# A TB Action Plan For Scotland

## ANNUAL REPORT / 2013

healthier scotland
SCOTTISH GOVERNMENT

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# ABBREVIATIONS

| | |
|---|---|
| **AA** | Ayrshire and Arran |
| **AADP** | Alcohol and Drug Partnership |
| **AAFB** | Acid and Alcohol Fast Bacilli |
| **APMG** | Action Plan Monitoring Group |
| **BBV** | Blood Borne Virus |
| **BCG** | Bacillus Calmette-Guerin |
| **BME** | Black and Minority Ethnic |
| **BOR** | Borders |
| **CCHS** | Community Child Health System |
| **CSF** | Cerebrospinal Fluid |
| **CHSP** | Child Health Systems Programme |
| **CPA** | Clinical Pathology Accreditation |
| **CPD** | Continuing Professional Development |
| **CPHM** | Consultant in Public Health Medicine |
| **CXR** | Chest X-Ray |
| **DG** | Dumfries and Galloway |
| **DGRI** | Dumfries and Galloway Royal Infirmary |
| **ECDC** | European Centre for Disease Prevention and Control |
| **EEA** | European Economic Area |
| **EQA** | External Quality Assurance |
| **ERLN-TB** | European Reference Laboratory Network for TB |
| **ESMI** | Enhanced Surveillance of Mycobacterial Infections |
| **ETS** | Enhanced Tuberculosis Surveillance |
| **EU** | European Union |
| **FV** | Forth Valley |
| **GC** | Greater Glasgow and Clyde |
| **GP** | General Practitioner |
| **GRA** | Grampian |
| **HCW** | Health Care Workers |
| **Hi** | Highland |
| **HIV** | Human Immunodeficiency Virus |
| **HPN** | Health Protection Network |
| **HPS** | Health Protection Scotland |
| **HV** | Health Visitor |
| **HPT** | Health Protection Team |
| **IGRA** | Interferon Gamma Release Assays |
| **KPI** | Key Performance Indicator |
| **LAN** | Lanarkshire |
| **LOT** | Lothian |
| **LTBI** | Latent TB Infection |
| **MDR** | Multi-Drug Resistant |
| **MDT** | Multi-Disciplinary Team |
| **MIRU** | Mycobacterial Interspersed Repetitive Units |
| **MOU** | Memorandum of Understanding |
| **NIDDM** | Non-Insulin Dependent Diabetes Mellitus |
| **ONS** | Office for National Statistics |
| **OOH** | Out of Hours |
| **ORK** | Orkney |
| **OTH** | Other |
| **PAC** | Privacy Advisory Committee |
| **PCR** | Polymerase Chain Reaction |
| **PH** | Public Health |
| **PMG** | Portfolio Management Group |
| **RCGP** | Royal College of General Practitioners |
| **SCI** | Scottish Care Information |
| **SG** | Scottish Government |
| **SHE** | Shetland |
| **SIRS** | Scottish Immunisation and Recall System |
| **SMART** | Specific, Measurable, Attainable, Relevant, Timed |
| **SMF** | Scottish Microbiology Forum |
| **SMVN** | Scottish Microbiology and Virology Network |
| **SMRL** | Scottish Mycobacteria Reference Laboratory |
| **SHPIMS** | Scottish Health Protection Information Management System |
| **TAY** | Tayside |
| **TB** | Tuberculosis |
| **UN** | United Nations |
| **WHO** | World Health Organization |
| **WI** | Western Isles |
| **XDR** | Extensively Drug Resistant |

# FIGURES

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# MINISTERIAL FOREWORD

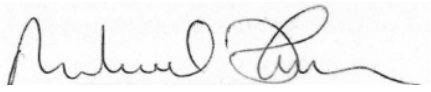
Tuberculosis (TB) is a major global health problem which the World Health Organisation has ranked as the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV). In Scotland, there has been a mean increasing trend of TB rates from 2008 to 2012, and although there had been a slight decline in 2011 and 2012 it is too early to say that this is a downward trend. In 2011 the Scottish Government published *A TB Action Plan for Scotland* and since then NHS Health Boards, clinicians, laboratories and agencies have been working towards implementation of the 42 recommendations in the Action Plan and I am grateful to all those involved in this.

It is clear that our Health Boards are providing excellent clinical and laboratory services across Scotland, either directly or through collaboration with neighbouring Boards. However, historical experience with TB control tells us that there is no room for complacency.

The goal of *A TB Action Plan for Scotland* is aligned with the WHO and ECDC target 'To eliminate, by 2050, TB as a public health problem (incidence <1 per million population)'. To achieve this goal more needs to be done to establish multidisciplinary team approaches for TB case finding among migrants and those who consume excess alcohol, to promote neonatal BCG vaccination, and to continuously improve services such as clinical care, contact tracing and surveillance.

A Monitoring Framework is required to manage implementation of the Action Plan recommendations and to track progress towards the Goal. This will provide those tasked with implementing the recommendations with a tool that will set our clear indicators to demonstrate their achievement.

I am grateful to the members of the National TB Action Plan Monitoring Group and others who have contributed to this Annual Report and am greatly impressed by the commitment of Health Boards in Scotland to reduce the incidence and impact of TB.



**Michael Matheson MSP**
Minister for Public Health

# EXECUTIVE SUMMARY

Tuberculosis is a major global health problem. Although global TB mortality has decreased by 41% since 1990, there is still a lot of work to be done: there were 8.7 million new infections globally in 2011, with 1.4 million preventable deaths. Scotland is committed to the 2008 European Centre for Disease Prevention and Control (ECDC) *Framework Action Plan to Fight TB in the European Union,* the aim of which is 'To eliminate, by 2050, TB as a public health problem (incidence <1 per million population)'. This 2013 Annual Report provides an update on progress since the Scottish Government published *A TB Action Plan for Scotland* in 2011, and gives recommendations for continued action to ensure early case and cluster detection, effective clinical care, and the prevention of onward transmission.

In Scotland, TB rates have been increasing since 2005 and there is a mean increasing five year trend from 7.8 per 100,000 in 2008, to 8.8 per 100,000 in 2012. Rates have begun to level off and in 2012 incidence decreased by 9.4% compared to 2011; but it is too early to say that this is the beginning of a downward trend. Of 408 cases reported in 2012, the majority were from Greater Glasgow and Clyde (48.5%), Lothian (20.1%) and Grampian (8.8%) NHS Boards. The main risk factors for infection are being non-UK born and problem alcohol use. However, cases are becoming increasingly complex as individuals may have dual infection with TB and blood borne viruses; they may have underlying chronic conditions such as diabetes or coronary heart disease; they may be employed as care workers; they may share multiple occupancy accommodation; and they may be both internationally and internally mobile.

Progress with the Action Plan recommendations and the ECDC indicators is generally good. National strategies, guidance, quality control and reporting systems are available; patients have access to appropriate diagnostic services, and clinical care, provided by expert and multidisciplinary teams; there are low levels of drug resistance; and public health services contribute to the prevention of transmission. However, there are challenging areas where programmes need to improve. For example, only four of 14 NHS boards implement active case finding for latent TB in new entrants and nine of 14 report engagement with primary care to support services with the problem drinker at-risk group; treatment success rates for pulmonary smear positive cases in 2011 were 75.6% against an 85% target (10% below target); and the current paper-based surveillance system is not fit for purpose. Key recommendations to address these challenges are:

1. Explicit adoption of the ECDC target 'To eliminate, by 2050, TB as a public health problem (incidence <1 per million population)'.
2. Clear articulation of a strategic and monitoring framework to manage implementation and measure progress towards achievement of this goal.
3. Strengthened linkages to other policy areas such as long term conditions, primary care, health improvement (smoking, alcohol, diet), blood borne viruses, mental health, occupational health, migrant health and the third sector.
4. Systematic and standardised approaches to case finding and follow up of TB among migrants migrants/new entrants and those at risk due to excess alcohol intake.

5. Clear guidance on, and support for the use of, new technologies to identify and follow up cases and clusters of illness, such as IGRA testing, MIRU cluster analysis and electronic surveillance systems.

6. Supportive networking to share good practice, reduce variation and maintain quality in TB services.

Tuberculosis still poses a considerable threat to the population of Scotland. To build on the excellent work so far, the Action Plan requires a clear strategic direction, plus, rigorous implementation and monitoring across Scotland.

## 1. Introduction and Background

**1.1** Tuberculosis (TB) is a major global health problem. It is an infectious bacterial disease caused by *Mycobacterium tuberculosis* and it is both preventable and curable. TB frequently affects the lungs and a person with active pulmonary TB who is symptomatic can often spread the disease to others, while a person with latent TB infection is asymptomatic, but can progress to active TB, thus becoming symptomatic and infectious.

**1.2** Several global strategies to control TB have been put in place since 1991, including the 2006 World Health Organization (WHO) *Stop TB Strategy.* These appear to be having an effect because the 2000 United Nations *Millennium Development Goal 6* (to 'halt and reverse the [TB] epidemic by 2015') has already been reached in 2013, and global TB mortality has decreased by 41% since 1990.

**1.3** However, there is still a lot of work to be done; there were 8.7 million new infections globally in 2011, with 1.4 million preventable deaths.

**1.4** In the WHO European Region, TB rates have been decreasing since 2005. However, rates are variable: some states in Eastern Europe have much higher rates than those in the European Union (EU)/ European Economic Area (EEA); dual TB/ HIV infection rates are increasing; multi-drug resistant (MDR) TB increased 12-13% between 2009 to 2010; and between 2005 to 2010, treatment success rates decreased from 72% to 69% in new cases, and 50% to 48% in previously treated cases.

**1.5** To address the issue, the European Centre for Disease Prevention and Control (ECDC) published *A Framework Action Plan to Fight TB in the European Union* in 2008. The aim is 'To eliminate TB as a public health problem by 2050 (an incidence of less than one case per million population)', and the 2010 follow-up to the framework provides a strategic monitoring framework to measure progress towards that goal.

**1.6** In Scotland, TB rates increased from 2005 to 2010 although there has been a slight decline in 2011 and 2012. Against this increase, the Scottish Government published *A TB Action Plan for Scotland* (hereafter, the Action Plan) in 2011. The Action Plan sets out 42 recommendations covering four broad areas:

- effective laboratory services and diagnostic tools;
- effective clinical services;
- effective surveillance;
- effective public health services.

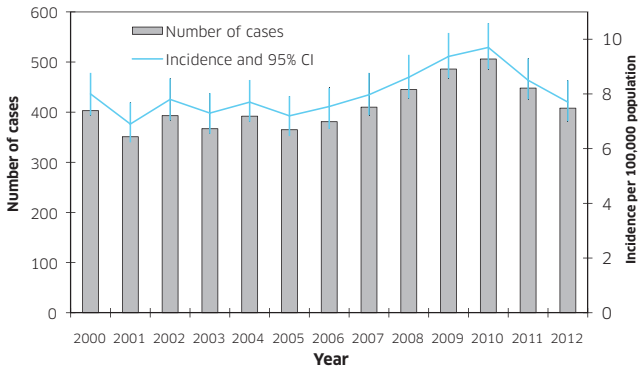
**1.7** This 2013 Annual Report provides an update on the progress made since the Scottish Government published the Action Plan in 2011, and gives recommendations for continued action.

## Epidemiological Summary of TB in Scotland

### Case numbers and incidence

**1.8** In 2012, the Enhanced Surveillance of Mycobacterial Infections (ESMI) scheme received 408 provisional notifications of TB, an annual incidence of 7.7 cases per 100,000 population (95% CI 0.7-0.8) (Figure 1). This was a decrease of 8.9% in the number of cases and a 9.4% decrease in the incidence when compared with 2011. This is an encouraging finding as it represents a continued decrease in the number of cases and incidence of TB reported since 2010. This is in contrast to a stabilisation in case numbers and incidence observed for the whole of the UK in 2012 (8751 cases, 13.9 per 100,000 population).

**Figure 1: Case numbers and incidence of TB in Scotland 2000-2012**




**1.9** Detailed analysis of this data is available in the HPS annual report of ESMI data published in October 2013.

### Clinical characteristics

**1.10** Of the 408 cases reported in 2012, 53.9% were classified as pulmonary TB and 46.1% as non-pulmonary TB, which is the highest proportion of non-pulmonary and lowest proportion of pulmonary reported since enhanced surveillance began in 2000. The duration of symptoms was known for 87.5% of cases who were symptomatic at diagnosis. Those presenting with non-pulmonary disease were more likely to have been symptomatic for a longer period of time at notification than those presenting with pulmonary disease (20 weeks versus 17 weeks, respectively). Approximately 12.3% (37) of TB cases had been symptomatic for longer than six months at notification.

### Demographic information

**1.11** The majority of cases were from Greater Glasgow and Clyde (198 cases; 48.5%; 16.3 per 100,000), Lothian (82 cases; 20.1%; 9.7 per 100,000) and Grampian (36 cases; 8.8%; 6.3 per 100,000) NHS Boards. More than half of TB cases occurred in males (249 cases, 61.0%, 9.7 per 100,000 population). Most TB cases occurred in those aged 25-34 years (115 cases; 28.2%; 16.9 cases per 100,000) and fewest in those aged 0-4 years (four cases; 1.0%; 1.4 cases per 100,000). The rate of TB among children aged under five years (which is an accepted indicator of recent transmission) decreased from 4.4 cases per 100,000 in 2011 to 1.4 cases per 100,000 in 2012, with a total of four cases in this age group in 2012 compared to 13 in 2011, suggesting that transmission of TB may be declining in Scotland.

### Place of birth and ethnicity

**1.12** Place of birth was known for 89.7% of cases. Of these, 56.2% were born outside the UK. As in previous years, Pakistan (44 cases) and India (82 cases) were the most commonly reported countries of birth. Information on the time from their entry into the UK to TB diagnosis showed that 79.2% had entered the UK two or more years before diagnosis; 50.3% had entered five or more years earlier and 25.7% had entered 10 or more years before diagnosis. The mean time between entry and diagnosis was eight years; the median time was five years. Ethnic origin was recorded for 93.1% of cases. The majority were white Caucasian (169; 43.1%), Indian (91; 23.2%), Pakistani (59; 15.1%) and Black African (35; 15.1%).

## Risk factors

**1.13** Information on risk factors was recorded for the majority of cases (364/408; 89.2%) in 2012. Specific risk factors for TB were identified in 104 cases (28.6%), of whom 18 cases had more than one known risk factor. Risk factors identified in 2012 include alcohol misuse (36 cases; 9.9%), immunosuppression (31 cases; 8.5%), working in healthcare (22 cases; 6.0%), being a refugee (16 cases; 4.4%), homelessness (12 cases; 3.3%), drug misuse (five cases; 1.4%), and residency in a residential or corrective institution (three cases; 0.8%). There was an increase in the number of cases reported to be immunosuppressed, a care worker or homeless, and a decrease in the number of cases reported to be a refugee compared with 2011.

## Microbiological results

**1.14** In 2012, 91.7% of all cases had specimens sent for culture: 94.1% of pulmonary and 88.8% of non-pulmonary notifications. Of these, 74.3% were confirmed by culture (80.2% of pulmonary and 67.1% of non-pulmonary notifications). Of the culture confirmed cases in 2012, 269 (96.8%) were due to infection with *M. tuberculosis*, six (2.2%) with *M. bovis* one (0.4%) with *M. africanum*, one (0.4%) with *M. fortuitum* and one (0.4%) with *M. abscessus*. Two cases were classified as multi-drug resistant, which is consistent with the numbers reported in previous years. There was a small decrease in the number of isolates resistant to isoniazid, 5.5% compared to 6.8% in 2011.

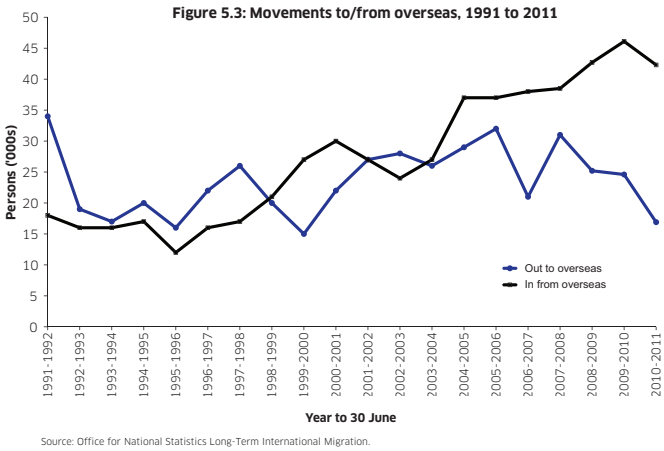
## Treatment outcomes[1]

**1.15** In 2011, 78.6% of all TB cases (with outcome data available) had successfully completed treatment at 12 months. The most common reason for not completing treatment was death (41 cases; 9.5%), being lost to follow up (22 cases; 5.1%) and still being on treatment (20 cases; 4.6%). In total, 43 cases (9.9%) were reported to have died: 26 died before treatment completion, two completed treatment then subsequently died and 15 died having never commenced treatment (having been diagnosed close to or after death).

## Migrants and New Entrants from High Risk Countries

**1.16** In-migration to Scotland from overseas has been increasing since 2003 but dropped slightly in 2010 to 2011. Out-migration to overseas has dropped three years in a row following a large rise in 2007 to 2008. The figures shown here are from the *Long-Term International Migration* (LTIM) series produced by the Office for National Statistics (ONS) (Figure 2).

**Figure 2: Migration to and from overseas 1991–2011 (ONS Total International Migration)**




Source: Office for National Statistics Long-Term International Migration.

1 Information on treatment outcome is reported at 12 months after initial tuberculosis notification. For this reason, the treatment outcomes described here are for cases notified in 2011. Outcomes for cases notified in 2012 will be reported in the 2014 HPS annual report.

**1.17** As highlighted in *Recent Migration into Scotland: The Evidence Base,* the Scottish Government does not have control over the flow of non-EEA migrants into Scotland independently from the UK. Following devolution, Section 5 of the 1998 Scotland Act reserved, in the main, 11 key policy areas to Westminster, among them immigration, employment and social security, while devolving most services to the Scottish Parliament. As a result of this division, decisions about levels of migration and access to benefits are made by the UK Government, while key services affected by migration, including health care, education, housing, children's services and policing are the responsibility of the devolved government.

**1.18** There is no comprehensive system for counting people into and out of Scotland and there is no reliable data by country of origin on either the stock or flow of individuals. We therefore have to make use of the best proxy sources available. These include the International Passenger Survey, the Annual Population Survey, Worker Registration Scheme and the NHS Central Register. The data presented can have wide confidence intervals especially for country of birth (see examples below). The 2011 Census will have more detailed information on country of birth with univariate data at Council level available in Autumn 2013. More detailed information such as the date of arrival will follow in later releases.

**1.19** For the existing stock population of non-UK born individuals in Scotland, for the period January 2011 to December 2011, the five most common countries of birth were Poland (67,000 CI +/- 9,000), India (24,000 CI +/- 5,000), the Republic of Ireland (22,000 CI +/- 5,000), Germany (19,000 CI +/- 5,000) and Pakistan (16,000 CI +/- 4,000).

**1.20** The net migration flows between Scotland and overseas countries between mid-2010 and mid-2011 was 25,400 (in-migration 42,300, out-migration 16,900). NHS Lothian and NHS Greater Glasgow had the highest numbers of in-migration with 12,134 and 10,333 respectively, followed by Grampian (6,813), Tayside (4,196), Fife (2,197) and Argyll and Clyde (now part of NHS Greater Glasgow (1,219)). 71% of in-migrants were between 16 and 34 years old.

**1.21** Information on National Insurance application numbers for inward migration flows are likely to be underestimated. For example this does not capture the entrants who repeatedly 'cycle' between Scotland and EU countries (e.g. Poland, Portugal) following harvesting/planting/ fishing seasons or the dependents of people who apply for a National Insurance number.

**1.22** It does not capture the people from Russia and the ex-federation countries (e.g. Latvia, Lithuania) who come in under Polish EU passports (or Polish who come in under German passports).

**1.23** The reasons for in-migration include a definite job, looking for work, to accompany/join family members, formal study, asylum and others. An individual is considered a long-term migrant if they stay >1 year in the country. If they are out of the country for >1 year and then return, they are considered a new entrant. Many individuals enter and leave the country several times over the course of several years.

## 2. Performance against *A TB Action Plan for Scotland*

**2.1** In April 2013, a questionnaire was sent to all NHS Board TB teams. The questionnaire requested teams to assess their own progress against the 42 recommendations in the Action Plan and to provide written comments. Actions were assessed as 'implemented' (green), 'partially implemented' (amber) and 'not implemented' (red). The recommendations are often couched in general terms and can be complex. They are not presented as SMART (Specific, Measurable, Attainable, Reproducible, Timed) indicators. This means that the information collected is subject to interpretation of implementation status at local level. Furthermore, the settings in which programmes are delivered vary considerably in terms of case load, geography, available capacity, infrastructure and expertise. Responses need to be interpreted taking the above into account.

**2.2** All Boards and agencies responded to the survey. The main strengths are that excellent clinical and laboratory services are available across all responding Boards – either directly or through collaboration with neighbouring boards. The main gaps in progress are multidisciplinary team approaches for new entrant screening, problem alcohol drinkers, neonatal BCG, and auditing of services such as contact tracing.

**2.3** The following section provides a summary of progress. For further details on territorial Boards' progress see Annex A. For further details on HPS progress see Annex B.

### 2.4 Laboratory Services and Diagnostic Tools

- Many laboratories refer specimens to the Scottish Mycobacteria Reference Laboratory (SMRL).
- Laboratories within 11 of 14 Boards report that they culture specimens in liquid culture.
- 13 out of 14 Boards report that their laboratories are Clinical Pathology Accreditation (CPA) accredited and undertake appropriate quality assurance.
- The Health Protection Network (HPN) guidance on Interferon Gamma Release Assay (IGRA) tests has been reviewed and the revised guidance will be published by early 2014.
- A national group has developed and disseminated proposals for use of MIRU to detect and investigate clusters of TB cases. A final protocol will be available in 2014. In the meantime the approach is being used in practice to help boards manage clusters of TB cases.
- The TB Action plan Monitoring Group, HPN, HPS, SMVN and SMRL monitor developments to ensure that the most appropriate up-to-date diagnostic tools are available.

### 2.5 Clinical Services

- All Boards have identified TB as a strategic priority.
- All Boards report that they have multidisciplinary team (MDT) arrangements in place although the strength of implementation varies across Boards.
- 13 out of 14 Boards report that they have representation from primary care or GPs in the MDT and ensure case review by the MDT, although the strength of implementation varies.

- 11 out of 14 Boards report that they have arrangements in place to access negative pressure facilities when required, including for multi-drug resistant (MDR/XDR) TB. In three Boards interim measures are in place and work is ongoing to achieve full implementation.
- All Boards report that they are aware of existing guidance on HIV screening of TB patients and it is in force. 13 out of 14 Boards report that they score green for the recommendation that co-infected patients are managed by an expert in both conditions (with two of those Boards transferring patients elsewhere).
- HPS have completed an initial analysis of a data linkage based study to improve Scotland's evidence base around dual infection with TB and HIV.
- A TB study day on 12 June 2013 attracted over 130 participants from various disciplines. Over 76% of the respondents to the evaluation questionnaire indicated that the day was either excellent or good. There was support to continue the annual study day plus one annual thematic workshop to discuss clinical and operational issues in greater depth.
- The Scottish Government is fully supportive of the national TB Nurse network. In addition, a survey of Boards was carried out to determine attitudes to a national multi-disciplinary TB network. 10 of the 14 Boards responded, and of those respondents seven wanted a network, two did not, and one was unclear, although was mostly positive.

## 2.6 Surveillance

- All Boards report that they have at least partially implemented the recommendation to collect ESMI scheme data and conduct audits on the completeness and timeliness of the return of the ESMI data (10 of those Boards score green).
- HPS produce annual reports based on this ESMI data.
- Seven out of 14 Board MDTs report annually on TB activities.
- Following discussion with the Scottish Government Public Health Portfolio Management Group, and subsequent developments with the Scottish Health Protection Information Management System (SHPIMS – expected to be available by mid-2014) and Public Health England's plans for their surveillance system (a new system expected to be available in 2015), the surveillance group will meet again in autumn 2013 to scope the requirements for and costs of a replacement to the current paper-based surveillance system.

## 2.7 Public Health Services

- 13 out of 14 Boards report that they are confident that the national guidelines on contact tracing are being followed. However, not all Boards conduct formal audits and there is no standard audit tool to do this.
- Board level TB multidisciplinary teams are recommended to liaise with statutory and voluntary groups, educational institutions and primary care to implement case finding and follow up for latent TB in new entrants.
  - five out of 14 Boards report implementation of case finding for new entrants with a further eight reporting that systems are under development.

  - four out of 14 Boards report active engagement with voluntary groups.
  - seven out of 14 Boards report some active referral of cases from primary care.
  - 13 out of 14 Boards report provision of language translation services to facilitate case finding.

- There are a range of approaches to case finding for latent TB in new entrants including follow up of new entrants when notified by their port of arrival, dedicated clinics at universities, development of hospital based screening clinics, facilitation of referral and testing by primary care and new employee screening. There are no national standards available for new entrant screening and follow up in Scotland.
- Eight Boards score green, three score amber and three score red for engagement of MDTs and local services with primary care to highlight the alcohol misuse at-risk group.
- Nine Boards score green, one scores amber, and four score red for engagement of MDTs and local services with Alcohol and Drug Partnerships to highlight the problem drinker at-risk group, yet implementation is inconsistent.
- Six out of 14 Boards score green on being aware of and planning to better connect with hard-to-reach groups.
- 13 out of 14 Boards report that they have reviewed or are reviewing their BCG operational plans.
- A working group was established by HPS and the Scottish Government which developed a business case to improve SIRS for neonatal BCG, and work is to be scheduled for the first quarter of 2014 at the earliest, due to other priorities. In the meantime, HPS have collected mapping information on current Board practice and this will be developed further to produce recommendations on best practice and a standard audit tool for Boards.
- HPS have developed a paper summarising the appropriateness of the Child Health Systems Programme (CHSP) school system BCG screening questionnaire, but action is yet to be taken to review Board BCG audit activities.
- A review of the TB elements of the 2008 Health Clearance Guidance is yet to be undertaken.

## 2.8 Monitoring and Ensuring Progress

- An Action Plan Monitoring Group (APMG) was established, and it meets twice a year. It last met on 25 April 2013.
- The APMG will develop a number of key performance indicators (KPIs) in line with ECDC targets and the recommendations of the Action Plan in order to manage and track progress.

## 3. Performance against the ECDC Indicators and Targets

**3.1** Scotland successfully met two of the four epidemiological indicators, and seven of the 10 core indicators, set out by the ECDC.

**3.2** Key areas of good performance are:

- Stable numbers of MDR-TB.
- A decline in the ratio of notification rates in children to adults generally decreasing over past 10 years. Ratio in 2002 was 0.36, ratio in 2012 was 0.14.
- Availability of national strategies, guidance, quality control and reporting systems.
- More than 80% of new pulmonary tuberculosis cases are confirmed by culture (80.2% in 2012).

**3.3** Key challenges are:

- Mean age generally increasing over the past 10 years, (2002, 40 years; 2012, 35 years). However, the age of those born in the UK is increasing whilst those born outside the UK is decreasing.
- Treatment success rates for pulmonary smear positive cases are 75.6% in 2011, against a target of 85%.
- Integrated care for TB/HIV co-infection: data on HIV status of TB cases is not known at a national level in real time in Scotland. This information is likely to be known at a Board level but is not collected at HPS.

**3.4** Further detail is available in the HPS report on progress against the ECDC indicators and targets in Annex C.

## 4. Discussion and Next Steps

**4.1** There are encouraging signs that the number of cases of tuberculosis in Scotland may be levelling off although it is too early to say that there is a downward trend. Since 2011, overall progress with the Action Plan has been very good. Patients have access to appropriate diagnostic services and clinical care provided by expert and multidisciplinary teams; there are low levels of drug resistance and public health services contribute to the prevention of ongoing transmission. However, there are challenging areas where programmes need to improve.

### Targets and Monitoring Framework

**4.2** To stay in line with ECDC targets, as set out in *Progressing Towards TB Elimination: A Follow Up To The Framework Action Plan To Fight Tuberculosis In The European Union* (2010), the goal of *A TB Action Plan for Scotland* should be 'To eliminate, by 2050, TB as a public health problem (incidence <1 per million population)'.

**4.3** In Scotland, a monitoring framework is required to manage implementation and measure progress towards achievement of this goal. A peer review approach is to be encouraged with Boards, and the framework will be in three tiers: Tier one – strategic level outcomes and epidemiology, based on the ECDC indicators; Tier two – tactical level outputs, based on the Action Plan recommendations; Tier three – audit of clinical and public health activities, such as contact tracing, new entrant screening and neonatal BCG vaccination. A national group will develop this framework and progress will be monitored by the TB Action Plan Monitoring Group (APMG). To ensure the most up-to-date data, the Scottish Government and HPS will publish a joint annual report from 2014.

### Strengthened Links to other Policy Areas Relevant to TB Prevention and Control

**4.4** In Scotland, the main risk factors for TB infection are being non-UK born, and problem alcohol use. However, cases are becoming increasingly complex as individuals may have dual infection with TB and blood borne viruses (e.g. Hepatitis B, HIV, Hepatitis C); they may have underlying chronic conditions such as diabetes or coronary heart disease; they may be employed as care workers; they may share multiple occupancy accommodation, such as halls of residence or rural workers accommodation; and they may be mobile both internationally and internally, which can make identification and management of clusters of cases more difficult. Clearly, in order to tackle TB, it is necessary to develop links to many other policy areas.

**4.5** Innovative approaches are required. One example is collaboration between the Royal College of General Practitioners (RCGP) and the Scottish Government to develop and pilot consulting room software that will prompt GPs to check for country specific health risks during new patient registrations. This electronic toolkit would also facilitate identification of a range of issues such as vaccination status, risk of diabetes or blood borne viruses, lifestyle risks such as smoking and excess alcohol use, and social risks such as vulnerability to domestic violence and poor housing. This would promote a joined up approach to caring for patients whether migrants, the elderly, Gypsy Travellers or young families.

**4.6** Another approach is the development of a multidisciplinary TB network which will coordinate quarterly meetings to provide updates, share experiences and facilitate implementation

of the Action Plan. It is expected that this will strengthen links between TB services and other services such as occupational health, drug and alcohol, infection control, pharmacy and primary care.

## TB Case Finding for Migrants and New Entrants

**4.7** New entrant case finding is a priority in *A TB Action Plan for Scotland*. The UK programme to screen migrants for active TB at the port of entry is being replaced by quality assured pre-entry screening. However, this will not identify latent TB infection (LTBI) which studies indicate could account for up to three out of four new cases in the UK.

**4.8** The HPN guidelines state that 'new entrant screening should be incorporated within larger health screening programmes for new entrants and linked to local services in particular primary care'. Primary care is key to identification of new entrants, and screening of individuals from high risk (incidence >40/100,000) and very high risk countries (incidence >150/100,000) has been shown to be cost effective through primary care in England (£20,819 per case of active TB prevented for individuals from countries with an incidence >150/100,000). However, not all migrants register with primary care. For example, a study among migrants in Glasgow from the 8 countries which joined the EU in 2004 showed 58% of respondents had registered with a GP and 32% had used health services in the city. Furthermore, not all providers are aware of services to which new entrants are entitled nor the health risk factors associated with certain countries of origin. Nevertheless, latent TB case finding through universities and general practice has been found to be feasible and effective in Scotland. For example, in Grampian, of approximately 1,000 individuals tested in 2010-2011, approximately 20% were positive and followed up for LTBI.

**4.9** A sub group of the TB Action Plan Monitoring Group has been established to develop a national approach to case finding/screening for new entrants and migrants from high incidence countries. The group is collaborating with Public Health England to develop pilots which will provide data on the costs and effectiveness of different methodologies. Once evidence based recommendations are available, funds will be sought for national implementation.

## TB Case Finding among Individuals who Consume Excess Alcohol

**4.10** Alcohol misuse is a recognised risk factor for TB and previous work has sought to investigate this association in Scotland. HPS will hold a one-day seminar in January 2014 to bring together experts in the field from both TB and alcohol misuse perspectives to explore this topic in more detail. The day will help inform future work which may be undertaken to further quantify the issue, identify potential areas for intervention/support, and support the sharing of good practice and initiatives across Boards.

## Surveillance

**4.11** The current paper-based enhanced surveillance system for TB provides detailed retrospective information on cases. This system is no longer fit for purpose and not in line with international best practice. Scotland requires a surveillance system that provides real time functionality and that can link to case and, liaise with other relevant networks, cluster management – including the use of MIRU data. The national TB surveillance and SHPIMS groups will explore the options to include a TB functionality in the SHPIMS system which is expected to be introduced in 2014. A pilot of the current PHE surveillance system has been carried out in NHS Lothian but PHE is developing an updated system expected to be ready

in 2015. The TB surveillance group has already submitted a paper to the Scottish Government Public Health Portfolio Management Group in January 2013. This submission will be updated in light of the development of SHPIMS and the PHE system, and funds will be sought to ensure that progress is made.

## TB Network

**4.12** A survey of Boards indicated a general willingness to participate in a national TB network of multidisciplinary team staff/leads. The network will report to the Action Plan Monitoring Group and the key function will be to support implementation of the Action Plan, maintain quality and reduce variation in TB services across Boards. This will be achieved through the sharing of good practice and collaboration with existing networks such as the TB Nurses and Pharmacists Networks. In addition, the network will contribute to the development of national standards and audit tools, and lead the national TB study and workshop days. Methods of communication will include an email group and secure website. The network will take into account the different TB rates and circumstances across Boards, including time constraints, and the need for Boards to include time allocated for network tasks, such as development of audit tools and attendance at meetings, into individual work plans. The network will liaise with and learn from existing networks that have been shown to be effective e.g. the National Immunisation Coordinators Network, the Scottish Microbiology and Virology Network, the Pharmacy Network and the Sexual Health and Blood Borne Virus network. The first network meeting will take place in early 2014.

## 5. Conclusion

**5.1** Tuberculosis still poses a considerable threat to the population of Scotland. Continued action is required to ensure early detection of cases (and clusters), effective clinical care, and the prevention of onward transmission. To build on the excellent work so far, the Action Plan requires a clear strategic direction, plus, rigorous implementation and monitoring across Scotland.

## 6. Recommendations

The following are key recommendations for 2013-2014.

1. The goal of *A TB Action Plan for Scotland* clearly defined as: 'To eliminate, by 2050, TB as a public health problem (incidence <1 per million population)'.
2. A national group develop a framework to manage implementation and monitor progress towards this goal.
3. A national multidisciplinary group and Boards prioritise audit topics and develop standard audit tools for use by Boards.
4. A national multidisciplinary group coordinate Boards' pilots of latent TB case finding/screening among new entrants and migrants, develop evidence based recommendations/ standards for national implementation, and, submit a business case to the Scottish Government to support this.
5. The Scottish Government collaborate with the RCGP to develop an electronic toolkit to promote identification of active and latent TB in migrants and new entrants in Primary Care.
6. The TB Action Plan Monitoring Group strengthen linkages to other policy areas such as long term conditions, primary care, health improvement (smoking, alcohol, diet), mental health, occupational health and the third sector. This will help to provide holistic care where TB is one of several health issues facing vulnerable populations.
7. A national multidisciplinary group and Boards develop approaches for the identification and management of TB cases among those at risk due to excess alcohol intake.
8. A national multidisciplinary group identify clear steps and submit a business case for the development of electronic surveillance of TB.
9. The Scottish Government support the establishment of a national multidisciplinary TB network and support one annual study day and one annual thematic workshop day for multidisciplinary teams across Scotland.
10. Future annual reports be published jointly by the Scottish Government and HPS.

## Acknowledgements

We would like to thank staff at NHS Boards, national laboratories, and HPS for their contributions to this report. Without such collaboration, Scotland's progress in the worldwide fight against TB would not be possible. The Scottish Government hopes that the strong collective effort will continue.

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## SHORT SUMMARY OF PROGRESS
## ANNEX A

| | RECOMMENDED ACTION | AA | BOR | DG | FIFE | FV | GRA | GC | HI | LOT | LAN | ORK | SHE | TAY | WI | OTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LABORATORY SERVICES AND DIAGNOSTIC TOOLS** | | | | | | | | | | | | | | | | |
| Culture | 1. All specimens cultured in liquid media | | SMRL | SMRL | SMRL | | | | SMRL | | SMRL? | *Gra | ND | SMRL | *Hi | |
| | Precious samples solid and liquid culture | | SMRL | SMRL | SMRL | | | | SMRL | | SMRL? | *Gra | ND | SMRL | *Hi | |
| | No solid culture alone | | SMRL | SMRL | SMRL | | | | SMRL | | SMRL? | *Gra | ND | SMRL | *Hi | |
| QA | 2. All labs CPA accredited, with QA | | | | | | | | | | | *Gra | ND | | *Hi | |
| Access | 3. SG support a 5 day minimum service | | | | | | | | | | | | | | | SG |
| Optimal | 4. SMVN (formerly SMF) consider centralisation diagnostic services | | | | | | | | | | | | | | | SMF |
| Future | 5a. The IGRA test review by HPN | | | | | | | | | | | | | | | HPN |
| | 5b. Mechanism to assess developments | | | | | | | | | | | | | | | SG |
| | 5c. HPS & SMRL develop MIRU strategy | | | | | | | | | | | | | | | SMRL/ HPS |
| **CLINICAL SERVICES** | | | | | | | | | | | | | | | | |
| Plans | 6. TB should be a Board priority | | | | | | | | | | | | | | | |
| Clinical care | 7a. No patient treated without MDT | | | | | | | | | | | | *Gra | | | |
| | GPs and primary care teams in MDT | | | | | | | | | | | | | | | |
| | 7b. All TB patients have care reviewed by MDT | | | | | | | | | | | | *Gra | | | |
| Sharing best practice | 8a. MDT network supported and facilitated | | | | | | | | | | | | | | | SG |
| | 8b. TB Nurses Network supported and facilitated | | | | | | | | | | | | | | | SG |
| | 8c. Annual study day supported | | | | | | | | | | | | | | | SG |
| Negative pressure access | 9a. Access to negative pressure and single rooms | | | | | | | | | | | *Gra | *Gra | | | |
| | 9b. MDR/XDR TB in negative pressure facilities | | | | | | | | | | | *Gra | *Gra | | | |
| | 9c. Arrangements understood by all relevant staff | | | | | | | | | | | *Gra | *Gra | | | |
| TB/HIV | 10a. HIV screening of TB patients implemented | | | | | | | | | | | *Gra | *Gra | | | |
| | 10b. HIV/TB managed by co trained physician | | | | | | | | | | | *Gra | *Gra | | | |
| | 10c. Improve evidence base TB/HIV infection | | | | | | | | | | | | | | | HPS |
| Guide | 11. National guidelines reviewed, every 3 years | | | | | | | | | | | | | | | HPN |

| | RECOMMENDED ACTION | AA | BOR | DG | FIFE | FV | GRA | GC | HI | LOT | LAN | ORK | SHE | TAY | WI | OTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SURVEILLANCE** | | | | | | | | | | | | | | | | |
| ETS | 12. Group to consider version of ETS | | | | | | | | | | | | | | | HPS/ SG |
| ESMI | 13. MDT feedback and audit ESMI data | | | | | | | | | | | | *Gra | | | |
| Evaluate | 14a. HPS to report on TB annual report | | | | | | | | | | | | | | | HPS |
| | 14b. Board TB service report annually | | | | | | | | | | | | | | | |
| **PUBLIC HEALTH SERVICES** | | | | | | | | | | | | | | | | |
| Contacts | 15. MDT audit contact tracing | | | | | | | | | | | | | | | |
| New entrant screen | 16a. MDT latent TB case finding for new entrants | | | | | | | | | | | | | | | |
| | 16b. MDT with voluntary groups & new entrants | | | | | | | | | | | | | | | |
| | 16c. Primary care staff refer patients at risk | | | | | | | | | | | | | | | |
| | 16d. MDT ensure language translation | | | | | | | | | | | | | | | |
| TB in high risk groups | 17a. MDT approaches hard to reach groups | | | | | | | | | | | | | | | |
| | 17b. MDT primary care & problem alcohol users | | | | | | | | | | | | | | | |
| | 17c. MDT link AADP to manage TB risk | | | | | | | | | | | | | | | |
| Vaccines | 18a. NHS Boards review neonatal BCG | | | | | | | | | | | | | | | |
| | 18b. Development of the SIRS BCG call/recall | | | | | | | | | | | | | | | HPS/ SG |
| | 18c. Review school screening questionnaire | | | | | | | | | | | | | | | HPS |
| | 18d. Review of Board BCG audit activities | | | | | | | | | | | | | | | HPS |
| OH risk | 19. Review TB health clearance guidance | | | | | | | | | | | | | | | SG |
| **MONITORING AND ENSURING PROGRESS** | | | | | | | | | | | | | | | | |
| Monitor progress | 20a. Action Plan Monitoring Group set up | | | | | | | | | | | | | | | SG |
| | 20b. Group to meet annually | | | | | | | | | | | | | | | SG |
| | 20c. Group establish key performance indicators | | | | | | | | | | | | | | | SG |
| | 20d. Group report annually to Ministers | | | | | | | | | | | | | | | SG |
| | 20e. Group report TB study day | | | | | | | | | | | | | | | SG |

KEY: *Gra = via referral to Grampian
*Hi = via referral to Highland
*ND = No data

= Not implemented | = Partially implemented | = Implemented | = No Data

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LABORATORY SERVICES AND DIAGNOSTIC TOOLS | | | | | | | | | | | | | | | | |
| 1. At a minimum all specimens should now be cultured in liquid media as this reduces by more than half, the time to result from 27 to 13 days as compared with solid culture. | | | | | | | | | | | | ND | | | | – DG, Borders, Tayside, Fife, and Highland send samples to Reference Laboratory for culture<br>– Lanarkshire has completed an evaluation of liquid culture; under the current managed service contract they are awaiting a capacity upgrade on the their system in order to fully implement going live<br>– All AA samples are cultured on solid media in local microbiology lab; all AAFB positive samples sent to TB Reference Laboratory for liquid culture; AAFB negative samples are sent for liquid culture on request by clinician or CPH(M); a business case for the local microbiology lab to introduce liquid culture in-house is being considered by the board<br>– FV have begun discussions with Biomerieux around the use of the MB BacT/Alert system for AAFB fluid culture and are arranging to send two senior BMS staff to Lanarkshire to see how the system is used; fallback position is that they would have to refer samples to the reference laboratory for AAFB culture. FV have also contacted the manufacturer of MIGT (a machine used in the TB reference laboratory) |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 continued. Precious samples (e.g. CSF, biopsies, lymph nodes) and those requiring incubation at other than 36$^0$C such as skin biopsies and abscesses should receive solid culture in addition to liquid culture. | | | | | | | | | | | | ND | | | | – Southern General Hospital skin samples sent to SMRL for culture. CSF when clinically requested sent to SMRL for PCR<br>– DG, Borders, Tayside, Fife, Lanarkshire and Highland CSF when clinically requested sent to SMRL for PCR<br>– In FV, solid culture is performed but not liquid |
| 1 continued. Specimens should not be cultured on solid media alone. | | | | | | | | | | | | ND | | | | – DG, Borders, Tayside, Fife and Highland send samples to NHS Lothian for culture<br>– Lanarkshire are awaiting a capacity upgrade on the their system in order to fully implement going live following an evaluation of liquid culture |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. All laboratories carrying out mycobacterial microscopy and culture should be Clinical Pathology Accreditation (CPA) accredited, have specific quality systems and undertake appropriate External and Internal Quality Assurance. | | | | | | | | | | | | ND | | | | – Fife implemented for local urgent microscopy service and via referral to Lothian<br>– DG, Borders, Fife laboratories are accredited for microscopy |
| 3. The Scottish Government will support a 5 day minimum service. | | | | | | | | | | | | | | | SG | There is no new evidence to suggest otherwise |
| 4. In line with the Quality Strategy and the commitment to reducing unnecessary duplication, the Scottish Government will support work through the Scottish Microbiology Forum to consider the centralisation of Scottish mycobacterial diagnostic services into a smaller number of laboratories with higher throughput and defined quality standards in laboratories in Scotland. | | | | | | | | | | | | | | | SMVN (for-merly (SMF) | Currently some may process fewer than the accepted minimum number of specimens |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a. NICE and HPA have published updated guidance on the IGRA test during 2013. This work should be considered by the Scottish Health Protection Network to inform guidelines on the use of IGRA in Scotland. | | | | | | | | | | | | | | | HPN | HPN guidance has been drafted and is awaiting publication in 2013. See the HPS report for details (Annex B) |
| 5b. Scottish Government should ensure a mechanism exists for the appropriate Scottish body to assess these developments on an ongoing basis to ensure the best quality and most efficient diagnostic tools are available in Scotland. | | | | | | | | | | | | | | | SG | The Action Plan Monitoring Group with HPN, HPS, and SMRL are doing this. SMVN wishes to be involved too |
| 5c. The Working Group recommends that Health Protection Scotland and SMRL should establish a group to develop a clear strategy for the systematic use of molecular typing of *M. tuberculosis* complex in Scotland. | | | | | | | | | | | | | | | HPS/ SMRL | A strategy has been drafted. See the HPS report for details (Annex B) . |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLINICAL SERVICES | | | | | | | | | | | | | | | | |
| 6. TB should be a Board priority for those areas in Scotland with the highest incidence of cases.<br><br>Other Boards with lower incidence of TB should however also review their response to TB in line with recommendations in this report. | | | | | | | | | | | | | | | | – All Boards have identified TB as a priority with five Boards reporting that they have recently reviewed their TB plan (Orkney, Fife, Highland, FV, Lanarkshire)<br>– Four Boards report TB as a major priority and have local procedures in place for monitoring going forward (GC, Lothian, Fife, Grampian) |
| 7a. No TB patient should be treated by a single consultant without the involvement or oversight of a multidisciplinary team. Evidence shows that treatment of TB should be initiated by a specialist and supervision of management should be as part of a multidisciplinary team, including primary care. | | | | | | | | | | | | Gra | | | | – 13-14 Boards report that they have MDT arrangements in place with representation from key clinicians.<br>– Some Boards conduct audits of cases<br>– Fife have developed a MD care pathway<br>– Lanarkshire have an MDT shared site for recording key patient information; all cases are reviewed by the MDT which normally would meet on a six-weekly basis; sometimes patients are commenced on treatment prior to the MDT taking place<br>– Those patients requiring inpatient care in Orkney & Shetland are transferred to Aberdeen<br>– Tayside have no protocols yet but have MDT meetings |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7a continued. GPs and primary care teams (including pharmacists) have a crucial role in the early detection of TB and, in collaboration with others, the overall care and treatment of their patients. | | | | | | | | | | | | | | | | – There is considerable ongoing effort in some Boards but diagnosis is still delayed<br>– All Boards report that they have representation from primary care or pharmacy on MDTs, but in FV, Tayside and Shetland there is more work needed to achieve full involvement<br>– Other work is ongoing to collaborate with primary care: Lothian have visited GP representative groups to discuss early detection; FV has a TB portal created in the SCI gateway and how to access new BCG under development<br>– Borders implemented a TB Intranet Microsite in January 2012 with links to relevant documents on primary care site RefHelp. They also published a Borders TB Guidance document<br>– AA are developing local TB guidance for primary and secondary care<br>– Tayside identified a GP link<br>– DG circulated a powerpoint of TB treatment to GPs, and they held awareness training for community pharmacists in 2012<br>– WI link with NHS Highland to provide local contact tracing and care with MDT involvement from NHS Highland. As numbers are small there is no specific MDT but care is multidisciplinary<br>– Grampian has seen more direct communication between all parties involved in case management following effort to raise awareness amongst primary and secondary care clinicians |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | Wi | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7b. All TB patients in Scotland should have their care plans reviewed by a TB multidisciplinary team to ensure optimal investigation and management. | | | | | | | | | | | | Gra | | | | – All Boards report arrangements in place to review care plans by MDT<br>– Tayside are not aware of TB clinical pathway documentation |
| 8a. The SG should ensure that a national network of MD staff/leads is supported and facilitated. | | | | | | | | | | | | | | | SG | Discussions are taking place on future possibilities for a national multidisciplinary network |
| 8b. Recognising the key role of TB nurses, the SG should ensure that the national TB Nurses Network is supported and facilitated. | | | | | | | | | | | | | | | SG | The Scottish Government is fully supportive of the national TB Nurse network |
| 8c. To ensure clinicians from across Scotland working in the field of TB have the opportunity to meet and discuss issues, the SG should ensure an annual meeting of all health professionals involved in treatment and management of the disease is funded and facilitated. | | | | | | | | | | | | | | | SG | This year's annual TB Study Day took place on 12 June 2013. The TB Monitoring Group is discussing the possibility of an annual TB study day with also an annual themed TB catch up day where operational issues can be discussed in greater depth |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9a. NHS Boards should have documented arrangements in place to ensure access to negative pressure facilities where these are required. Individual circumstances may make this challenging but at a minimum, single rooms should be used where required for the period that any patient would be considered to be infectious. | | | | | | | | | | | Gra | Gra | | | | – In Orkney & Shetland patients are transferred to Grampian. If required, a single room would be used prior to transfer taking place<br>– In WI they are all provided with negative pressure rooms and clear guidance on use<br>– In Borders discussions are underway with Lothian for a MOU to use negative pressure rooms. There is no local access to negative pressure rooms and it is likely to be cost prohibitive<br>– DG plans for 4 negative pressure rooms in new DGRI. Arrangements are in place meanwhile<br>– AA – The procedure is documented in the *Prevention and Control of Infection manual* |
| 9b. Patients with MDR/XDR TB should be managed in negative pressure facilities with en-suite facilities without exception. All patients with suspected MDR/XDR TB, pending microbiological results should be managed in a negative pressure room with en-suite facilities. | | | | | | | | | | | Gra | Gra | | | | – All Boards report that they have arrangements in place<br>– Patients in Orkney & Shetland would be transferred to Grampian<br>– Lothian also manages patients by isolation at home depending on clinical risk assessment<br>– Grampian has local guidance on risk assessment and placement<br>– DG plans for 4 negative pressure rooms in new DGRI. Arrangements are in place meanwhile |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 9c. These arrangements should be understood by all relevant staff involved in patient management and should, for example, form a core part of multidisciplinary team operational documentation. | | | | | | | | | | | Gra | Gra | | | | – Arrangements are in place in all Boards (in Orkney & Shetland patients are transferred elsewhere)<br>– Lanarkshire have discussed the availability of negative pressure facilities for managing suspected paediatric cases; this needs follow up and national review; the use of negative pressure facilities for appropriate cases is highlighted in section N of the *Control of Infection Manual* – it would be the responsibility of individual staff to ensure that the guidance is adhered to, but there have not been any routine audits undertaken to evaluate this<br>– Tayside are not aware of a clinical TB pathway that incorporates TB specifically but it will be in the general infection control policy<br>– DG have circulated a new infection control algorithm |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 10a. Existing guidance on HIV screening of TB patients should be implemented routinely across Scotland, and health professionals should be reminded of this guidance. Moreover multidisciplinary teams should ensure that HIV screening has been carried out during patient reviews. | | | | | | | | | | | Gra | Gra | | | | – All boards report that they are aware of the guidance and it is in force<br>– Lothian, GC and Lanarkshire audits have taken place and results were fed back to clinicians<br>– Lanarkshire have identified that test results are not always accessible to TB services. A new lab system is in place which should provide more accurate, up-to-date info<br>– Orkney and Shetland referred to Grampian procedures<br>– In Borders, all new TB cases are screened for HIV<br>– In AA, this is recorded in the patient review form<br>– Tayside include this on case data sheet; there is no audit<br>– WI not audited; it is expected to happen at diagnosis |
| 10b. Patients co-infected with HIV and TB should be directly managed by a physician with expertise in the management of both conditions. Ideally this should be an adult or paediatric trained infectious diseases physician. | | | | | | | | | | | Gra | Gra | | | | – All patients are managed in line with the recommendation<br>– Orkney and Shetland referred to Grampian procedures |
| 10c. Health Protection Scotland will initiate a population based study (an anonymised data linkage exercise) to improve our evidence base around dual TB/HIV infection and associated risk factors in Scotland. Work will commence in 2011. | | | | | | | | | | | | | | | HPS | – The data linkage has been completed, as well as an initial analysis and summary report. See the HPS report for more details (Annex B) |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 11. National guidelines should therefore be reviewed for Scotland at a minimum of every 3 years. The Scottish Health Protection Network should lead the reviews. | | | | | | | | | | | | | | | SHPN | See Action 5a; the current HPN guidance has been reviewed; an updated version has been drafted and is awaiting publication in 2013. See the HPS report for details (Annex B) |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| SURVEILLANCE | | | | | | | | | | | | | | | | |
| 12. An updated and dynamic surveillance system that provides real time functionality and that is efficient and easy to use, would significantly improve TB services across Scotland. As a first step Scottish Government and HPS should establish a group involving NHS Board representatives as soon as possible to actively consider adopting a compatible version of ETS. | | | | | | | | | | | | | | | SG/ HPS | A proposal is under development. See the HPS report for full details (Annex B) |
| 13. Multidisciplinary teams locally should routinely feedback local ESMI surveillance to local clinicians and audit the completeness and timeliness of the return of surveillance data using the current paper-based ESMI system. | | | | | | | | | | | | Gra | | | | – FV do not audit the timeliness of returns<br>– Fife have discussed this issue but are yet to audit<br>– HPS produce annual Board level TB surveillance reports based on the ESMI data submitted for those Boards with >=10 cases/ yr, and also provides Boards with ad hoc data. See the HPS report for full details (Annex B)<br>– AA and Tayside circulate reports locally but there has been no audit of ESMI yet<br>– Shetland report that Grampian team action this |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 14a. HPS should continue to report annually to the Scottish Government (copied to NHS Boards) on TB. This report should include a section describing Scotland's performance on the specific ECDC indicators. | | | | | | | | | | | | | | | HPS | HPS produces an annual report on TB which is published in HPS weekly reports. See the HPS report for full details (Annex B)<br>The monitoring group is discussing joint annual reporting with SG and HPS |
| 14b. Each NHS Board TB service/MDT should report annually on TB prevention and control activities. These reports should be sent to their local Clinical Governance Committee and copied to Health Protection Scotland. Local clinicians should be made aware of this report. | | | | | | | | | | | | | | | | – GC consider that ESMI data does not facilitate meaningful interpretation therefore other data capture methods are being progressed<br>– Fife includes information in staff newsletters circulated to GPs and secondary care staff<br>– FV have a report in development<br>– Highland are to introduce annual reporting in 2013-14<br>– At present HPS have not received any reports on TB prevention and control activities for NHS Boards. See the HPS report (Annex 3)<br>– AA's first annual report is expected in 2013-14<br>– Tayside plan 2013<br>– WI have no stand alone report as low numbers. Activities review at HPT meetings<br>– This is routine practice in Grampian and will be made available to HPS<br>– Shetland already produce annual report, will be presented to CGC in future years |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| PUBLIC HEALTH SERVICES | | | | | | | | | | | | | | | | |
| 15. Multidisciplinary teams locally should be responsible for auditing contact tracing actions to ensure that they follow national guidance. (http://www.documents.hps.scot.nhs.uk/about-hps/hpn/tuberculosis-guidelines.pdf) | | | | | | | | | | | | | | | | - 13/14 Boards are confident that guidelines are being followed although there is no formal audit in Highland, Fife, GC and Shetland<br>- Lanarkshire, Grampian, and Borders TB service undertake an audit of contract tracing<br>- In Lanarkshire, the TB service i.e. PH, will coordinate the audit of contact tracing and there are processes in place to do that; an audit of contact tracing since the MDT has been in operation has not been done yet but is in the work plan<br>- AA have completed an audit and the report is awaited<br>- Tayside planned for 2013<br>- GC informally review contact tracing at monthly MDT meetings and TB nurse meetings |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 16a. Multidisciplinary teams should explore locally how best to identify new entrants within their own areas and to implement local systems of case-finding for latent TB infection in these entrants. NHS Boards should be encouraged to emphasise the importance of case-finding TB in new and recent entrants. | | | | | | | | | | | | | | | | – A national group is awaited to look at this issue (with HPS)<br>– Borders new entrant guidance document is under review<br>– Fife screening is in place and there is follow up of abnormal CXRs from Heathrow when notified<br>– GC are working with primary care<br>– Lanarkshire reviewed new entrant screening programme and will develop service as part of TB service review; the current focus is on service redesign and as part of this the enhanced new entrant screening programme would be implemented<br>– Grampian offer screening to all new entrants notified by their port of arrival; offer screening to new entrants from highest risk countries at dedicated clinics held at universities; local GP practices directly refer new entrants from highest risk countries, registering with their practices, to hospital based screening clinics<br>– AA are currently developing a new entrant screening service. Aim to pilot in 2013-14<br>– Tayside HCW screening and OH screening of LA employees pick up some<br>– DG TB nurse met with the Multicultural Association in 2012<br>– WI expected as part of GP registration medicals. Liaison with employers<br>– New entrants in Shetland advised to register with GP. GPs advised of patients status/need for screening |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 16b. Multidisciplinary teams should work with statutory and voluntary groups that have regular contact with new entrants to support them registering with GPs. | | | | | | | | | | | | | | | | – GC are working with port health contacts. Education awareness raising and links are in place with primary care, local authorities (dealing with homeless), ethnic minorities, mosques<br>– Lothian plan to progress screening with BBVs<br>– Borders identify that more work is needed with the education department, local employers, and care homes to identify those in need of screening<br>– AA plan for 2013/14<br>– In Tayside, the current caseload and contacts show very low levels of people not registered with GPs<br>– In WI, such groups are limited in number locally<br>– No MDT specifically in Shetland, Public Health Team carry this out |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 16c. Primary care staff should identify and refer those individuals known to be at risk of TB and NHS Boards should ensure that primary care staff are able to assess new entrants and refer as appropriate (for chest x-ray, to a local skin test/ interferon gamma clinic, or a TB clinic) in line with National Guidance. | | | | | | | | | | | | | | | | – FV are using the new TB referral portal on SCI gateway<br>– GC are exploring the addition of a TB screening clinic in hospital; GPs could identify patients and refer them to TB nurses for screening. The Board is considering resource and financial implications<br>– Lanarkshire are reviewing screening as outlined in action 16a; this action point is variable and would depend on individual practices and/or GPs<br>– In Borders, Public Health issued guidance to primary care on the referral of new entrants for TB screening and are exploring the feasibility of offering IGRA tests within primary care<br>– AA are currently developing a new entrant screening service. Aim to pilot in 2013-14<br>– Tayside process via CCHS, neonatal wards. Adult process needs to developed<br>– In DG, an *aide memoire* for new GP registrations and immigrants was circulated to GPs<br>– In WI, it is expected as part of GP registration, and HV also risk assess children<br>– In Grampian, more GPs are referring new entrants for screening<br>– Shetland GPs can refer for x-ray & Heaf testing, IGRA available via Grampian |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 16d. Multidisciplinary teams locally should ensure the provision of adequate language translation facilities to support case-finding by staff. | | | | | | | | | | | | | | | | – Language services and information materials are available in different languages. There is also the use of Language Line<br>– Grampian, AA, WI and Shetland use Language Line<br>– Lothian has not yet implemented this action |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 17a. In the meantime, multidisciplinary teams/local services should be aware of those groups in their area which are most difficult to reach and should design approaches to better reach them. | | | | | | | | | | | | | | | | – Some boards have plans to work with traveller groups and support services (homelessness and prison service)<br>– GC awareness raising in with targeted communications where necessary (ie clusters)<br>– Unlikely to be cost effective in Highland area<br>– Grampian raise awareness and provide information about TB as appropriate and have offered screening clinics in various locations in order to meet their needs<br>– Borders primary care and public health are developing mechanisms to encourage entrants to register with GPs<br>– AA have close links with AADP, homeless, prison. Further work is underway with primary care, ADP and others<br>– Tayside risk among BME done in 2012 and this will be used to pilot the service, costs allowing<br>– DG uses an *aide memoire* for A&E and OOH staff as these services are used by hard to reach groups<br>– Lanarkshire TB service has links with homelessness team etc to address this<br>– No MDT specifically in Shetland, Public Health Team carry this out |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 17b. Multidisciplinary teams/ local services should engage with primary care teams to highlight the increased risk of TB amongst problem alcohol users. | | | | | | | | | | | | | | | | – Fife is working with AADP<br>– Others boards raise awareness via GP representative visits and sessions for primary and secondary care clinicians<br>– Highland GPs are aware of the risk factor, but no further work has been undertaken<br>– Grampian use various approaches: personal letters to GPs, posters, practice visits, CPD presentations, HPT news…<br>– DG action plan was circulated to AADP; leaflets to workers to highlight high TB incidence among service users; awareness session among staff teams with addiction services<br>– Shetland yet to implement |
| 17c. Multidisciplinary teams should also link with the local Alcohol and Drug Partnerships to raise awareness of the increased risk of TB in those with problem alcohol and drug use. | | | | | | | | | | | | | | | | – Some Boards are linking up with AADPs<br>– Highland plan to do this in 2013-14<br>– Grampian awareness raising with AADP<br>– DG action plan was circulated to AADP; leaflets to workers to highlight high TB incidence among service users; awareness session among staff teams with addiction services<br>– In Lanarkshire, the TB service will do this on behalf of the MDT<br>– FV have had contact with agencies, held a meeting and education sessions are being planned. Information on TB to raise awareness is being sent to substance misuse clinics<br>– Shetland yet to implement |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 18a. NHS Boards should review roles and responsibilities for neonatal BCG immunisation in their locality to re-examine current operational plans. | | | | | | | | | | | | | | | | – 13/14 Boards have reviewed or are currently reviewing<br>– Fife re-designed the service and the catch-up campaign for school-aged children is complete<br>– Central neonatal clinic established in Lanarkshire<br>– DG audit of BCG uptake in 2012 is underway |
| 18b. The SG and HPS should explore the additional work required to develop the SIRS childhood vaccination call/recall system to enable Boards to record data in an effective manner. SG and HPS should also explore required developments to link the Scottish Birth Record with SIRS. | | | | | | | | | | | | | | | SG/ HPS | The business case was presented to eHealth PMG. The PMG decision is that due to other higher priority work this work will not be scheduled until the 1st Quarter of 2014 at the earliest. See the HPS report for full details (Annex B) |
| 18c. HPS should examine whether the existing CHSP school system BCG screening questionnaire for identifying children at risk is still appropriate. | | | | | | | | | | | | | | | HPS | A questionnaire has been developed and investigation in to use is underway. See the HPS report for full details (Annex B) |
| 18d. In future, HPS should undertake a more detailed review of Board BCG audit activities so that best practice is shared across Scotland. | | | | | | | | | | | | | | | HPS | No action taken yet. See the HPS report (Annex B) |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| 19. The SG should establish a process to review the TB elements of the 2008 health clearance guidance. Review should take account of the audit of performance against the existing guidance that is already under review by the Senior Occupational Physicians Group. Any review should seek to ensure that subsequent guidance takes a risk-based approach. | | | | | | | | | | | | | | | SG | Review yet to take place |

| TB Action Plan Recommended Action | AA | Bor | DG | Fife | FV | Gra | GC | Hi | Lot | Lan | Ork | She | Tay | WI | Oth | Comments on Progress |
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| MONITORING AND ENSURING PROGRESS | | | | | | | | | | | | | | | | |
| 20a. An Action Plan Monitoring Group should be established by SG, to monitor progress against recommendations and to provide advice to Ministers, NHS Boards or other delivery partners to ensure the ambition of this Action Plan is achieved. | | | | | | | | | | | | | | | SG | An Action Plan Monitoring Group is established and has met twice |
| 20b. This Group should meet at least annually and should have a small membership so as to be as effective as possible. | | | | | | | | | | | | | | | SG | The first meeting of the Group took place on 29th February 2012. The Group last met on 25th April 2013. It will continue to meet biannually |
| 20c. The Group should establish key performance indicators (KPIs) for the recommendations within the Action Plan where appropriate, to enable measurement of progress. | | | | | | | | | | | | | | | SG | A sub group of the TB Monitoring Group will develop the KPIs |
| 20d. The Group should report annually to Ministers on overall progress in delivery of the Action Plan, or by exception in the case of particular problems. | | | | | | | | | | | | | | | SG | The Annual Report will be published by November 2013 |
| 20e. The Group should provide a report on progress to the national annual meeting of TB clinicians/nurses. | | | | | | | | | | | | | | | SG | The Scottish Government provided an update at the TB Study Day on 12th June 2013. This survey will be disseminated to partners and included in the Annual Report |

# REPORT ON HPS PROGRESS

## SUMMARY OF PROGRESS ON ACTIONS ASSIGNED TO HEALTH PROTECTION SCOTLAND FROM THE TB ACTION PLAN **ANNEX B**

### Actions in which HPS is the lead organisation

| Action Number | Action details | HPS progress |
|---|---|---|
| 5a. | The IGRA test is currently under review by NICE and is due to be published in March 2011. This work should be considered by the Scottish Health Protection Network when available to inform guidelines on use of IGRA in Scotland.<br><br>The working group also notes that while IGRA may in time be shown to be more sensitive and specific than skin tests (which generally require more than one clinic visit by the patient) in the diagnosis of latent TB infection, the tests themselves are expensive and their introduction should be managed in the most cost effective way. | A HPN group established under the chair of Dr Alisdair MacConnachie reviewed the existing HPN guidance 'Tuberculosis: Clinical diagnosis and management of tuberculosis, and measures for its prevention and control in Scotland.'<br><br>The review considered the 2011 NICE TB guidance, ECDC guidance and peer reviewed literature to address the seven key areas identified by the HPN group for the use of IGRA:<br>1) New arrivals in the UK<br>2) Close contacts of confirmed cases<br>3) Immunocompromised individuals – including individuals starting TNF α therapy, HIV positive individuals<br>4) Healthcare workers<br>5) Children<br>6) Role of IGRA in the diagnosis of active disease<br>7) Prisons and prison population<br><br>The group also reviewed all other aspects of the guidance and have added additional sections including:<br>o Advantages /disadvantages of IGRA<br>o Samples required for IGRA<br>o Methadone & anti-tuberculosis treatment containing rifamycins<br>o Template letters – advise & inform letter for NHS staff<br><br>The final draft of the guidance is currently being prepared and will be circulated for stakeholder consultation prior to finalisation and publication.<br><br>One of the recommendations of the HPN guidance group was work to establish the current situation across the NHS Boards with respect to the use of IGRA. A piece of collaborative work between HPS and a summer internship student based in NHS Fife is currently investigating the relative use of IGRA and mantoux testing, respective positivity and local advantages and disadvantages of IGRA. |

| Action Number | Action details | HPS progress |
|---|---|---|
| 5c. | The Working Group recommends that Health Protection Scotland and SMRL should establish a group to develop a clear strategy for the systematic use of molecular typing of *M. tuberculosis* complex in Scotland. | HPS established a group to develop a clear strategy for the systematic use of the MIRU typing data.<br><br>The group:<br>o Reviewed the background literature and methodologies for application of MIRU and cluster detection<br>o Considered the epidemiology of strain type clusters in Scotland<br>o Reviewed the current practice in NHS Boards in relation to TB clusters<br>o Developed proposals for the practical application of MIRU, including combining the microbiological and epidemiological information<br>o Developed proposals for cluster investigation.<br><br>The final report from this group and HPS proposals for the implementation of the recommendations from the group were presented at the CPHM meeting (March 2013).<br><br>HPS is working to develop an algorithm and protocol based on the recommendations of the group for the timely detection of potential clusters and in particular those which involve two or more NHS Boards, which will then be piloted and implemented. |
| 10c. | Health Protection Scotland will initiate a population based study (an anonymised data linkage exercise) to improve our evidence base around dual TB/HIV infection and associated risk factors in Scotland. | With approval from the Privacy Advisory Committee (PAC) data linkage has been completed for the TB dataset and the anonymous HIV dataset. The initial analysis has explored the proportion of co-infection among TB cases, time between the two diagnosis and the characteristics of those with co-infection including, sex, age, ethnicity, UK or non-UK born, country of birth. |
| 11. | National guidelines should be reviewed for Scotland at a minimum of every 3 years. The Health Protection Network should lead the reviews. | See Action 5a, the current HPN guidance is currently being reviewed. |

| Action Number | Action details | HPS progress |
|---|---|---|
| 12. | An updated and dynamic surveillance system that provides real time functionality and that is efficient and easy to use, would significantly improve TB services across Scotland, and should be introduced as soon as possible. As a first step Scottish Government and HPS should establish a group involving NHS Board representatives as soon as possible to actively consider adopting a compatible version of ETS. | A group was established to consider a replacement for the current paper based surveillance of TB (ESMI). The group considered ETS (Enhanced Tuberculosis Surveillance – the system used in England and Wales, which has been successfully piloted in NHS Lothian in 2012/13) TrakCare, ICNet, SPHIMS and a bespoke web-based version of ESMI.<br><br>An initial agreement paper was presented to the Public Health Portfolio management group. The group felt that the clinical and quality outcomes for TB surveillance needed to be articulated more strongly. It was also noted by the group there was no allocated funding for any proposals, and this would need to be addressed before any tangible progress could be made. In light of the views of the Portfolio management group, developments with SPHIMS and plans by PHE for a replacement system for ETS, the group will meet again during the autumn 2013 to consider these points and scope the way forward. |
| 14a. | HPS should continue to report annually to the Scottish Government (copied to NHS Boards) on TB. This report should include a section describing Scotland's performance on the specific ECDC indicators. | HPS produces an annual report on TB which is published in HPS weekly report. http://www.documents.hps.scot.nhs.uk/ewr/pdf2012/1244.pdf<br><br>HPS produces an annual Board level report for those Boards with 10 or more cases in the year, providing an epidemiological breakdown of Board level data to assist in local monitoring or development of local initiatives.<br><br>The paper detailing Scotland's performance on specific ECDC indicators is included in the papers for the TB Action Plan Monitoring group. A copy will be also be circulated to the NHS Boards. |
| 17a. | Scottish Health Protection Network should review the output of the NICE initiative to develop guidance aimed at reducing the transmission of TB among hard-to-reach groups when it is published and to consider its applicability in Scotland. | The NICE guidance on Tuberculosis – hard to reach groups was published in March 2012. This was considered by the HPN group reviewing the guidance and referenced in the revised HPN guidance when appropriate. |

| Action Number | Action details | HPS progress |
|---|---|---|
| 18b. | The Scottish Government and HPS should explore the additional work required to develop the SIRS childhood vaccination call/recall system to enable Boards to record data in an effective manner. Scottish Government and HPS should also explore the required developments to link the Scottish Birth Record with SIRS. | A short life working group was established chaired by Dr David Cromie which considered selective neonatal immunisation – Hepatitis B and BCG.<br><br>A business case was developed for a change to SIRS to enable SIRS to record infants who are identified as at risk for BCG and generate lists that NHS Boards can use to schedule these infants for immunisation, the changes will also enable SIRS to generate lists to flag those infants for whom their 'at risk' status is unknown. 'At risk' and vaccination status will be recorded enabling ISD to generate uptake reports.<br><br>The business case was presented to eHealth PMG. PMG decision that due to other higher priority work this work will not be scheduled to 1st Quarter of 2014 at the earliest. |
| 18c. | HPS should examine whether the existing CHSP school system BCG screening questionnaire for children at risk is still appropriate. | HPS developed a questionnaire regarding if and when the current CHSP school BCG screening questionnaire is used, which was completed by TB leads/ immunisation coordinators. Paper summarising the findings of this work is included in papers for the TB Action Plan monitoring group. |
| 18d. | In future, HPS should undertake a more detailed review of Board BCG audit activities so that best practice is shared across Scotland | No action taken yet. |

## Actions which HPS will contribute to

| Action Number | Action details | HPS progress |
|---|---|---|
| 13. | Multidisciplinary teams locally should routinely feedback local ESMI surveillance to local clinicians and audit the completeness and timeliness of surveillance data using the current paper based ESMI system. | This is an action for NHS Boards. HPS produces annual Board level TB surveillance reports based on the ESMI data submitted for those Boards with 10 or more cases a year and provides Boards with *ad hoc* data extracts in response to specific requests. |
| 14b. | Each NHS Board TB service/MDT should report annually on TB prevention and control activities. These reports should be sent to their local clinical governance committee and copies to HPS. Local clinicians should be made aware of this report. | At present HPS has not received any reports on TB prevention and control activities for NHS Boards. |

# Evaluation of TB control in Scotland

**ANNEX C**

Health Protection Scotland

NHS National Services Scotland

## Background

A Framework Action Plan to fight tuberculosis in the European Union[1] was launched by the European Centre for Disease Prevention and Control (ECDC) in 2008. The ECDC has also produced a follow-up to the Framework Action Plan[2], the objectives of which are: to provide an overview of the current strategic environment for tuberculosis control in the EU and outline how this relates to the global situation; and, to describe an epidemiological and strategic monitoring framework that would allow progress towards elimination of TB in the EU to be assessed.

On World TB Day 2011, the Scottish Government launched An Action Plan for TB in Scotland.[3] The intention of the TB action plan is to ensure that Scotland provides the best quality clinical, laboratory and public health services in relation to TB, and that those are underpinned by the best possible surveillance and epidemiology. The TB Action Plan summarises the issues considered by the working group and subgroups and detail the recommendations that have been made as a result. Recommendation 14a of the Action Plan states that 'HPS should continue to report annually to the Scottish Government (copied to NHS boards) on TB. This report should include a section describing Scotland's performance against the specific ECDC indicators'.

## Progress in Scotland

In this report, we monitor the progress in Scotland towards the elimination of TB using these indicators and targets. This report includes progress on both the epidemiological markers (Table 1) and the core indicators (Table 2). This evaluation should be read in conjunction with the 2013 TB Annual Report for Scotland, which provides a more comprehensive epidemiological report of TB in Scotland.[4]

### Epidemiological markers

Scotland successfully met two of the four epidemiology indicators or targets recommended by the ECDC (shown in green, Table 1); there was a decreasing trend in notification ratio of rates in children to adults and a mean declining trend in MDR-TB rates. Two indicators or targets were not met (shown in red, Table 1). The five year trend in case notifications is generally increasing. However, there was a decrease in both the number of cases and incidence of tuberculosis reported in Scotland in 2011 and 2012 so the five year trend may begin to decrease if case numbers continue to fall. The overall trend in the mean age of cases continues to decrease, driven by a decrease in those born outside the UK as the mean age of cases born in the UK is increasing.

### Core indicators for the framework action plan

Scotland successfully met seven of the ten core indicators recommended by

the ECDC, (shown in green, Table 2); availability of a national TB control plan, availability of guidelines for implementing the national TB control plan, the national reference laboratory achieves an adequate performance in an external quality assurance scheme, availability of a strategy for introducing and implementing new tools for TB control, more than 80% of pulmonary cases were confirmed by culture, more than 70% of pulmonary MDR-TB cases successfully completed treatment at 24 months and Scotland reported TB treatment outcomes to ECDC. One indicator was not met in Scotland (shown in red, Table 2); less than 85% of pulmonary cases successfully completed treatment at 12 months. Two indicators were partially met (shown in amber, Table 2); less than 100% of cases confirmed by culture had drug sensitivity testing undertaken for the first-line drugs and real time reporting on the HIV status of TB cases is not currently possible in Scotland.

## Discussion

In 2012, 9/14 (64.3%) of ECDC indicators or targets were met in Scotland which demonstrates improved performance in two areas (more than 80% of pulmonary cases were confirmed by culture, treatment success of 70% at 24 months for new culture positive pulmonary MDR cases) and reduced performance in one area (the percentage of culture confirmed cases for which drug sensitivity testing was carried out for first line drugs) when compared with 2011. However, there have been improvements in other key areas since the publication of the TB Action Plan for Scotland. In 2012, there was a continued reduction in the number and incidence of TB in Scotland reported since 2010. If this downward trend continues then as a consequence the five year trend will also begin to decrease. Although the overall mean age of TB cases continues to decrease in Scotland, the mean age of UK born cases is increasing. Non-UK born cases are younger than UK born cases and their mean age is decreasing and non-UK born cases now account for more than half of all cases reported. In 2012, HPS carried out data linkage to determine the HIV status of TB cases. Although these linked data are not available in real time (and therefore not yet available for 2012), it provides valuable information on the burden of HIV among TB cases in Scotland. Furthermore, recommendations made in the TB Action Plan to implement a dynamic and real time surveillance system should help to improve performance on treatment completion at 12 months.

## References

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3. A TB Action Plan for Scotland. The Scottish Government, Edinburgh 2011.

4. McDonald, E, Smith-Palmer, A., Johnston, F., Smith, M., Laurenson, I.F., and Donaghy, M. Enhanced Surveillance of Mycobacterial Infections (ESMI) in Scotland: 2013 Tuberculosis Annual Report for Scotland. Health Protection Scotland Weekly Report; 2013.

**Table 1: Epidemiological markers**

| Indicator | Definition | Target | Scotland | Target met |
|---|---|---|---|---|
| 1. Trends in case notification rate | The 5-year trend in case notification rate per 100,000 population | A mean declining trend in case notification rate over the previous five years allowing for annual random variation, in a context where case-finding efforts remained constant or increased | Mean increasing trend (five year trend in 2008 7.8 per 100,000 in 2012). However, 2011 and 2012 rates are lower than 2010 and may be the start of a decline | |
| 2. Trends in MDR case notification rate | The 5-year trend in MDR case notification rate per 100,000 population | A mean declining trend in MDR case notification rate over the previous five years allowing for annual random variation, in a context where MDR case-finding efforts remained constant or increased | Generally decreasing over past five years (2008 0.06 per 100,000, 2012 0.04 per 100,000). However very small numbers are involved (on average 2 or less cases per year) | |
| 3. Trends in notification rates in children to adults | The 10-year trend in the ratio of the case notification rate in children under 15 years old to that in adults, i.e. change in the ratio | A mean declining trend in the ratio of the notification rate in children to that in adults over the previous ten years, allowing for annual random variation | Generally decreasing over past 10 years. Ratio in 2002 was 0.36, ratio in 2012 was 0.14) | |
| 4. Trends in mean age of TB cases | The trend in mean age of all TB cases, calculated either as crude mean age or population-standardised mean age | An increasing trend in mean age of TB cases over the previous 10 years | Mean age generally decreasing over past 10 years (2002, 40 years; 2012, 35 years). However, the age of those born in the UK is increasing whilst those born outside of the UK is decreasing | |

**Table 2: Core indicators for the framework Action Plan**

| Indicator | Definition | Target | Scotland | Target met |
|---|---|---|---|---|
| 1. Availability of a national TB control plan | The availability of a national TB control plan which is in line with the areas and objectives of the framework Action Plan to have been formally adopted by the national government | An up-to-date and endorsed national TB control plan is available | A TB Action Plan for Scotland. The Scottish Government, Edinburgh, 2011 | |
| 2. Availability of guidelines for implementing the national TB control plan | The availability of guidelines for the implementation of the TB control plan. Such guidelines should be in line with the areas and objectives of the Action Plan for the EU and with international standards for TB control. The guidelines should have been formally adopted by the national government | Up-to-date and endorsed TB guidelines are available | Tuberculosis: Clinical diagnosis and management of tuberculosis, and measures for its prevention and control in Scotland. Health Protection Network Scottish Guidance. March 2009 | |
| 3. Percentage of national TB reference laboratories (adhering to ERLN-TB) achieving adequate performance in the external quality assurance scheme | The number of national TB reference laboratories (adhering to the European Reference Laboratory Network for TB) achieving a cumulative performance score of 80% or above for quality assurance of smear microscopy, culture and DST for first- and second-line drugs under the ERLN-TB external quality assurance (EQA) scheme | 100% of national TB reference laboratories adhering to the ERLN-TB achieve a level of performance of 80% or above for smear microscopy, culture and DST for first- and second-line drugs | EQA Microscopy and culture results over recent years have all been 100%. First >90% and second line susceptibilities >85% in 2011 year and 100% in 2012 | |
| 4. Availability of a strategy for introducing and implementing new tools for TB control | New tools for TB are defined as new diagnostic methods, drugs and vaccines. This indicator is a yes/no indicator assessing the existence of a strategy within the national TB programme for introducing and implementing new tools for TB as they become available. Once new tools for TB control become available, it is essential they are rapidly and optimally implemented to assure their longevity and, more importantly, to ensure TB patients receive access to the best TB care as soon as possible | A strategy within the national TB programme supporting the introduction and implementation of new tools for TB control is in place | TB Action Plan Monitoring Group | |

| Indicator | Definition | Target | Scotland | Target met |
|---|---|---|---|---|
| 5a. Percentage of new pulmonary TB cases confirmed by culture | Percentage of new pulmonary TB cases that are confirmed by culture and identified as the *M. tuberculosis* complex | 80% of all new pulmonary TB cases are culture-confirmed | 166/207 (80.2%) in 2012 | |
| 5b. Percentage of new cases tested by DST for first-line drugs | The percentage of cases for which DST for first-line drugs has been performed | 100% of the culture confirmed cases should be tested by DST for first-line drugs | 272/275 (99.3%) in 2012. Less than one percent were not tested by DST for first line drugs | |
| 6. Reporting of treatment success rates | Percentage of Member States submitting reports of treatment success rate to the ECDC on an annual basis | All Member States (100%) report treatment outcome monitoring to ECDC | Scotland reports annually through PHE as the member state | |
| 7a. Treatment success rate | The proportion of new pulmonary culture-positive TB cases in a given year that successfully completed treatment, either with bacteriological evidence of success (cured) or without (treatment completed) | Treatment success of 85% at 12 months for the complete cohort of new pulmonary culture-positive cases | 208/275 (75.6%) where Form C returned in 2011. Almost 10% less than the ECDC target | |
| 7b. Treatment success rate MDR-TB | The proportion of new pulmonary culture-positive MDR-TB cases in a given year that successfully completed treatment, either with bacteriological evidence of success (cured) or without (treatment completed) | Treatment success of 70% at 24 months for new culture positive pulmonary MDR cases | 1/1 (100%) reported in 2010. However, very small numbers are involved | |
| 8. Percentage of TB patients for whom HIV status is known | The proportion of all TB patients for which the HIV status is known | HIV-status is known for 100% of TB cases | Data not available in Scotland in real time. Retrospective data linkage was carried out in 2012 but data is available up to 2010 only and not linked to the ESMI database | |




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