HSC Public Health Agency

2011: Issue 5

Transmit

Health protection service bulletin June/July 2011

Foreword

Summer holidays are now upon us and this issue of *Transmit* includes some key messages in relation to travel health. This bulletin provides detailed information on malaria, as the number of malaria infections recorded among UK residents who had travelled abroad has increased by almost 30% in the last two years.

Gastrointestinal infections can also be acquired during travel abroad. The top five such infections acquired abroad are *Salmonella*, *Campylobacter*, *Cryptosporidium*, *E. coli* 0157 and *Giardia*. People travelling abroad are advised to discuss their travel plans with their GP in relation to any health requirements and, in particular, vaccine preventable diseases and malaria prophylaxis.

Of note, the PHA has recently issued press releases advising that all children should be fully up to date with their MMR immunisation to protect against measles, mumps and rubella. Many European countries are currently experiencing an upsurge in cases of measles, so it is important that children are protected before travelling there.

This bulletin also contains a detailed update on tuberculosis (TB), which remains an important public health and health protection issue for the PHA. A key issue is the global emergence of drug resistant TB. Since 2004, there have been 10 cases of drug resistant TB in Northern Ireland. The health protection service works closely with professional colleagues in the prevention and control of TB.

An infection prevention control link system for nursing and residential homes in Northern Ireland is being established by the health protection service. The aim is to provide an infection prevention control link between nursing and residential homes and the PHA. This is a major development in the work to prevent and control healthcare associated infections (HCAIs), as it is increasingly important to adopt a 'whole systems' approach to this work. Patients travel across primary and secondary care facilities with great frequency and there is potential for transmission of HCAIs in all areas of the healthcare system.

Lorraine Doherty

Dr Lorraine Doherty
Assistant Director of Public Health (Health Protection)

Contents

Tuberculosis 2010

Background

TB is an infectious disease caused by the bacteria *Mycobacterium tuberculosis*, which is spread by airborne droplets. The risk of infection depends upon duration of exposure, intensity of exposure and the immune status of the person exposed. The immune system clears the bacteria immediately in more than 80% of people exposed.[1] In a small proportion of people who have been infected, the bacteria are walled off and remain dormant but viable. This is called latent TB. It is estimated that 5–10% of those with latent TB will develop active TB during their lifetime. The most infectious form of TB is pulmonary TB, particularly smear positive cases where TB bacilli can be seen on direct examination of the sputum. Left untreated, it is estimated that each person with active TB will infect on average between 10 and 15 people each year.[2]

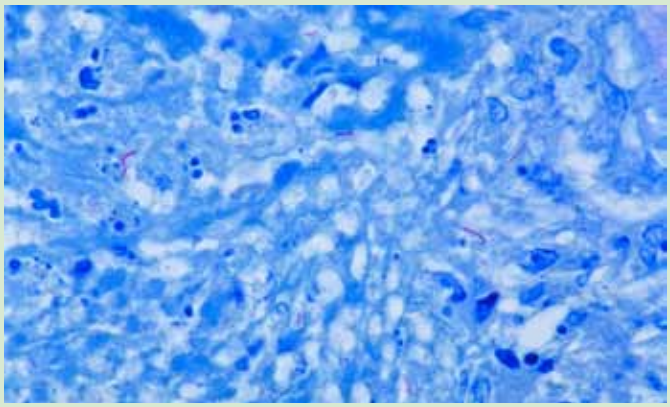
Global TB

TB is a disease of poverty affecting young adults in their most productive years and is an increasing worldwide problem. More than two billion people – one third of the world's total population – are infected with TB bacteria. The World Health Organization (WHO) has estimated that, globally, there were 9.4 million new cases of TB in 2009, including 1.1 million cases among people infected with HIV.[3] Most of the new TB cases in 2009 occurred in South-East Asia, Africa and the Western Pacific region. It is estimated that in 2009, 3.3% of all new TB cases had multi-drug resistant TB (MDRTB). HIV infection is the most important factor contributing to the increased incidence of TB since 1990. In 2009, an estimated 11–13% of new TB cases were HIV positive.[3] Globally, 1.7 million people died from TB in 2009, including 380,000 women. The vast majority of TB-related deaths are in the developing world.

TB in the UK

There were 9,040 cases of TB in the UK in 2009 – the highest number in the UK for nearly 30 years, giving an overall rate of 15 cases per 100,000 population.[4] Most of the cases occurred in England (92%), followed by Scotland with 5%, Wales with 2% and Northern Ireland with 1%. The rate of TB was highest in London, which had 38% of all UK cases. The number of new drug resistant TB cases has nearly doubled in the past 10 years, from 206 cases in 2000 to 389 cases in 2009.

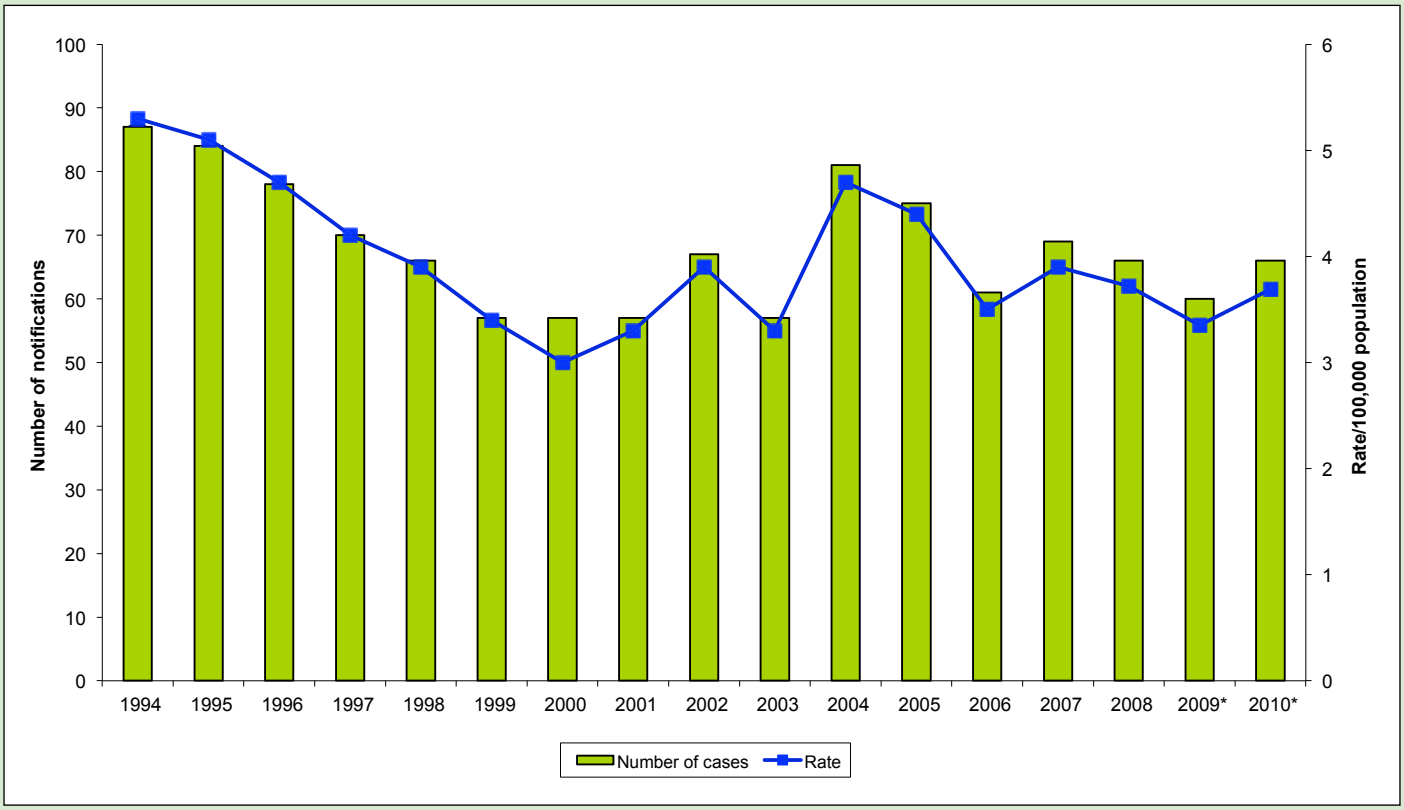
Most of the cases were young adults aged 15–44 years (60%) and non-UK born (73%). Rates of TB in the non-UK born population are twenty times higher (around 86 per 100,000) than those among people born in the UK (around 4 per 100,000). The majority of non-UK born cases were diagnosed two or more years after arrival in the UK. Approximately 1 in 10 cases had at least one social risk factor (homelessness, drug or alcohol misuse, or imprisonment), with a quarter reporting more than one risk factor.[4]



TB in Northern Ireland

There were 60 cases of TB reported in Northern Ireland in 2009, giving a rate of 3.4 per 100,000 population.[5] Provisional data for 2010 indicate that 66 cases were reported, giving a rate of 3.7 per 100,000 population. TB rates in Northern Ireland are approximately three times lower than in England and Wales, and significantly lower than in the Republic of Ireland. TB rates in Northern Ireland since 1994 are shown in Figure 1.

Figure 1: Number of TB notifications and rates per 100,000 population, Northern Ireland, 1994–2010



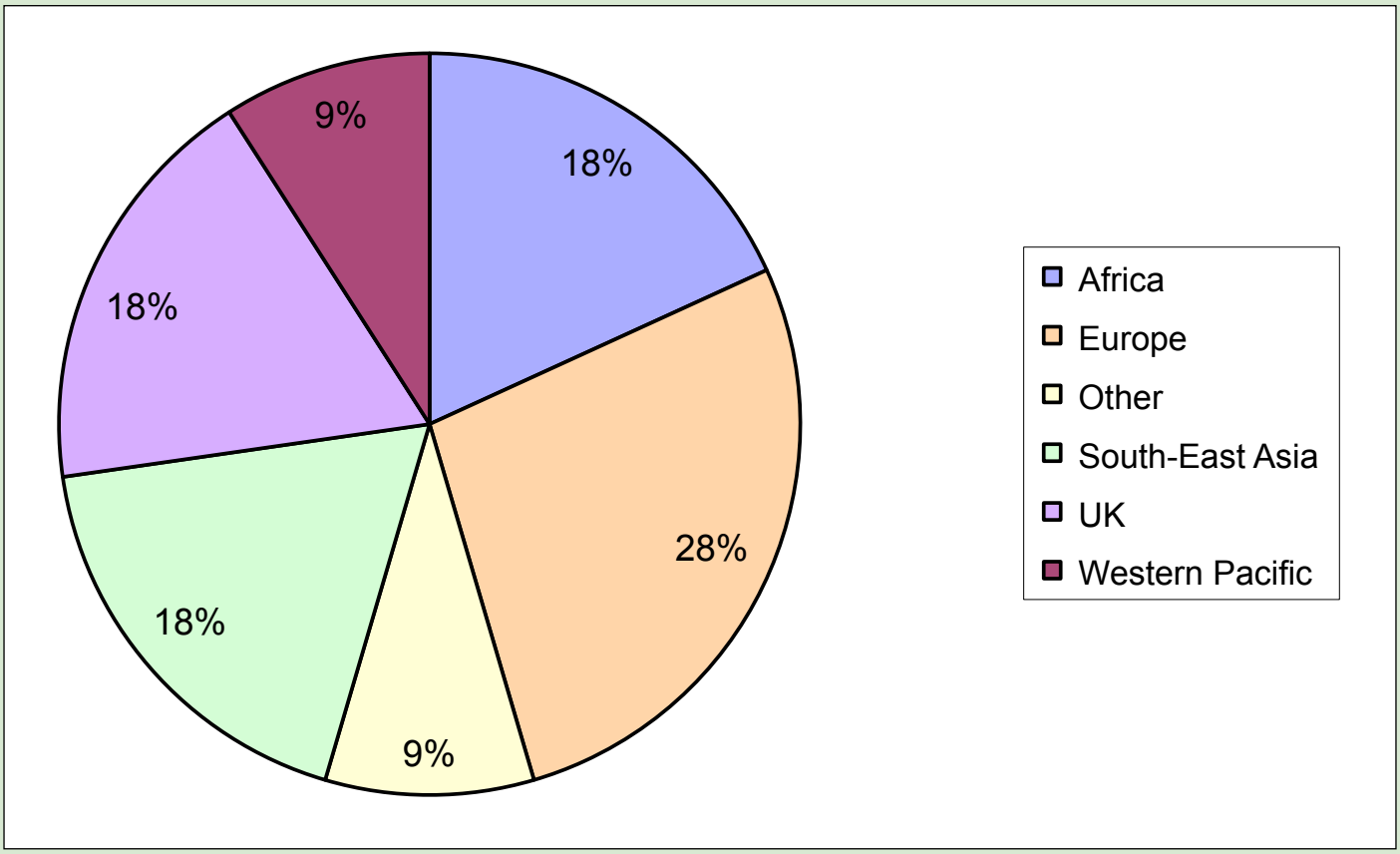
The distribution of TB cases across the former Health and Social Care Board areas in 2007 was as follows:

- Eastern had 29 cases;
- Southern had 18 cases,
- Northern had 11 cases;
- Western had 11 cases.

TB surveillance information in 2010 indicates an increasing proportion of cases occurring in the Southern Health and Social Care Trust (HSCT) area, which had 34% of all TB cases in 2010 compared with 26% in 2007.

Since 2004, there have been 10 cases of drug resistant TB in Northern Ireland. Most of those appear to have acquired the infection outside Northern Ireland but there is also evidence of transmission of drug resistant TB within the community here. While the incidence rates of TB in Northern Ireland remain substantially lower than those in the rest of the UK and the Republic of Ireland, the apparent transmission of drug resistant TB underlines the need for vigilance and prompt action when required. There were three pulmonary cases of MDRTB in 2007.[5] There were two cases of drug resistant TB reported between 2008 and 2010. Figure 2 shows the association between drug resistant TB cases in Northern Ireland who came from WHO regions throughout the world.

Figure 2: MDRTB cases by geographic region, 1995–2010



The proportion of TB cases in Northern Ireland who were born outside the UK or Ireland has continued to increase in recent years. An estimated 53% of all cases notified in 2007 were born outside the UK or Ireland compared with 38% of cases in 2006 (Figure 3). The country of origin of cases born outside the UK or Ireland is shown in Figure 4. The ages of TB cases born outside the UK or Ireland are significantly lower than those born within the UK or Ireland.

Figure 3: Number of TB cases, by country of birth

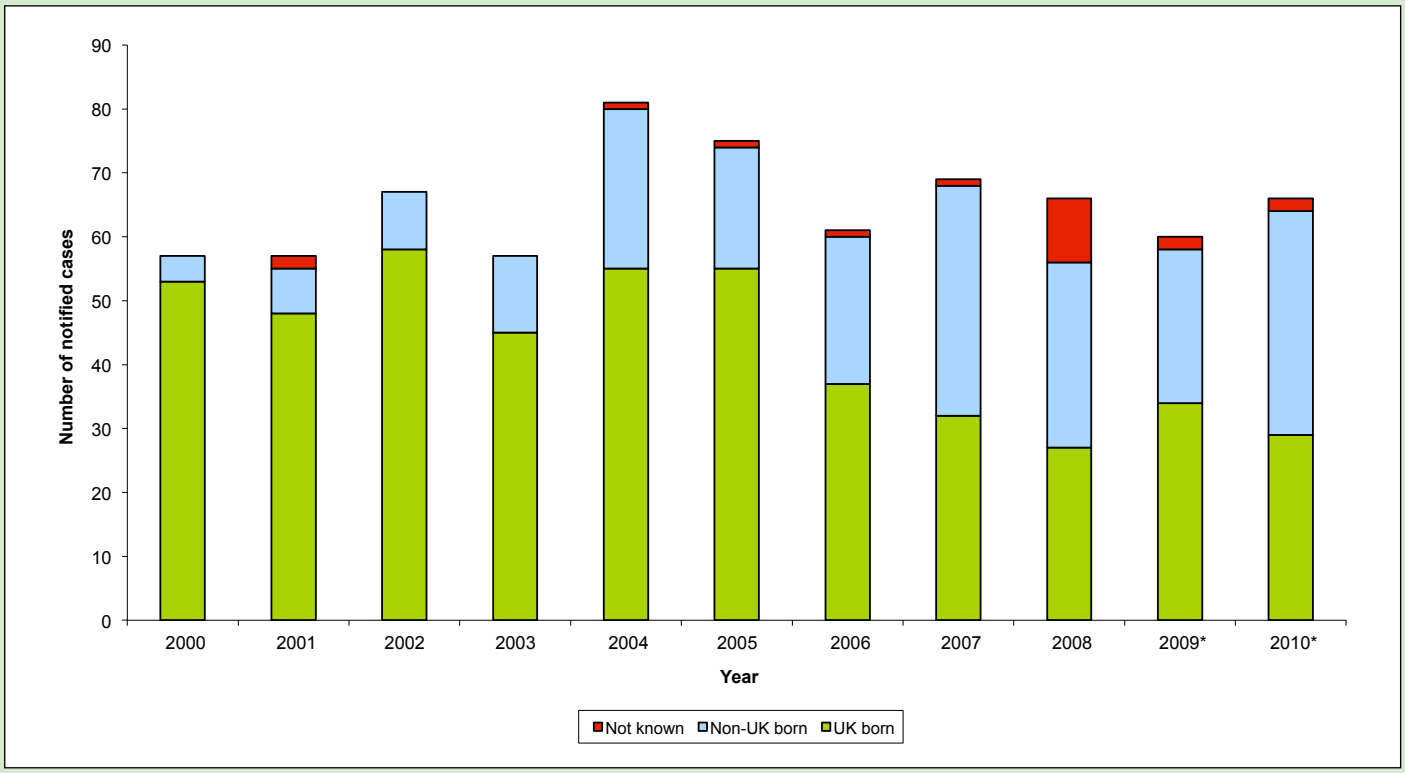
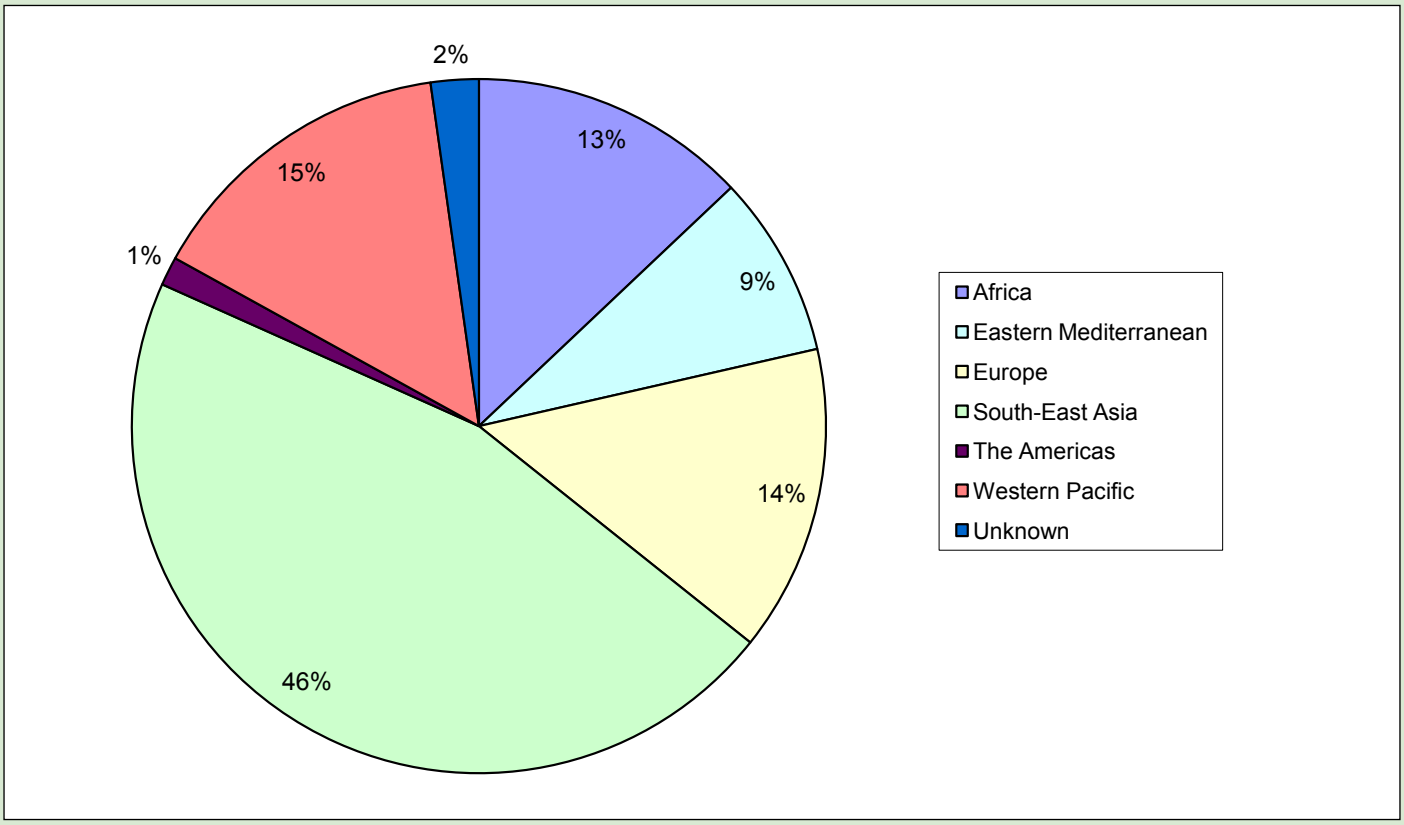


Figure 4: Non-UK born TB cases in Northern Ireland, 2000–2010, by geographic region



New entrants

The PHA receives notification from Port Health about new entrants intending to come to Northern Ireland via Heathrow and Gatwick airports. In 2010, the PHA received reports of 298 people through this system. This arrangement does not include people travelling from other EU countries. The highest proportions of new entrants were from India (32%), China (24%), Nigeria (7%) and the Philippines (6%). The intended HSCT areas of arrival for the new entrants were as follows:

- 168 to Belfast HSCT area;
- 54 to Northern HSCT area;
- 31 to South Eastern HSCT area;
- 23 to Western HSCT area;
- 14 to Southern HSCT area.

The intended area of arrival was not known for eight new entrants. From a TB perspective, these countries have a higher incidence of the disease than Northern Ireland and people from these countries will require additional health services in relation to TB prevention and control. The annual incidence of TB in China is 96 per 100,000 population; in Nigeria it's 295 per 100,000; in India it's 168 per 100,000 and in the Philippines it's 280 per 100,000.[3]

It has been estimated by the Northern Ireland Statistics and Research Agency (NISRA) that between mid-2008 and mid-2009, 12,700 people came to live in Northern Ireland from outside the United Kingdom.[6] Birth registration data show that the proportion of children born in Northern Ireland whose mother was born outside the United Kingdom and Ireland has risen three-fold over the last eight years. In 2001, 3% of babies had foreign-born mothers (700 babies out of 22,000) while in the first six months of 2010, this rose to 10% (1,300 babies out of 12,700).[6] In 2009, there were estimated to be 39,000 people of A8 Central and Eastern European background living in Northern Ireland. The A8 countries are: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. The percentage of residents with an A8 background is highest in Dungannon (8%), Craigavon (4%) and Newry and Mourne (4%).[6]

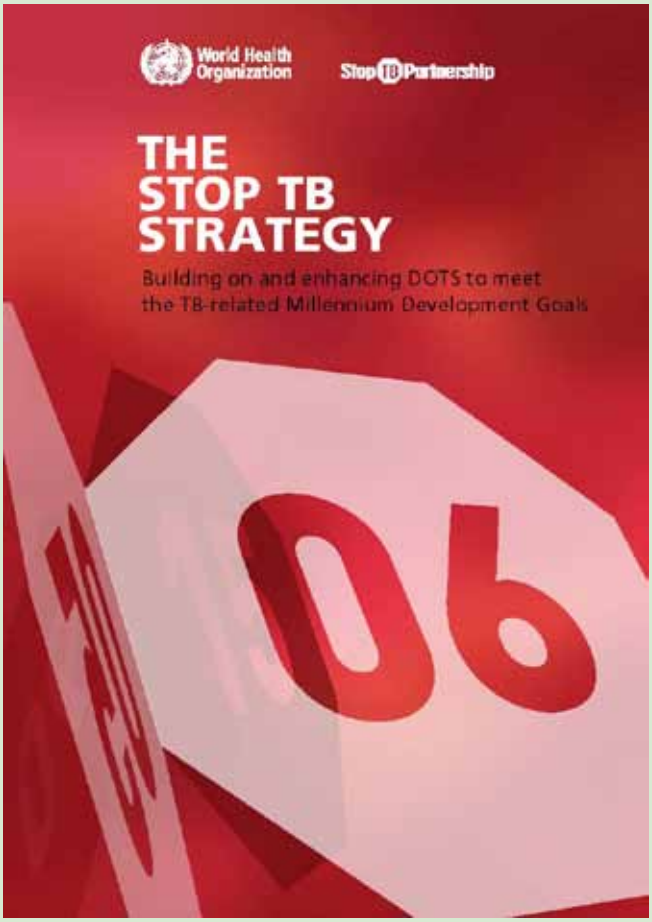
Some A8 countries have higher incidence of TB. The annual incidence of TB in the A8 countries is as follows: Czech Republic (8.8 per 100,000), Estonia (33 per 100,000), Hungary (18 per 100,000), Latvia (45 per 100,000), Lithuania (71 per 100,000), Poland (25 per 100,000), Slovakia (13 per 100,000) and Slovenia (12 per 100,000).[3]

Stop TB Strategy

Efforts to control TB globally are led by the World Health Organization (WHO) as part of the *Stop TB Strategy*, with the aim of dramatically reducing the burden of TB by 2015.[7] While the focus of this strategy is on countries with much higher TB incidence than here, many of the key components and objectives of the strategy are also applicable to Northern Ireland, including the following:

- Achieve universal access to high quality care for all people with TB.
- Support the development of new tools and enable their timely and effective use.
- Protect vulnerable populations from TB, TB/HIV and MDRTB.
- Secure political commitment with adequate sustained financing.
- Empower people with TB, and communities, through partnership.

The *Stop TB Strategy* has identified advocacy, social mobilisation and community participation as components of an effective approach to prevent and control TB.



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5. Kearns CA, Smyth B. Epidemiology of tuberculosis in Northern Ireland: Annual surveillance report 2007. Belfast: Public Health Agency, 2010. Available at: www.publichealth.hscni.net/publications/epidemiology-tuberculosis-northern-ireland-annual-surveillance-report-2007
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7. World Health Organization. The Stop TB Strategy: Vision, goal, objectives and targets. Geneva: WHO, 2006. Available at: www.who.int/tb/strategy/stop_tb_strategy/en/index.html

Travel health

Key messages for safe travel

- Obtain travel health insurance, which should ideally include repatriation.
- Be safe – watch out for accidents, injuries and theft.
- Avoid unprotected sexual contact.
- Ensure up to date with the routine vaccination schedule, including measles, mumps and rubella (MMR). Check to see if additional vaccinations and malaria prevention are necessary.

Focus on malaria

The number of malaria infections recorded among UK residents has increased by almost 30% in the last two years – 40% of UK residents who had contracted the disease had visited either Nigeria or Ghana, while 11% had been to India.

Although malaria is a potentially deadly disease, it is also one that is almost completely preventable. Malaria is spread by the bite of infected mosquitoes in tropical areas but it cannot be transmitted directly from person to person. The symptoms include flu-like illness, fever, shaking, headache, muscle aches and tiredness, as well as nausea, vomiting and diarrhoea. There are several types of malaria, but most deaths are caused by *Plasmodium falciparum*.

Over recent years, the proportion of the UK population who originate from tropical regions of the world has been increasing. Many of these individuals travel home to visit their relatives and friends (defined as VFRs). VFRs are at a significantly increased risk of contracting malaria as they do not access advice on malaria prevention, tend to stay longer than other visitors, and stay with friends and family rather than in hotels and resorts. Many VFRs believe that because they grew up in a malarious country, they remain immune to the disease; however, this is not the case. This acquired immunity has been shown to fade rapidly just six months after leaving the malarious region.

Please note the ABCD rules as advocated by the Advisory Committee on Malaria Prevention.[1]

A. Awareness of risk

All travellers to malarious areas must be aware of the risk of malaria in the areas they visit and take action to reduce the risk. Current information on specific countries is available from:

www.nathnac.org

www.travax.nhs.uk

B. Bite avoidance

This is the first line of defence against malaria infection. Although malaria-transmitting mosquitoes bite at night, other species bite during the day, therefore it is wise to also take precautions during the day.

- Wear long-sleeved clothing, long trousers and socks while outdoors.
- Apply insect repellents containing 50% DEET to exposed skin.
- Sleep in rooms that are properly screened or using impregnated mosquito nets.

C. Chemoprophylaxis and compliance

Prescribe appropriate chemoprophylaxis for both individual and destination. Compliance with the drug regimen is essential to ensure maximum protection, including for the recommended period after return.

D. Diagnosis

Fever experienced within one year of returning from a malarious region should be regarded as malaria until proven otherwise, and requires urgent assessment.

While no one regimen is 100% effective, the combination of these preventative measures will give very significant protection against malaria.

Reference

1. Chiodini P et al. Guidelines for malaria prevention in travellers from the United Kingdom. London: Health Protection Agency, 2007. Available at: www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1203496943523

Dorothy McAlister, Occupational Health Nurse Practitioner, Northern Trust, and Ms Shonagh Reilly, Health Protection Nurse, Public Health Agency.

Duty room updates

Public health action following a bat-biting incident

The duty room was recently notified about an adult who was bitten by a bat. The individual handled the bat after accidently standing on it and it subsequently bit her, puncturing the skin. The Bat Conservation Trust was informed and they contacted the public health team for further advice.

Post-exposure prophylaxis with rabies immunoglobulin and rabies vaccination is required for non-immune individuals who have had, or may have had, a bat bite, as bats may carry rabies-related European Bat Lyssaviruses (EBL). Prompt and appropriate post-exposure treatment will usually prevent human cases of rabies. In this case, the individual received intramuscular rabies immunoglobulin within 24 hours of the bite and also received rabies vaccination – five vaccines at 0, 3, 7, 14 and 30 days.

In the UK, bats are the only reservoir of rabies or EBL. Four human deaths associated with EBL are known to have occurred in Europe in the past 30 years, including one in the UK. The health protection service recommends the following:

- Clinicians should liaise with the duty room regarding any bat-biting incident.
- Pre-exposure rabies vaccinations should be given to people involved in high-risk activities, such as people who regularly handle bats in the UK or people travelling to endemic areas who are at higher than usual risk of acquiring rabies or who will not be able to access rapid medical treatment in the event of a risk incident (see the *Green Book* for further details).

Travel-associated gastrointestinal infection 2010

The PHA received 1,427 laboratory reports of individuals with gastrointestinal infection in 2010. Of these, 120 (8%) are believed to have acquired the organism outside the United Kingdom (Table 1). These infections included *Salmonella*, *Campylobacter*, *Cryptosporidium*, *E. coli* O157 and *Giardia*.

Table 1: Gastrointestinal infections acquired abroad, January–December 2010, Northern Ireland

Organism	Number of reports received	Number thought to have been acquired abroad	Countries visited
Salmonella	181	74 (41%)	Australia, Barbados, Cambodia, Cuba (3), Cyprus, Egypt (5), Florida (2), France, Ghana (2), Gran Canaria, Hong Kong, Ibiza, India (6), Iraq, Italy (2), Jordan, Kenya (2), Lisbon, Malaysia, Menorca, Nambia, Poland (2), Salou, Spain (5), Sri Lanka (2), Thailand (5), Tunisia (6), Turkey (12), Uganda, Unknown (2), Vietnam
Campylobacter	1,040	20 (2%)	Barcelona, Cyprus, India (2), Israel (2), Majorca (2), Netherlands, Poland, Portugal (3), Spain (2), Thailand, Turkey (3), Vietnam
Cryptosporidium	114	13 (11%)	Egypt, India, Lanzarote, Republic of Ireland, Spain (4), Switzerland, Turkey (2), USA
E. coli O157	76	10 (13%)	Spain (2), Republic of Ireland (4), Hong Kong, Italy, Portugal, Tunisia
Giardia	16	3 (19%)	Turkey, Egypt, India
Total	**1,427**	**120 (8%)**	

Fifty five of the 120 cases appear to have acquired their infection in one of five countries: Turkey, Spain, India, Tunisia or Egypt.

Salmonella

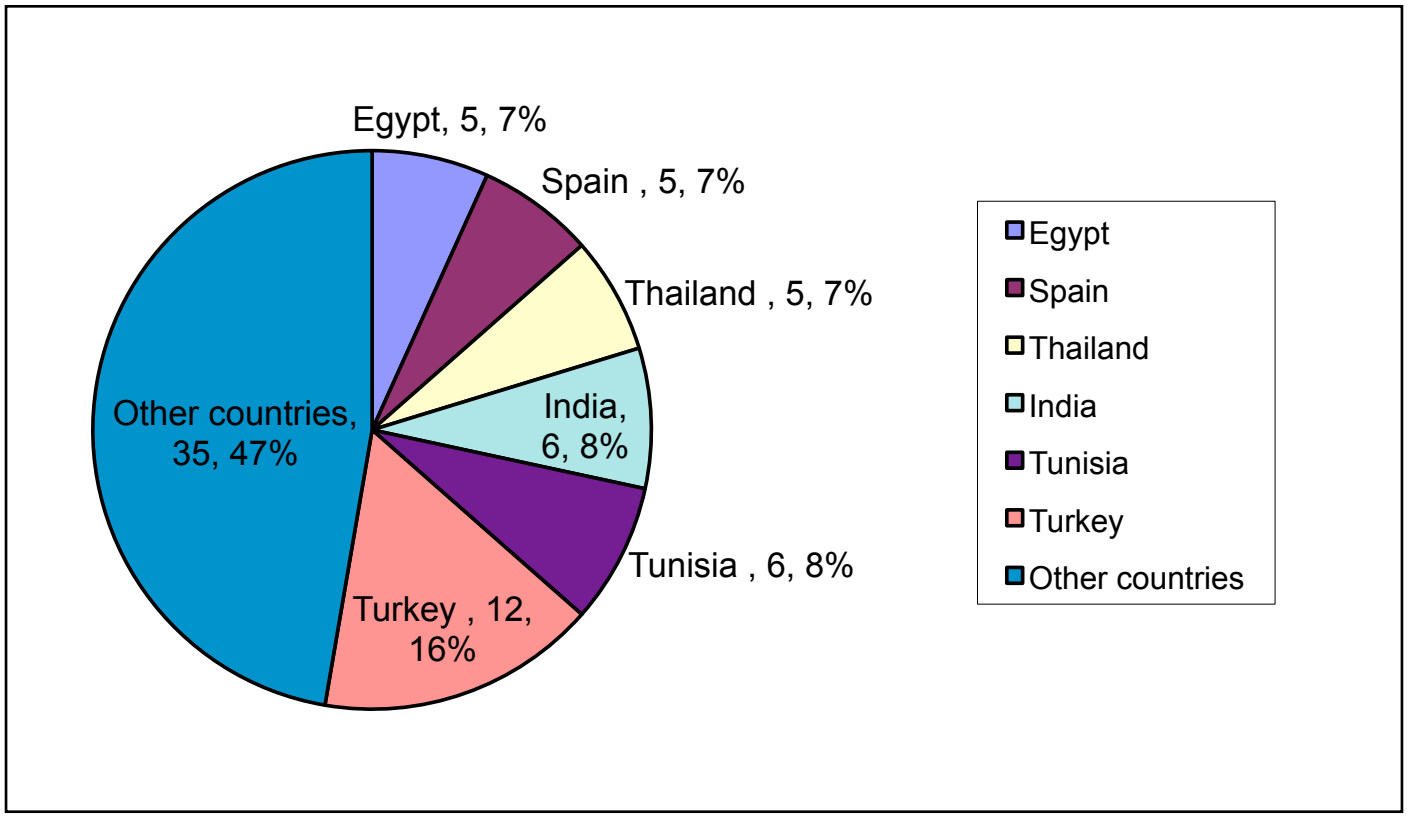
The PHA received 181 laboratory reports of individuals with *Salmonella* infection in 2010. Of these, 74 (41%) are believed to have acquired the infection outside the United Kingdom. There were 21 different *Salmonella* serotypes, originating in at least 30 different countries (Table 2).

Table 2: Laboratory reports of *Salmonella* and countries where infections are thought to have been acquired, 2010, Northern Ireland

Serotype	Number of reports received	Number of infections thought to have been acquired abroad	Countries visited
S. agama	1	0	
S. agona	2	1	Egypt
S. apapa	1	0	
S. arizonae	3	0	
S. bareilly	5	3	Sri Lanka, Florida, Menorca
S. braenderup	1	0	
S. brandenburg	2	0	
S. carno	1	0	
S. chingola	1	0	
S. dar-es-salaam	1	0	
S. derby	1	1	Cuba
S. enteritidis	48	31	Barbados, Egypt (2), France, Ibiza, India (2), Iraq, Jordan, Kenya, Lisbon, Namibia, Poland, Gran Canaria, Spain (2), Tunisia (4), Turkey (11)
S. haifa	4	2	Cyprus, Egypt
S. hvittingfoss	2	2	Australia, Cuba
S. indiana	1	1	Spain
S. infantis	5	3	Poland, Uganda, India
S. java	5	2	Thailand, Unknown
S. kedougou	1	0	
S. kentucky	2	2	Egypt, India
S. kottbus	3	0	
S. london	1	0	
S. manhattan	1	0	
S. mbandaka	3	1	Tunisia
S. mikawasima	2	0	
S. montevideo	3	1	Turkey
S. muenster	1	0	
S. newport	3	0	
S. paratyphi	2	2	India
S. rissen	2	2	Cambodia, Thailand
S. rubislaw	1	0	
S. saint-paul	4	1	Florida
S. schwarzengrund	1	0	
S. senftenberg	1	0	
S. spp	6	3	Sri Lanka, Malaysia, Thailand
S. stanley	2	2	India, Thailand
S. stanleyville	1	1	Ghana
S. tennessee	1	0	
S. typhimurium	54	11	Ghana, Hong Kong, Italy (2), Kenya, Salou, Spain (2), Thailand, Turkey, Vietnam
S. virchow	1	1	Egypt
S. zanzibar	1	1	Tunisia
Total	**181**	**74**	

Although there is a wide range of countries where travellers appear to have been infected, approximately 53% of infections originated from only five countries. Figure 5 shows the countries to where five or more cases travelled. As data on the travelling population are not available, the rates of infection associated with each of these countries cannot be calculated.

Figure 5: Cases of travel-associated *Salmonella* by presumed country of acquisition, Northern Ireland residents, 2010



The number of cases who acquired their infection abroad between 2005 and 2010 has ranged from 36 (23%) to 85 (45%) annually, as outlined in Table 3.

Table 3: Travel-associated *Salmonella* laboratory reports among Northern Ireland residents, 2005–2010

Year	Number of reports received	Number of infections thought to have been acquired abroad
2005	180	63 (35%)
2006	206	65 (32%)
2007	159	37 (23%)
2008	187	85 (45%)
2009	158	36 (23%)
2010	181	74 (41%)

Quarterly reporting of MRSA and CDI episodes

The following tables are taken from the PHA's quarterly *S. aureus* and *C. difficile* surveillance reports for January–March 2011. The full reports can be found at: www.publichealthagency.org/publications

These reports are based on data extracted from the Northern Ireland HCAI web-based surveillance system. The data are validated during cross-checking with the laboratory reporting system (CoSurv) and by HSCT staff on a quarterly basis.

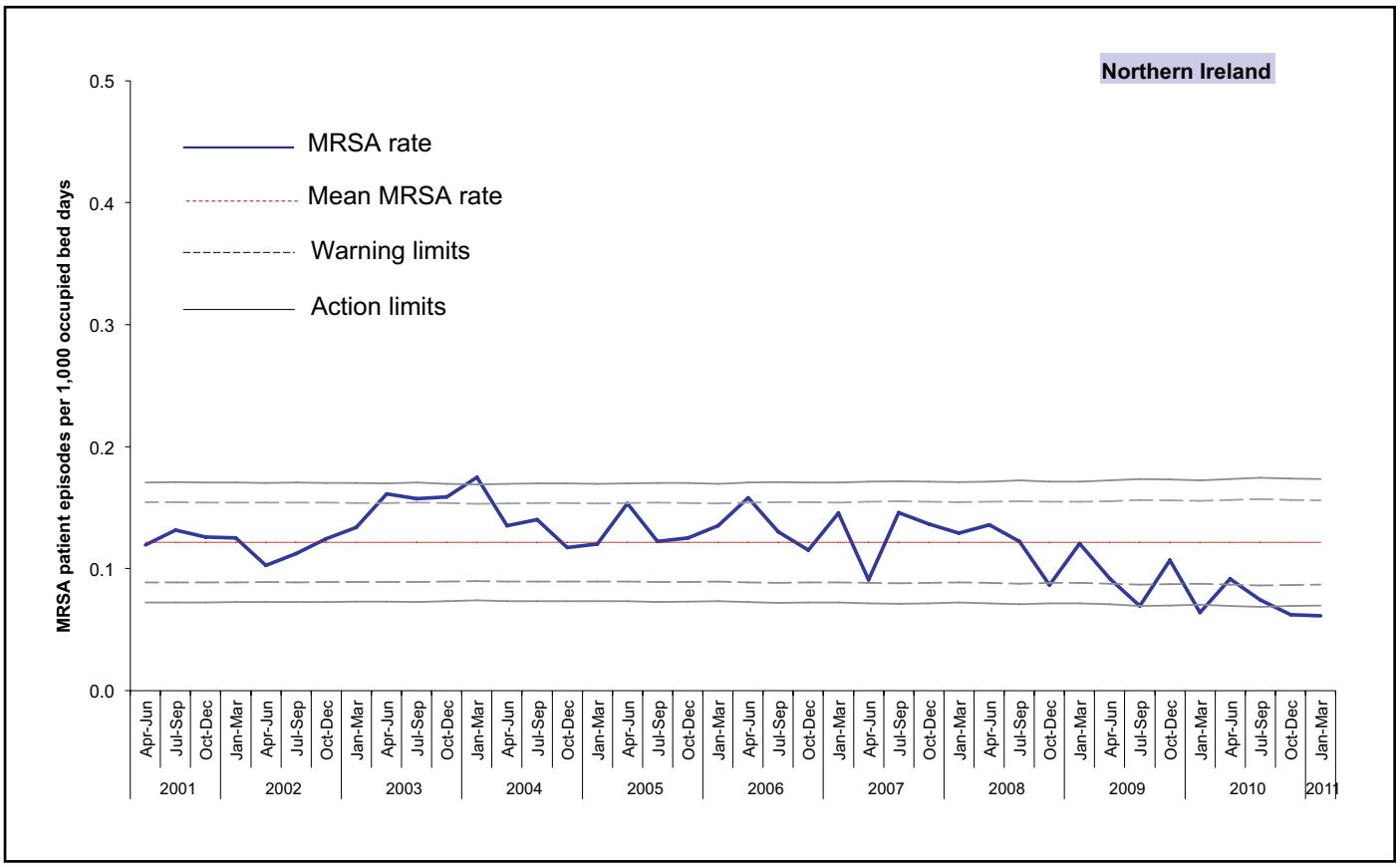
MRSA in quarter one 2011

- MRSA rates decreased by approximately 2% compared to quarter four 2010.
- MRSA rates decreased below the lower action limit on the statistical process control (SPC) chart for Northern Ireland.
- MRSA reports during 2010/11 fell by 16% compared to 2009/10.

Table 4: Quarterly number and rate of MRSA patient episodes, October 2010–March 2011

	Oct-Dec 2010		Jan-Mar 2011	
	Episodes	Rate	Episodes	Rate
Belfast HSCT	9	0.059	12	0.079
Northern HSCT	6	0.086	5	0.067
South Eastern HSCT	3	0.053	2	0.035
Southern HSCT	4	0.070	1	0.017
Western HSCT	3	0.047	5	0.077
Northern Ireland total	25	0.062	25	0.061

Figure 6: SPC chart for quarterly MRSA rates in Northern Ireland



CDI in quarter one 2011

- CDI reports for hospital inpatients aged 65 years and over decreased by 1% (one episode) compared to quarter four 2010.
- CDI rates decreased by 2% compared to quarter four 2010.
- CDI reports for community patients aged 65 years and over increased by 15% (eight episodes) compared to quarter four 2010.
- Total CDI reports for hospital and community patients aged two years and over increased by 11% (19 episodes) compared to quarter four 2010.
- CDI reports for hospital inpatients aged 65 years and over fell by 17% between the 2009/10 and 2010/11 financial years.

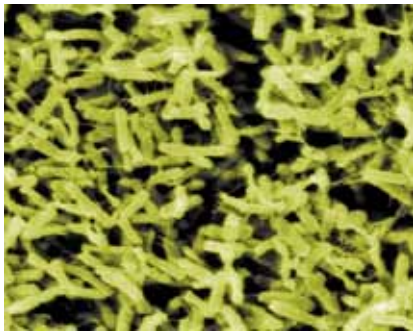
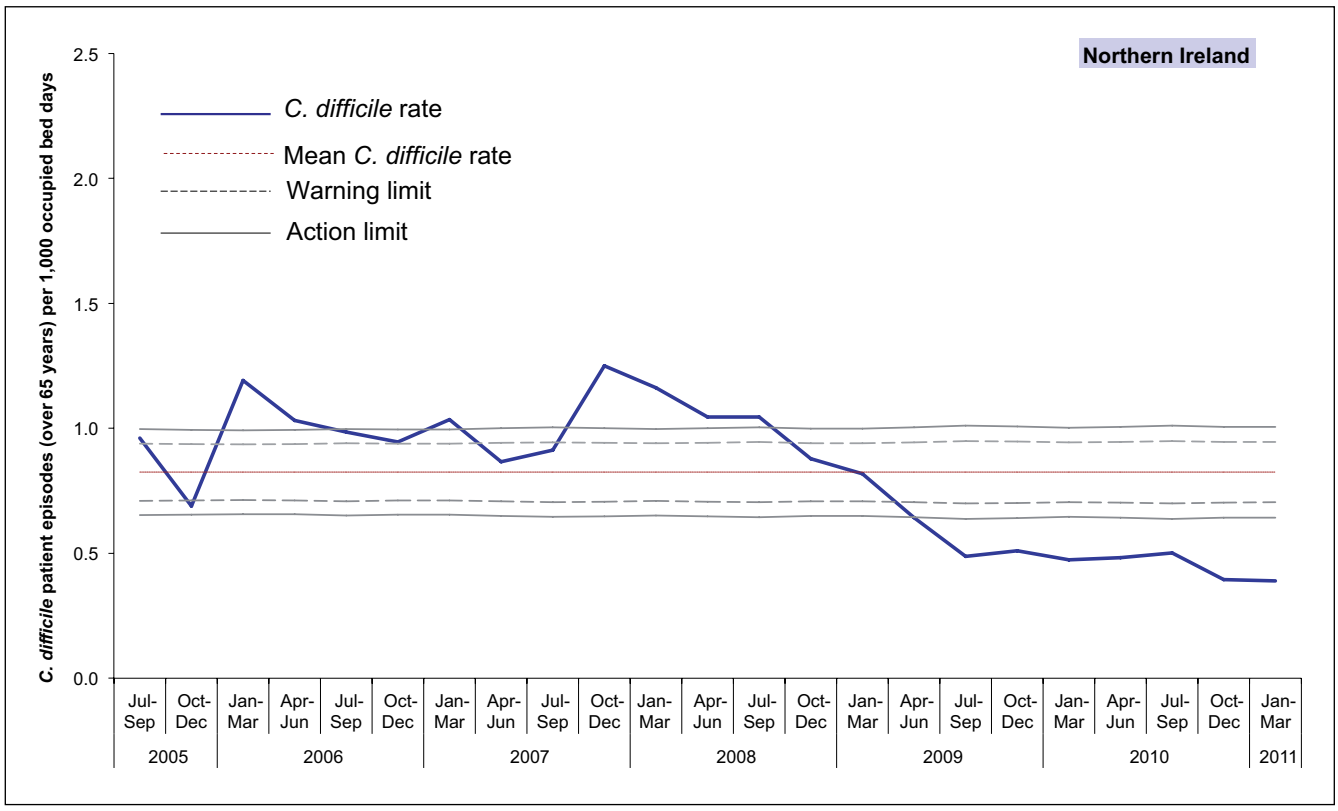


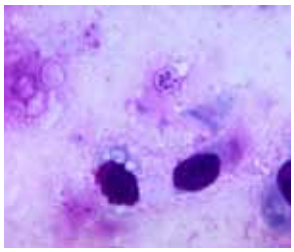
Table 5: Quarterly number and rate of *C. difficile* episodes in patients aged two years and over, October 2010–March 2011

	Oct-Dec 2010		Jan-Mar 2011	
	Episodes	Rate	Episodes	Rate
Belfast HSCT	44	0.288	49	0.323
Northern HSCT	28	0.399	21	0.282
South Eastern HSCT	18	0.316	30	0.528
Southern HSCT	9	0.157	5	0.084
Western HSCT	14	0.218	18	0.278
Northern Ireland total	113	0.282	123	0.302
Northern Ireland community total	60	-	69	-

Figure 7: SPC chart for quarterly *C. difficile* rates among inpatients in Northern Ireland aged 65 years and over



Apparent increase in *Pneumocystis* pneumonia among renal patients



The health protection service has been advised of an apparent increase in cases of *Pneumocystis carinii* pneumonia (PCP) among renal patients (predominantly post-transplant patients). The PHA is working with colleagues in Belfast Health and Social Care Trust to establish possible links between cases and to ascertain whether the local increase is confined to renal patients or part of a wider increase in PCP infections regionally. At present, we are undertaking epidemiological analysis and enhanced surveillance of PCP infections.
The renal unit has reviewed its policy of antibiotic prophylaxis in newly transplanted renal patients and co-trimoxazole prophylaxis has been extended for 6 to 12 months post-transplantation. Clinicians should be alert to the possibility of this infection in any immunocompromised patient presenting with respiratory symptoms.
Dr Jillian Johnston, SpR, PHA

Infection prevention and control link system for nursing and residential homes

The PHA is currently establishing a regional infection prevention and control link system for private nursing and residential homes. The aim of this link system is to provide an infection prevention and control link between nursing and residential home facilities/organisations and the PHA.

All independent sector nursing and residential homes in the province have been invited to participate in the link system. Each facility will identify someone to be their nominated link person. To date, the PHA has had a very positive response from independent sector facilities that wish to participate in this link system.

Link meetings will be held quarterly in all areas of Northern Ireland. There will be two quarterly meetings in the Western, South Eastern and Northern areas, and one quarterly meeting in the Belfast and Southern areas. The first meetings of link groups are taking place throughout June 2011 and the topics addressed at these meetings include:

- Introduction to the PHA – the structure and function of the HCAI team.
- The role of the link person.
- General infection prevention and control.

Presentations will be forwarded to all facilities following the meetings to facilitate dissemination of information and learning to all relevant independent sector staff.

Further information for health professionals and other agencies:

Health protection duty room
Public Health Agency
4th Floor
12–22 Linenhall Street
Belfast
BT2 8BS

Tel: 028 9055 3994 or 028 9055 3997
Email: pha.dutyroom@hscni.net

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