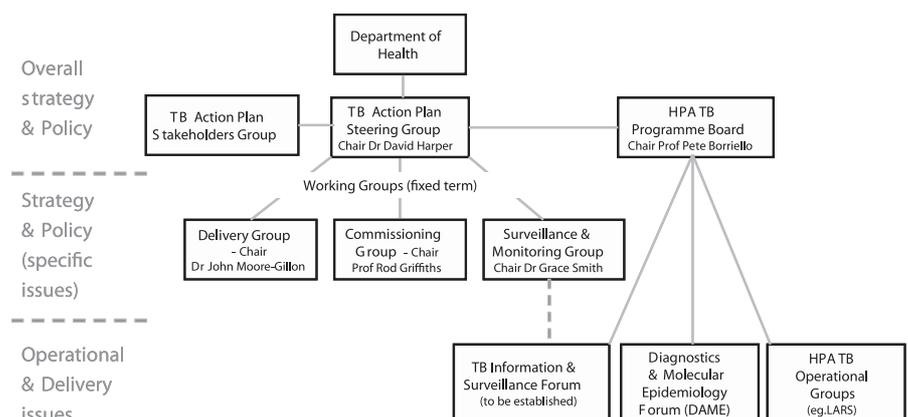
the Health Protection Agency through its TB programme board. Collectively, this programme of work has achieved considerable progress towards delivering mechanisms for change and supporting the implementation of new national clinical guidelines for tuberculosis diagnosis, management, prevention, and control. Following recommendations from the Joint Committee on Vaccination and Immunisation for a more targeted approach to BCG vaccination, the Department of Health has also carried out a major review on this area of work and issued new BCG guidance to health professionals. In addition, the Department of Health has developed a series of new tuberculosis information resources for public and professional use.

It is clear that tuberculosis remains a serious public health problem in this country. Although most of the population are now at very low risk from

tuberculosis, the numbers of cases reported are increasing and rates among certain population groups in our major cities and in London are especially high. Tuberculosis control requires targeting public health efforts at those groups at most risk to ensure that disease is detected at the earliest opportunity and that patients are supported to complete treatment. The work highlighted in this newsletter reflects a renewed commitment to collectively tackle tuberculosis. I hope you find the content useful. Please feed back your comments to tbsection@hpa.org.uk

Further information on tuberculosis can be found on the Department of Health Website: <http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Tuberculosis/fs/en>

Key DH and HPA groups involved in the implementation of the National TB Action Plan



Note: This summary schematic does not include all detailed links and other expert groups involved in the implementation of the National TB Action Plan

Actions for Life - Towards a World Free of Tuberculosis:

A focus on the global plan to stop TB 2006-2015



Last year tuberculosis (TB) killed more people than did the sum of all of the wars, earthquakes, plane crashes and other disasters. On January 27th 2006, The Stop TB Partnership launched its Global Plan to Stop TB for 2006-2015. The Plan requires \$56 billion to carry out its aims - less than \$1 per day of healthy life gained, with 14 million lives saved by 2015. With this money, the Plan aims to halve deaths from TB in the next ten years and provide treatment for 50 million people.

At the launch of the Plan, at the World Economic Forum in Davos, Bill Gates pledged to triple investment through the Gates Foundation, taking the amount committed to \$900 million. Also present was the UK Chancellor of the Exchequer Gordon Brown who pledged \$75 million to the fight against TB in India. However, there is still an estimated total funding gap of \$31 billion to carry out the Global Plan. This is the second Global Plan from the Stop TB Partnership. The first, covering 2001-2005, led to the number of patients treated in Directly

Observed Therapy Short-course (DOTS) programmes being doubled over 5 years, from 2 million in 2000 to 4 million in 2004. There has also been a major improvement in case detection - both India and China, which account for 35% of the world's TB cases, are now close to the target of 70% case detection.

The new Plan, based on WHO's Stop Tuberculosis Strategy, builds on the 2001-2005 Plan. It seeks to deliver more on the ground and emphasises the issues of HIV/TB co-infection and multi drug resistant TB through adapting the use of DOTS. Those who work with TB know that the barriers to stopping the disease are complex and wide ranging and the Plan recognises that these must be identified and removed. Increasing the accessibility of quality anti-TB drugs is required along with addressing the social burdens of the disease for patients. Health services also need to be adequately resourced and committed to eliminating TB.

More effective tools for fighting TB are also part

of the Plan, with targets of diagnostic tests at the point of care by 2012, a safe, effective and affordable vaccine by 2015 and a shorter treatment regime of 1-2 months by 2015.

The ultimate aim of the Stop TB Partnership is to eliminate TB as a global health problem by 2050 and this Plan paves the way. The Plan is admittedly ambitious but it is thought to be achievable. Effective advocacy is required to bring about the economic and political will needed to effect these changes, along with the backing of the public. Many people are unaware of the scale of the TB crisis - 2 million deaths annually from a curable disease.

The Global plan is available at the Stop TB Partnership Web Site: www.stoptb.org/globalplan/. TB Alert is a member of the World Health Organisation (WHO) Stop TB Partnership. TB Alert is the UK's only national and international charity fighting TB in the UK and overseas. For more information on TB Alert go to www.tbalert.org/

New NICE guidelines launched for World TB Day to help tackle the problem of tuberculosis in England and Wales

On Wednesday 22nd March 2006, the National Institute for Health and Clinical Excellence (NICE) launched a clinical guideline to help the National Health Service (NHS) identify, prevent and treat people with TB in England and Wales. The guideline has been developed for NICE by the National Collaborating Centre for Chronic Conditions, with input from a range of organisations involved in treating and preventing TB, including organisations representing health professionals, people with TB and their carers, local government and the voluntary sector.

NICE hopes the guideline will set the gold standard for the treatment of TB by setting out clearly what treatment regimens should be offered to children and adults with TB. The regimens set out in the guideline take into account the type of TB a patient has and the stage of the disease. Improving adherence to treatment is another key feature. The guideline recommends that all patients should have a risk assessment for adherence to treatment to help reduce the number of TB patients developing multi-drug resistant TB.

The guideline aims to help new entrants who might have TB to access treatment quickly by recommending screening for TB based on Port of Arrival reports, new registrations with primary care, entry to education (including universities) and through links with statutory and voluntary groups working with new entrants. The guideline advises that BCG vaccinations be considered for all new entrants from high incidence countries, all newborn babies in areas with a high incidence of TB and to individuals at increased risk in other areas. However BCG vaccination of all school age children is not recommended.

The issue of homeless people with TB is addressed, with recommendations to set up units offering chest X-ray screening on an opportunistic and/or symptomatic basis.

Ensuring that patients are involved in decision-making around their treatment and that they have access to good quality and timely advice is another key priority. According to the guideline, everyone with TB should have access to a named key worker who should be easily contactable to facilitate the education and

involvement of the person with TB towards achieving adherence to treatment. The guideline is also supported by a booklet explaining in plain English the recommendations for patients and their families and carers.

This is the first clinical guidance from NICE that makes major recommendations on both the prevention as well as treatment of a condition. NICE have engaged with a number of national agencies, including the Health Protection Agency (HPA), in developing the guideline and produced a range of tools to support better implementation of the guideline. With more effective screening programmes and better monitoring and adherence to treatment, NICE hopes its guideline can make a real difference to help reduce or even halt the spread of a disease, which has not gone away, despite what many people think.

More information on NICE and copies of the guideline on TB can be accessed via the NICE website at www.nice.org.uk.

Tuberculosis Surveillance Update:

England, Wales and Northern Ireland, 2000 - 2004

The results of Enhanced Tuberculosis Surveillance (ETS) for 2004 have now been finalised and linked with species and drug susceptibility information from the UK Mycobacterial surveillance Network (MycobNet). Using data for 2000-2004 trends were examined in a number of key indicators as measures of progress in TB control.

- **Overall incidence**

There were 7167 cases of TB reported in England, Wales and Northern Ireland in 2004, an incidence of 13.1 cases per 100,000 population (Figure 1). This represents a 5% increase in case reports when compared with the 6837 cases reported in 2003 (rate 12.6 per 100,000). The highest rate of disease was observed in London (42 per 100,000), which accounted for 44% of the total number of reported cases. The proportion of cases reported from among foreign-born population groups has increased from 63% in 2000 to 70% in 2004.

- **Incidence in children**

In 2004, there were 414 cases of TB in children under 15 years of age, giving a rate of 4.1 per 100 000 (Figure 1).

- **Drug resistance**

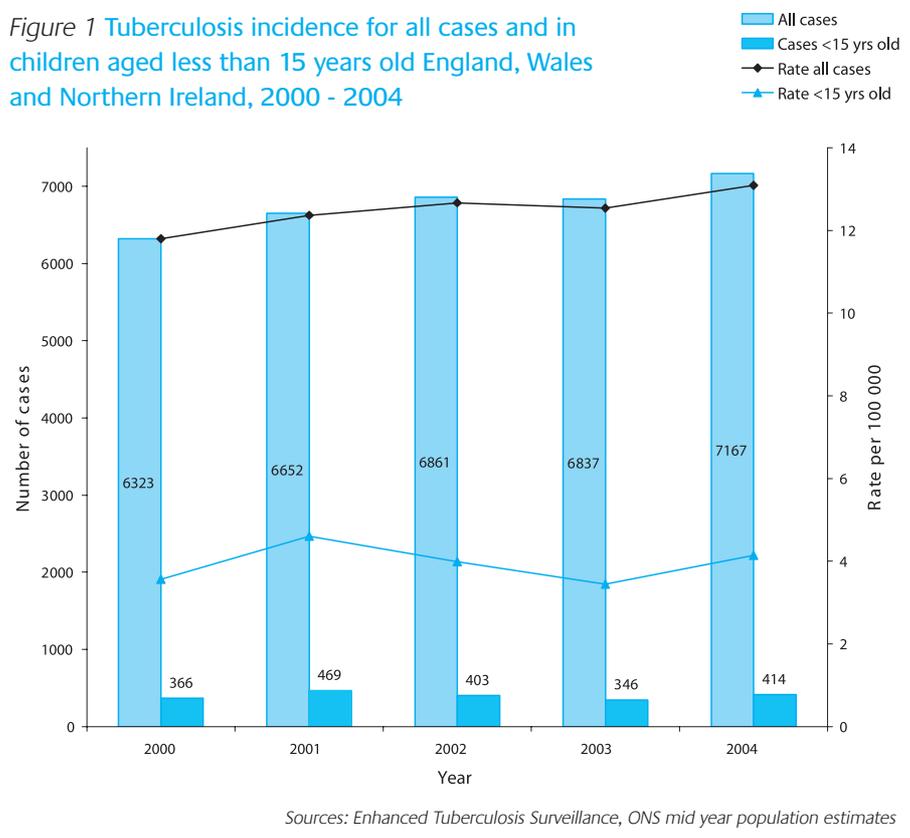
Levels of drug resistance at the start of treatment for cases reported in 2004 were 6.8% for isoniazid and 1.0% for multi drug resistance (resistance to at least isoniazid and rifampicin) compared with 6.8% and 1.3% respectively in 2003.

- **Treatment outcome monitoring**

Provisional results of treatment outcome monitoring are available for cases reported in 2003. An outcome was reported for 88% of cases in 2003 compared with 85% in 2002 and 79% in 2001. Among all TB patients with a known outcome, the proportion of cases that have completed treatment was 79% compared with 78% in 2002 and 79% in 2001. For new infectious cases of pulmonary TB with a reported outcome, the proportion of cases that have completed treatment was 78% compared with 76% in 2002 and 77% in 2001.

Reports of TB continue to increase annually. The observed increase is largely confined to specific subgroups of the population in major cities. The increase reflects a combination of factors, including migration from high incidence countries, homelessness, HIV co-infection and potentially improvements in case reporting following the introduction of ETS. Tables and figures have been updated with 2004 data on the HPA TB website at http://www.hpa.org.uk/infections/topics_az/tb/data_menu.htm.

Figure 1 Tuberculosis incidence for all cases and in children aged less than 15 years old England, Wales and Northern Ireland, 2000 - 2004



Tuberculosis Surveillance Developments

The Chief Medical Officer's National Tuberculosis Action Plan includes a commitment to have a high quality surveillance system which aims to provide the information required at local, national and international levels to prevent and control TB. Following consultation with various stakeholders, the HPA intends to create a new web-based system for TB surveillance within the next financial year.

The new surveillance system will enable the provision of information on TB cases at local, regional and national level that is timely, relevant, complete and accurate. It will facilitate monitoring of disease trends and treatment outcomes and will help with commissioning of services for TB. The new system will be built upon the current systems and better integrate microbiological and clinical information in order to strengthen TB surveillance and better inform TB control.

A series of projects are planned, which will report to the HPA TB Programme Board and closely link with the HPA Surveillance Programme Board, Connecting for Health -

"do once and share" TB project and the Department of Health TB Action Plan Implementation, Steering and Working Groups.

- The objectives of the development are to
- Improve the completeness, timeliness, accuracy and accessibility of epidemiological information on case reports (Enhanced Tuberculosis Surveillance).
 - Improve the completeness, timeliness, accuracy and accessibility of laboratory results.
 - Develop a mechanism for linking case reports and laboratory data so that they are available immediately at the local and regional levels and can be collated nationally in a timely and accurate manner.
 - Link the national molecular typing database to routine surveillance so it can be used for public health purposes.

As part of these changes a number of projects have been initiated including: the timely collation of provisional 2005 data from all regions; demonstrating the feasibility of matching clinical and laboratory data at the local and regional levels; and linking molecular strain typing with other laboratory data.

TB Vaccine Development

TB is one of the most prevalent infections in the world, particularly in developing countries. Currently, the only available vaccine against TB is Bacille Calmette-Guérin (BCG), which has been administered to over three billion people, making it the most widely used vaccine in the world. BCG was developed in the early 1920's and is based on a live but attenuated strain of *Mycobacterium bovis*, which is the species that causes TB in cattle and can also infect humans. Although BCG is effective in protecting young children from TB disease, its efficacy among adolescents and young adults has shown considerable variation

ranging from 0% to 80% protection, especially in TB endemic areas. It is also not recommended to give to individuals who are immunocompromised such as those who are infected with HIV. Therefore, the development of a new vaccine is essential if TB is to be controlled and ultimately eradicated.

The past two decades have seen a significant increase in the development of potential new vaccines for TB. This is due to advances in the discovery and characterisation of *M. tuberculosis* virulence factors, aided by the recent completion and publication of the species

genome. The development of a vaccine from a pool of potential candidates through clinical trials to delivery in a healthcare system is a costly and time-consuming process with a very high failure rate along the way. A number of groups from around the world are collaborating in major partnerships on vaccine development. Two main vaccine strategies are being pursued: (1) a pre-infection vaccine delivered early in life improved from the current BCG vaccine, and (2) a post-exposure vaccine that would invoke immunity to clinical disease after infection.

The Stop TB Partnership Working Group on TB Vaccine Development has as its main aim to have at least one new vaccine licensed, launched and distributed for use by 2015. The European Union has invested €32m in funding two large consortia (TB-VAC & MUVAPRED) to deliver new TB vaccines to early clinical trials to assess safety by 2008-09. These consortia comprise members of academia and industry from 15 European and African countries with the aim of ensuring that scientific successes are translated into concrete health-care results. Researchers in the TB-VAC project will select vaccines for TB that work in adults and are suitable for use in resource-poor settings and are safe for HIV-infected individuals. MUVAPRED (Mucosal Vaccines against Poverty Related Diseases) is aimed at stimulating local immunity to neutralise *M. tuberculosis* where the organism enters the body in the lungs. The focus is on developing vaccines that can be administered orally or as a nasal spray thus avoiding the risks involved in using needles. Similar TB vaccine development programmes are being funded by the National Institutes of Health in America. The HPA Centre for Emergency Preparedness and Response is performing many of the essential pre-clinical evaluations in these international consortia to determine which vaccines will be selected for clinical trial.

Four vaccines under development in Europe and America have already successfully passed through pre-clinical evaluations and are now in Phase 1 clinical trials. These are two sub-unit vaccines based on fusion proteins, a recombinant BCG expressing an *M. tuberculosis* protein and an attenuated vaccinia virus (MVA) also expressing a TB antigen. The latter has already undergone Phase I and II trials in Oxford, and further trials are continuing in The Gambia. Another vaccine (a recombinant BCG expressing listeriolysin) is planned to enter Phase I clinical trials shortly. The momentum to develop a new and more effective vaccine is gathering pace. Whilst there is still much work to be done, there is genuine optimism that a new effective vaccine can be delivered in the next ten years. For more information on the work of the Centre for Emergency and Response see <http://www.hpa.org.uk/cepr/default.htm>

Connecting for Health: Initiatives in TB

The HPA is working with the NHS on two national projects that will ensure that NHS information systems support the clinical and public health activities required to deliver the National Action Plan for TB. This will ensure that both patients and clinicians have access to best current knowledge wherever and whenever it is needed. The two projects, both of which are lead by the HPA, are the National Knowledge Service Pilot on Tuberculosis, and the Tuberculosis Do Once and Share Project. They are part of the wider and more ambitious National Programme for Information Technology (NPFIT) in the NHS also known as 'connecting for health'.

The National Knowledge Service was set up in response to the "Kennedy Inquiry" into cardio-thoracic surgery in Bristol from which one of the recommendations was to improve the level of information available to clinical staff and patients. One of the key outputs of the National Knowledge Service Pilot on Tuberculosis will be online decision support information resources, which will be made available to NHS staff through the 'Map of Medicine'. The Map of Medicine provides evidence-based best practice information to healthcare professionals through graphical representations of care pathways (clinical algorithms).

The National Knowledge Service Pilot on Tuberculosis is also developing a range of information resources that are tailored specifically for those working with at risk population groups such as the homeless, or which are focussed on areas of professional or public concern such as TB in pregnancy.

For more information please see the National Knowledge Service TB Pilot website (www.hpa.org.uk/tbknowledge/).

The Do Once and Share Programme has commissioned over 40 projects that will develop care pathways for specific diseases or conditions based on current best practice. For TB these will be built around the new NICE Guidelines but also other relevant evidence based practice. The project will establish a National Community of Interest that will ensure that local, regional and national initiatives on TB care pathways and information management are coordinated and, where appropriate, integrated. This will help clinical specialist networks develop a common approach to planning improvements in care and minimise the duplication of effort that has previously occurred in the NHS. It should also support the collaborative working of TB networks and identify opportunities for modernising clinical and public health services for TB.

Achievement of the objectives will be dependent upon being able to achieve consensus on care pathways and information needs with stakeholders. The Do Once and Share team for TB has established a network of in excess of 150 stakeholders including all of the clinical TB networks in England, Health Protection Units across the country, and also with the Department of Health Steering Group and working groups charged with delivering the National Action Plan for Tuberculosis. For further information about the Do Once and Share programme please see the Connecting for Health website: www.connectingforhealth.nhs.uk/delivery/serviceimplementation/kps/doas

Information for Action: Tuberculosis Strain Typing

Standardised information on circulating strains of TB is becoming a resource routinely available to public health professionals involved in controlling TB.

In the last 2 years the HPA Regional Centres for Mycobacteriology (RCMs) and the national Mycobacterium Reference Unit (MRU) in London have introduced molecular typing (or DNA fingerprinting) for every new culture of TB bacteria to assist TB teams with their work. This helps to identify TB patients who have the same strain of TB, and who may be linked through a workplace, leisure or place of worship. It also allows teams to compare strains from a common source, such as people from a school or a factory. This additional information, available within a few weeks of the new culture, can reduce unnecessary investigation if the strains have different fingerprint profiles or can trigger or assist an outbreak investigation if linked patients have strains with the same fingerprint profile.

A small proportion (1-3%) of cultures may be falsely positive, due to cross-contamination,

usually in the laboratory. Molecular typing can be very helpful in detecting this, and prevent unnecessary patient treatment and contact tracing. It also helps laboratories to reduce their risk of cross-contamination by understanding where the problem may have arisen.

A number of international studies of molecular typing over periods of 3-5 years have suggested that patients who are "clustered" by sharing TB strains with the same fingerprint profile may be more likely to have acquired their infection recently, compared with patients who have a strain that others in the area do not share. Monitoring the rate of clustering in an area over time may be a good way of measuring spread of infection and the effectiveness of efforts to control TB.

All hospital laboratories send positive cultures to the MRU in London or RCMs in Cardiff, Newcastle, Birmingham and Edinburgh. Rapid molecular tests are used on the day of receipt to identify the cultured bacteria as TB, or as one of the other members of the same family of bacteria. Tests are then initiated to check the TB

bacteria isolated from each patient for resistance against the commonly used antibiotics, which again takes 1-2 weeks to give a result in most cases. Molecular typing uses Tandem Repeat Typing techniques and is Polymerase Chain Reaction (PCR) based. Fifteen sites (loci) within the TB genome are examined and the result is produced as a string of digits, reflecting the number of repeats at each locus. Numerical or digitised results can be easily stored, transmitted and compared over time and between different geographical locations. Results are available at the same time, or shortly after the sensitivity results and the level of discrimination between isolates is comparable to conventional but slower molecular typing techniques.

The next step in bringing the full power of molecular typing to assist local TB teams is to develop reporting and analysis of typing results, and colleagues in Bioinformatics are reporting on their web-based system in this newsletter (see below).

As we gain experience with the current typing system we need to identify secondary systems that are more discriminating for sub-dividing particular strains. Many TB services around the world have adopted molecular typing services along similar lines, and the next few years will be important for refining techniques and integrating fingerprinting into services to the benefit of patients and the public health.

The National TB Strain Typing Database - An Update, March 2006

The National Microbial Typing Database for *Mycobacterium tuberculosis* (Mtb) is an initiative of the HPA TB Diagnosis and Molecular Epidemiology (DAME) working group and the first phase of this project is approaching completion. The initial aim was to provide a mechanism for the rapid comparison of Mtb strains at the national level in order to allow the rapid identification of related cases and outbreaks. Regional Centres for Mycobacteria (RCMs) at Newcastle, Birmingham, Cardiff and Edinburgh and the national Mycobacteriology Reference Unit (MRU) in London have adopted a common method for the molecular typing of Mtb strains and apply this method to all clinical isolates. The laboratories submit the molecular typing data and preliminary clinical and epidemiological data directly to the National database. Currently, there are approximately 6000 records in the database, which is regularly updated from the submitting centres.

The reference centres can access the database through specialised software in order to view

and analyse the data. The database can also be accessed via a web page. A public view of the database is also available at <http://www.hpa-bioinformatics.org.uk/bionumerics/prototype/home.php>. This website contains a number of reporting tools which map TB drug susceptibility to molecular typing profiles, map the distribution of strains within the UK and attempt to identify clusters of identical or related strains. A search tool is provided which allows the rapid first pass identification of new types against existing profiles stored in the database.

We are now in the early developmental stages of the second phase of this project, which involves:

- Evaluation of the current database structure and functionality, particularly for 'front-line' TB staff.
- Consolidating the molecular typing database with The UK Mycobacterial Surveillance Network (MycobNet) into a single repository at the HPA Centre for Infections.

The MycobNet database was established in 1994 and collects a minimum epidemiological dataset

(susceptibility to first line antibiotics, demographic, geographic and risk factor information) from all individuals from whom an initial isolate of TB has been cultured. The merging of these two data sources will provide a powerful epidemiological and microbial resource which will be easier to manage, curate and use by all interested stakeholders. The long term aim is to provide a comprehensive national TB information resource by linking the laboratory information on strain typing and drug susceptibility testing with the Enhanced TB Surveillance system which collects more detailed and further validated demographic and epidemiological information for all reported cases of new clinical episodes of TB in England, Wales and Northern Ireland.

Any questions/queries about the National TB Database and ongoing projects should be directed to Joanne Moran (Joanne.Moran@hpa.org.uk), Bioinformatics Unit, Centre for Infections, Colindale.

A new Location for the National Mycobacterium Reference Unit

The HPA National Mycobacterium Reference Unit (MRU) provides national mycobacterial reference services and regional services for London and the South East as well as local primary diagnostic NHS services. It is also a WHO Supra National Reference Laboratory (one of a strategic network of 23 across the world).

The Unit detects, isolates and identifies mycobacteria particularly those responsible for TB and bacteria that are drug resistant, and advises on treatment and the local, regional and national public health implications of its results.

In the summer of 2005, the MRU moved to Barts and the London School of Medicine,

Queen Mary College. New laboratories for the MRU will be completed in June 2006. The research staff of the MRU will form the Clinical TB and HIV group within the Institute of Cell and Molecular Science's Centre for Infectious Diseases, complementing and increasing existing research into TB.

The research interests of the Centre include all aspects of TB particularly the diagnosis of TB, understanding the molecular epidemiology of TB, drug resistance and the interplay between TB and HIV. The MRU has several collaborative international laboratory and public health studies relating to TB and HIV in Russia and the Ukraine and with several countries in Africa.

Professor Nick Wright, Warden of the School of Medicine and Dentistry said:
"We are thrilled to welcome the HPA's MRU to Queen Mary. They are world leaders in their field and will fit well with the Medical School's other activities, in particular our expertise in cell and molecular science. TB is unfortunately an increasing problem in the UK in general and East London in particular. Having the MRU service and expertise based here sends a powerful message about meeting local need and we hope it will bring great health advantages to our community".

Local and Regional Services: Tuberculosis in the North West

Several urban areas in the North West of England have higher than average rates of TB and have experienced recent increases in rates. This has occurred during a period of profound change in the NHS and the formation and development of the HPA and its local and regional teams. It has been a challenge, but also of opportunity, to which the HPA in the North West and its NHS partners have risen in a number of ways.

In order to provide strategic leadership and a regional focus for TB, a multidisciplinary regional TB group of microbiologists, clinicians, nurses and HPA staff, chaired by the HPA regional lead on TB was set up two years ago. There are three Health Protection Units (HPUs) in the North West each with their own Unit TB leads and directors. Together with the HPA laboratory director and the regional office team they form a strong regional HPA TB network. Encompassing all those with a professional interest in TB in the region, there is also an active electronic TB forum. This has been useful for the dissemination of information (e.g. about educational meetings or new publications) and for rapidly ascertaining views on a range of topics from strategy consultations to the management of specific TB scenarios.

These structural arrangements have enabled the development of several initiatives to deal with the disease burden posed by TB across the North West. One of these concerns the dissemination and use of TB surveillance information. As well as access to annual reports and other documents through the HPA North West regional website TB pages (<http://www.hpa-nw.org.uk/TB.htm>) there has been the development of real-time access via a web interface to Enhanced Tuberculosis Surveillance data.

The regional TB group, with the input of the wider health community, has produced a strategic framework for the implementation of national developments such as the new NICE guidelines. This document will assist local health economies in the implementation of national TB strategy and guidance. This work has been informed by the results of a region-wide mapping of TB services, which represented the full-scale pilot of a mapping tool that was developed in the North West and is available for use in any region.

One of the risk groups mentioned in several sections of the national TB action plan are prisoners and the prison setting (<http://www.dh.gov.uk/assetRoot/04/10/08/60/04100860.pdf>). Working with the regional TB group, the North West prison health group has developed guidance on the prevention and control of TB in the prison setting, which is due to be launched on World TB Day.

TB in healthcare workers continues to be an issue in the region. Dr Emer Coffey, a Specialist Registrar in public health medicine, has undertaken a comprehensive review of such incidents and their management. Her work will act as the basis for the development of regional guidance for the prevention and control of TB in healthcare workers, which will involve the input of the regional occupational health group.

Finally, 2005 has seen the launch of the new national BCG policy and a change in method of tuberculin skin testing. Well-attended regional and local training sessions have been organised by the HPA. Furthermore, the three HPUs and their TB and immunisation leads have co-ordinated the implementation of the new policy and acted as a liaison between local health economies and the Department of Health.

Directly Observed Therapy (DOT) for tuberculosis



Tuberculosis risk models to predict poor treatment adherence and drug resistance

New guidance issued by the National Institute of Health and Clinical Excellence recommends that all tuberculosis patients should have a risk assessment for adherence to treatment and drug resistance. This is to help inform initial management strategies by identifying patients likely to need directly observed treatment (DOT) or to target the use of rapid tests for drug resistance, to ensure effective infection control and decisions about treatment regimens.

Poor adherence to treatment is internationally recognised as a major barrier to tuberculosis control and as the main risk factor for drug resistance. In many countries this has led to directly observed therapy (DOT) becoming the accepted standard of care for tuberculosis. Research has shown that clinicians are poor predictors of adherence and the WHO estimates that in developed countries adherence to long-term drug therapies only approximates 50%.

The London TB Nurses Network and the University College London Infectious Disease Research Network have developed a risk assessment tool. The tool uses a statistical model based on the analysis of information obtained from 97% (1941/1995) of all tuberculosis patients in London who should have been on treatment on 1st July 2003, identified through the London tuberculosis register and clinic records. Through the entry of patient details onto a drop down menu (Figure 2) the tool can be used to predict the risk of:

- Poor treatment adherence
- Being resistant to the anti tuberculosis drug isoniazid
- Being part of the current ongoing outbreak of drug resistant tuberculosis centred around north London
- Multi-drug resistant tuberculosis

The next steps are to:

- Validate the use of the tool in practice and explore opportunities to automate the risk assessment process as part of new IT developments.
- Develop care and treatment pathways appropriate to the score to provide guidance for the health care professionals using the tool.
- Ensure all services are undertaking adequate patient assessment for factors that may affect care above and beyond those in the risk assessment tool.

Figure 2

Patient Details

Age:

Gender:

UK Born:

Ethnicity:

Previous TB:

Prison Ever:

Prison this Episode:

Homeless Ever:

Homeless this Episode:

Drugs:

Mental Problem:

For more information please contact Ceri McSparron - TB Clinical Nurse Specialist Nurse / NE Sector Lead Nurse Homerton Hospital Homerton Row London. E9 6SR Contact Numbers: 020 8510 7775

New TB nurse specialist post in the control of tuberculosis in a prison population

Prison presents an important opportunity to reach a marginalized and medically underserved population in whom there is a high prevalence of infectious diseases. Persons with social and deprivation risk factors for TB, including social exclusion, homelessness and substance misuse are disproportionately represented in the prison population. Recently, TB in prisons has increased and transmission of TB has been shown in one community prison in London linked to an ongoing outbreak of drug-resistant TB.

The Chief Medical Officer's National Action Plan highlights the importance of prisons as an opportunity to strengthen TB control and stresses the need for rapid assessment of suspected cases, close supervision of TB treatment, maintenance of uninterrupted care on release and improved surveillance of TB.

I am a TB nurse specialist working at HMP Pentonville in a post that is jointly funded by Islington Primary Care Trust and the Department of Health. The aim of my post is to develop a nurse-led TB service within the prison. This service is intended to improve the care and assessment of prisoners with suspected and confirmed TB

and ensure smooth transfer of care upon release or movement to another prison. Many of the prisoners I case manage are extremely vulnerable, have a history of substance misuse and may have other health problems. Many are also homeless and are likely to have difficulty adhering to treatment. My priorities have been to raise awareness about TB within the prison environment and establish written protocols; to focus on screening and identifying new cases; to ensure inmates receive the correct treatment whilst in prison and perhaps most challenging of all to try and ensure there is continuity of treatment on release. Given that many prisoners are on remand or short-term sentences I start planning for release as soon as possible. Having an opportunity to jointly plan with my colleagues in the community ensures continuity of care and strengthens the interface between prison health services and NHS TB treatment centres.

This post is being evaluated to assess the effectiveness of the role of the TB nurse specialist in implementing national guidelines, contributing to the rapid detection of active TB cases and in improving outcomes of TB treatment among prisoners.

A meeting of minds: inter-disciplinary practice module (TB)

TB continues to pose a significant public health risk to some of the most disadvantaged groups in our community. Developing models of care that cater for the social as well as the medical needs of patients is an essential but neglected aspect of modern TB control. Successful treatment is possible and we can manage the problem more effectively through inter-agency working. The need for shared knowledge and understanding of how to control diseases of social exclusion through 'joined-up' thinking and service delivery is the driving force behind the new inter-disciplinary practice module scheduled to run in January 2007 at City University.

The module is open to a range of professions working with the homeless and health and social services, including statutory and voluntary sectors. Participants will be given the opportunity to reflect upon inter-disciplinary practice and act as drivers for change in addressing the needs of disadvantaged groups through the development of policy and service initiatives. If you want to influence health and social care practice to benefit those groups most at risk of TB we invite you to take part in a stakeholder consultation exercise.

For further information about the module or the consultation, contact Gill Craig at City University, St Bartholomew's School of Nursing and Midwifery, 20 Bartholomew Close, London EC1A 7QN. Tel: 020 7040 5843; email gill.craig.1@city.ac.uk). The development of the module is supported by funds from the Department of Health.

**Produced by the Tuberculosis Section
HPA Centre for Infections
mail to: tbsection@HPA.org.uk**

We gratefully acknowledge the contribution of colleagues across the Health Protection Agency and the continuing collaboration of clinicians, microbiologists, public health practitioners, colleagues at the Department of Health and others who contributed to the production of this newsletter.

Tuberculosis travel and research awards

In 2005 the Royal College of Nursing (RCN) Tuberculosis Nursing Forum successfully secured grants worth £60,000 from the Department of Health. RCN members could apply for the grants, to be used for travel or research related to TB projects in the applicant's local service. It was then envisaged that similar initiatives might be developed throughout England and Wales. The awards were given in accordance to strict RCN policy and procedures. The following candidates were awarded grants for their projects:

Frederick Marais, 'Participatory Public Health Interventions: engaging communities in TB control, policy and practice'. (South Africa).

Sue Yates, 'Discharge arrangement for prisoners on TB treatment from prison to community' (Holland)

Sara Hemmings, 'Street homelessness and the response to TB in that community' (France)

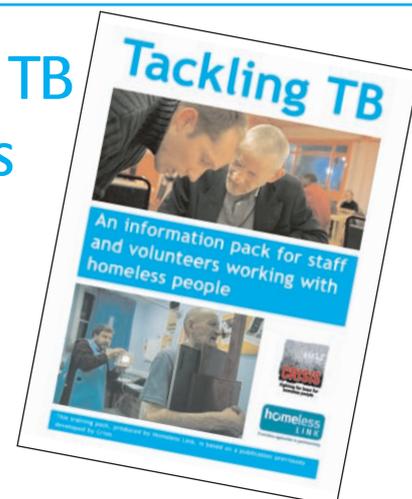
The candidates are expected to undertake their projects in the first part of 2006. They will be presenting at the RCN TB Nurse Conference in York on 10th October 2006.

Raising awareness of TB among homelessness sector staff

Homeless people are more vulnerable to TB than the rest of the UK population and their lifestyle can make it difficult for them to access health services and take a prolonged course of treatment. New guidance from the National Institute of Health and Clinical Excellence makes a number of recommendations specific to homeless people including the use of chest x-ray screening to detect cases early, and directly observed treatment combined with social support to ensure TB treatment completion. Promoting a high awareness of TB among homeless people and those who work with them is a priority highlighted in the Chief Medical Officers recent National TB Action Plan.

In 2005-06 Homeless Link was funded by the Department of Health to develop a set of awareness raising materials on TB and homelessness aimed at homelessness sector staff. We produced a web-based resource www.homeless.org.uk/tb - a one-stop shop for information about TB, which was launched at our Annual Conference in June 2005. The website brings together the information already available on TB and explains the relationship between TB and homelessness.

We worked together with the National Knowledge Service at the Health Protection Agency to produce two short information leaflets aimed at



homelessness sector staff and managers. The leaflets highlight homelessness sector workers potential role in identifying the disease and supporting clients with TB to complete treatment. These were piloted in early 2006 among homelessness sector staff and the feedback received was overwhelmingly positive.

Homeless Link also collaborated with Crisis to produce a detailed training pack on TB and homelessness. The booklet, Tackling TB: An information pack for staff and volunteers working with homeless people will be available to download free from our website and to order through our publications team shortly. The leaflet is designed to reduce misconception of the disease, highlight why homeless people are more vulnerable to TB and what can be done to support individuals believed to have or who have been diagnosed with TB.

For more information on tuberculosis and homelessness visit Homeless Link:
<<http://www.homeless.org.uk/tb/index>>