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World TB day – 24 March 2006

To mark World TB Day 2006 the Health Protection Agency has published a Tuberculosis Update newsletter which highlights some of the national and local initiatives in support of the implementation of the Chief Medical Officer's action plan – Stopping Tuberculosis in England.
<http://www.hpa.org.uk/infections/topics_az/tb/pdf/newsletter_2006.pdf>.

The newsletter was released on 22 March 2006 to coincide with the publication new clinical guidelines from the National Institute for Health and Clinical Excellence (NICE) to help the National Health Service (NHS) identify, prevent and treat people with TB in England and Wales. This guidance has been developed with input from a range of organisations involved in treating and preventing TB, including organisations representing health professionals, people with TB and their carers, local government and the voluntary sector.
<<http://www.nice.org.uk/page.aspx?o=296657>>.

Tuberculosis remains an important public health problem in the United Kingdom. Results of Enhanced Tuberculosis Surveillance (ETS) for 2004 have now been finalised and linked with species and drug susceptibility information from the UK Mycobacterial surveillance Network (MycobNet). Using 2000 to 2004 data, trends were examined for a number of key indicators as measures of progress in TB control.

Overall incidence

There were 7167 cases of TB reported in England, Wales, and Northern Ireland in 2004, an incidence of 13.1 cases per 100,000 population (figure 1). This represents a 5% increase in case reports when compared with the 6837 cases reported in 2003 (rate 12.6 per 100,000). The highest rate of disease was observed in London (42.1/100,000), which accounted for 44% of the total number of reported cases. The proportion of cases reported from among foreign-born population groups has increased from 63% in 2000 to 70% in 2004.

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



Sources: Tuberculosis cases: Enhanced Tuberculosis Surveillance, ONS mid year population estimates.

Incidence in children

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

Drug resistance

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

Treatment outcome monitoring

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

For new infectious cases of pulmonary TB with a reported outcome, the proportion of cases that have completed treatment was 78% compared with 76% in 2002 and 77% in 2001.

Reports of TB continue to increase annually. The observed increase is largely confined to specific subgroups of the population in major cities. The increase reflects a combination of factors, including migration from high incidence countries, homelessness, HIV co-infection and potentially improvements in case reporting following the introduction of ETS.

Tables and figures have been updated with 2004 data on the HPA TB website at http://www.hpa.org.uk/infections/topics_az/tb/data_menu.htm.

Increase in measles cases in 2006, in England and Wales

So far in 2006, 72 cases of measles have been confirmed in England and Wales (weeks 1 to 11), compared with a total of 77 cases in the whole of 2005. Cases have occurred in all regions apart from the North East and the ages of cases have ranged from under one to 35 years of age. Two cases had received one dose of measles, mumps, and rubella (MMR) vaccine and three others had been vaccinated with single measles vaccine (two in South Africa). Nine of the cases have been admitted to hospital and there has been one measles related death in a male aged 13 years who had an underlying lung condition and was taking immunosuppressive drugs.

An outbreak of confirmed measles was first reported on a travellers' site in 2005 in Essex. Since then there has been a number of outbreaks of measles among the travelling community across England with the majority of the cases associated with the travelling community. Local health protection units have been working with Primary care Trust's (PCTs) and the travelling communities to minimise the impact of this outbreak. Vaccination coverage in travelling communities has been historically low.

In line with WHO recommendations, laboratory confirmation should be performed on all suspected measles cases and all confirmed cases should be reported to the Health Protection Agency's Centre for Infections (HPA CfI). Laboratory confirmation is usually based on virus specific IgM detection either in oral fluid or serum. Oral fluid samples are non-invasive, are easily collected from all ages, and can be taken by parents or patients themselves. Where the index of suspicion is high, or where rapid public health action may be required, oral fluid should be taken in addition to any other specimens, even in the acute phase. Public health management, however, should proceed immediately for cases that are epidemiologically-linked to the travelling community. For cases where an urgent diagnosis is required, the Virus Reference Department at CfI, Colindale, London, offers a diagnostic service by real-time PCR for oral fluid and other specimens. Oral fluid samples are positive in 80% to 90% of samples collected during the first week after onset (1); comparable with the 65% to 75% from throat swabs, and higher than other samples including serum and urine (2). Hospitals can liaise with the local HPU to obtain saliva kits for rapid diagnosis of children seen in A&E or admitted to the ward.

Where an urgent diagnosis is requested please contact the HPA Immunisation and Diagnosis Unit laboratory (tel: 020 8327 6202), or the Immunisation Department (tel: 020 8327 7084) at the Centre for Infections.

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Chikungunya outbreak in the Indian Ocean islands (and imported cases) – update

Situation update in the Indian Ocean

Since March 2005 several outbreaks of chikungunya infection have occurred on islands in the Indian Ocean (1). The island most affected has been La Réunion where, as of 12 March 2006, 3237 cases have officially been notified through the physicians sentinel network, although mathematical models have estimated the total number of cases to be in excess of 200,000 (2).

Other islands that have reported infections include the Seychelles (8818 suspected cases, between 1 January and 26 February 2006), Mauritius (6000 suspected cases, including 1200 confirmed cases, between 1 January and 5 March 2006), and Mayotte (3471 suspected cases, between 9 January and 12 March). An outbreak of chikungunya virus infection has recently been reported in Andhra Pradesh and Maharashtra states in India, where there also appears to be co-circulation of dengue virus, which is transmitted by the same mosquito vectors. Results confirming concurrent dengue infections are awaited (1).

Imported cases

Several European countries have reported cases in people returning from these islands. The majority of these have been reported in France, with 160 cases known to be imported between 9 April 2005 and 31 January 2006 (3). Other countries reporting imported cases include Germany, Switzerland, Italy, and Norway (4).

Since December 2005, four imported cases of chikungunya, have been identified in the United Kingdom. These have been confirmed by the Health Protection Agency's Special Pathogens Reference Unit. Of these, two serologically confirmed cases, from the South West and London regions, were associated with travel to the Seychelles. Two further cases from the West Midlands region who had returned from Mauritius have been confirmed by both PCR and serology.

Over 7000 British tourists travel to the Seychelles and Mauritius every month (5). Health professionals need to be aware of chikungunya infection when assessing travellers who have recently returned from islands in the Indian Ocean and Indian sub-continent. All samples from suspected cases should be sent to the Special Pathogens Reference Unit for investigation. More information about this is available on the HPA website at http://www.hpa.org.uk/srmd/other_ref_labs/spru.htm.

There is no vaccine against chikungunya virus and, therefore, prevention relies solely on the avoidance of mosquito bites, particularly during the daylight hours (early morning and late afternoon), when the *Aedes* spp are most active. More information about this can be obtained from the NaTHNaC website at <http://www.nathnac.org/pro/factsheets/iba.htm>.

References

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HPA takes the initiative in immunisation training

In the last week of March the Health Protection Agency (HPA) will, for the first time, be running a training course titled The Fundamentals of Immunisation
<http://www.hpa.org.uk/hpa/events/immunisation_course.htm>.

This course is based on several years' experience of creating training for frontline vaccinators, trainers, and people who advise on vaccination, and has been set up to support implementation of National Minimum Standards for Immunisation Training which were published last year
<http://www.hpa.org.uk/infections/topics_az/vaccination/National_immun_train_stand1.pdf>.

In a parallel and complementary initiative, the Immunisation Department at the HPA Centre for Infections has produced materials to support delivery of Immunisation Training at local level.

The first group of materials are teaching resources in the form of slide sets
<http://www.hpa.org.uk/infections/topics_az/vaccination/slides.htm>.

They are designed to be used by those delivering training in immunisation, following the Core areas described in Core Curriculum for Immunisation Training
<http://www.hpa.org.uk/infections/topics_az/vaccination/core_curr1.pdf> and

The content is designed to cover the more theoretical aspects; they do not address the need for other types of learning including supervised practice, reflective learning, communication exercises, and practical workshops.

The slides have been created as a resource to be used by trainers. They assume a significant degree of knowledge and are designed to be used by individuals who already have a strong background in immunisation. The slides are not intended to be used as a distance learning course. Anyone is welcome to make use of the slides and adapt them for local purposes as long as their source is fully acknowledged.

The second resource is an on-line self assessment facility built upon a bank of multiple choice questions on immunisation contributed by HPA staff. This can be found at
<http://www.hpa.org.uk/infections/topics_az/vaccination/training_menu.htm>.

Feedback is welcomed on the resources that have been developed, so far, on ancillary training materials or methods, or on possible additional multiple choice questions to add to the HPA database. Please email comments and suggestions to <immunisationtraining@hpa.org.uk>.

Immunisation

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Next update due: **28 April 2006**

Immunisation Routine Data Reports

↘ Laboratory reports of invasive meningococcal infections, England and Wales: weeks 47/05 to 01/06 2005

↘ Laboratory confirmed cases of measles, mumps, and rubella in England and Wales: October to end of December 2005

↘ COVER programme: October to end of December 2005

↘ Laboratory reports of invasive meningococcal infections, England and Wales: weeks 47/05 to 01/06

	Method of diagnosis			Total reports	Cumulative*
	CSF and blood Culture	Non-culture	Other sites	47/05-52/06	Total to week 01/2006
Group A	–	–	–	–	1
B	74	88	11	173	1339
C	3	–	–	3	28
W135	4	1	–	5	33
X	–	–	–	–	–
Y	2	–	–	2	38
Z	–	–	–	–	–
29E	–	–	–	–	1
Ungroupable	–	–	–	–	–
Ungrouped	–	5	–	5	51
Total	83	94	11	188	1491

*Latex antigen, microscopy, polymerase chain reaction combined Health Protection Agency Centre for Infections data and Meningococcal Reference Unit data.

Laboratory confirmed cases of measles, mumps, and rubella in England and Wales: October to end of December 2005

Data presented here is for the fourth quarter of 2005 (ie, October to December 2005).

Cases include those confirmed by oral fluid IgM antibody tests and routine laboratory reports (tables 1 and 2). Analyses are by date of onset. Regional breakdown figures relate to Government Office Regions rather than regional health authorities (pre-April 2002 definitions) as used previously in this section. Quarterly figures for cases confirmed by oral fluid antibody detection only from 1995 are available from:

http://www.hpa.org.uk/infections/topics_az/measles/data_not_confirmed.htm

http://www.hpa.org.uk/infections/topics_az/mumps/data_quarter.htm

http://www.hpa.org.uk/infections/topics_az/rubella/data_rub_not.htm

and annual total numbers of confirmed cases by health region and age from:

http://www.hpa.org.uk/infections/topics_az/measles/data_reg_age.htm

http://www.hpa.org.uk/infections/topics_az/mumps/data_reg_age.htm

http://www.hpa.org.uk/infections/topics_az/rubella/data_reg_age.htm

Table 1 Total confirmed cases of measles, mumps, and rubella, and oral fluid IgM antibody tests in cases notified to ONS*: weeks 40-52/2005

	Cases			Oral fluid	IgM antibody	Results		
	Notified	Tested	%	Total Positive	Recently Vaccinated	Confirmed	Other lab confirmed	Total Confirmed cases
Measles	408	343	84.1	14	1	13	9	22
Rubella	248	180	72.6	–	–	–	7	7

*ONS = the Office for National Statistics.

Table 2 Total confirmed cases of mumps weeks 40-52/2005

All ages excluding 15-24 year olds							15-24 year olds	All Ages
Oral fluid IgM antibody results								
Notified	Tested	% tested	Total positive	Recently vaccinated	Confirmed (a)	Other lab confirmed (b)	Notified assumed confirmed (c)	Total confirmed (a+b+c)
2270	1350	59.5	468	6	462	185	3612	4259

As previously reported, the cohort at an increased risk of mumps because they have either received no measles, mumps, and rubella (MMR) vaccine, or only one dose were born between 1981 and 1990 (1). In 2004, the number of notified cases and the proportion of oral fluid samples tested and confirmed increased dramatically. The overall confirmation rate for the year was around 60% and by far the majority, over 75%, of those confirmed IgM positive were born between 1981 and 1986 (ie, aged between 18 and 23 years). False negative results can occur in a small proportion of cases particularly if the sample is taken early, and, therefore, it is likely that virtually all cases in this age range are genuine mumps (2). The Health Protection Agency (HPA), therefore, recommended at the beginning of February 2005 that, during this period of increased mumps incidence, oral fluid samples should not be taken from individuals with clinical mumps who were born between 1981 and 1986, and that they should be managed as if they were a confirmed case. Samples, however, should continue to be taken from cases in all other age groups or where it is clinically important to confirm the diagnosis (eg, where a complication has been observed) (2). As a result of these recommendations to limit testing temporarily, the number of laboratory confirmed cases in this age group will be artificially low and underestimate the true burden of infection. For the purpose of reporting, therefore, all notified cases of mumps in this age group are being counted as confirmed. The age group has been expanded to include the 15 to 24 years age group due to the manner in which notification data are aggregated (table 2). Since January 2006 oral fluid testing has been reintroduced in all age groups.

Measles

Twenty-two cases of confirmed measles with onset dates in the fourth quarter of 2005 were reported compared to fourteen cases in the third quarter of 2005 (3). Fifteen were children aged under 15 years (four aged under 1 year, nine aged from 1 to 4 years; one aged from 5 to 9 years; and one aged 10 to 14 years). Seven adults aged between 19 and 30 years were also reported. One case had received a single dose of measles vaccine, the remaining cases, with known vaccination status, had no documented history of vaccination with MMR.

Cases were reported from the East Midlands (11), London (5), South East (2), and one case in the North West, Yorkshire and the Humber, West Midlands and the East of England. One case had a history of recent travel to India, but there was no suitable sample available for genotyping from this case. A cluster of five cases (aged between under 1 year and 25 years) occurred in the travelling community in London: a B3 genotype was identified from this outbreak. In the East Midlands there was an outbreak of 11 confirmed cases including nine from the travelling community: a B3 genotype was also associated with this outbreak. The index case of this outbreak had known contact with a confirmed case in the London outbreak. The case confirmed in Yorkshire and the Humber was also connected to the outbreak in the East Midlands. A number of measles outbreaks in the travelling community have continued in 2006. There were only 77 confirmed cases of measles in England and Wales during 2005 compared to 191 cases in 2004. This is the lowest annual total since 2001 when there were 70 cases.

Mumps

Four thousand, two hundred and fifty-nine cases of mumps with onset dates in the fourth quarter of 2005 were either laboratory confirmed or assumed to be genuine mumps due to their age. This compares to 5533 confirmed cases in the third quarter of 2005 (table 3) (3). Notified cases also decreased this quarter to 5882 (provisional) from 7907 in the third quarter. All regions reported fewer confirmed cases during this quarter apart from London and the East of England which experienced small increases (565 to 643 and 430 to 519 respectively). In total 56,390 cases of mumps were notified in 2005, with 43,322 (provisional) cases either laboratory confirmed or assumed to be genuine mumps due to their age. This is by far the highest number of cases since the introduction of mumps vaccination with the MMR vaccine in 1988. Notifications have continued to decline in 2006 and currently there are around 400 reported weekly.

Table 3 Confirmed cases of mumps by age group and region in England and Wales: weeks 40 52/05

Region	Age group (years)							Not Known	Total
	<1y	1-4y	5-9y	10-14y	15-19y*	20-24y*	25+y		
North East	–	2	3	15	160	68	13	–	261
North West	1	5	4	21	189	134	51	1	406
Yorkshire & Humber	–	4	13	32	283	151	44	2	529
East Midlands	–	–	1	8	99	77	20	–	205
West Midlands	–	–	3	7	153	121	28	2	314
East of England	1	4	8	11	230	215	47	3	519
London	–	7	11	21	348	206	49	1	643
South East	1	6	8	21	279	198	45	1	559
South West	–	5	8	11	155	91	26	1	297
Wales	–	3	11	27	302	153	20	1	517
Not known	1	1	2	1	–	–	4	–	9
Total	4	37	72	175	2198	1414	347	12	4259

*Notified cases of mumps

Rubella

Seven confirmed cases of rubella were reported in this quarter. One was a seven year old child and four were in adult males (aged between 20 years and 51 years). The remaining two cases were adult women (aged 21 and 38 years), one of whom was pregnant at the time of infection. Rubella remains a rare disease in England and Wales with only 28 (provisional) confirmed cases during 2005.

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COVER programme: October to end of December 2005

Quarterly vaccination coverage statistics for children aged up to five years in the United Kingdom (UK). This report of the Cover of Vaccination Evaluated Rapidly (COVER) programme presents quarterly coverage data for children in the UK who reached their first, second, or fifth birthday during the evaluation quarter, October to December 2005.

Children who reached their first birthday in the quarter would have been scheduled to receive their third-dose primary vaccinations (third-dose diphtheria, tetanus, pertussis (DTP vaccine), *Haemophilus influenzae* type b (Hib vaccine), polio vaccine, and MenC vaccine) between February and April 2005. Children who reached their second birthday would have been scheduled to receive their third-dose primary vaccinations between February and April 2004 and first measles, mumps, and rubella (MMR) vaccination between October 2004 and April 2005. Children who reached their fifth birthday would have been scheduled to receive their third-dose primary vaccinations between February and April 2001, their first MMR between October 2001 and April 2002, their pre-school diphtheria, tetanus, acellular pertussis (DTaP) booster, polio, and second-dose MMR from February 2004 onwards.

This is the second quarter to evaluate children at 12 months who have been routinely scheduled for the Pediaxel® vaccine (commonly referred to as 'five in one' vaccine containing DTaP/IPV/Hib) for their whole primary course.

Methods

COVER data are extracted from Child Health Information Systems (CHISs) on a quarterly and annual timetable, and are published quarterly in the CDR and annually by the DH. The data are used both to run and evaluate the vaccination programme at local and national levels. Data were submitted in February and March 2006 for children resident in Administrative Regions in Wales, Health Boards in Scotland and Northern Ireland, and for children in the Primary Care Trust (PCT) responsible population (as defined below) in England, on 31 December 2005. Data were collected for those reaching their first, second, or fifth birthdays during the evaluation quarter (October to December 2005) and completing a primary course of each antigen: three doses of diphtheria (D3), tetanus (T3), pertussis (P3), polio (Pol3), *Haemophilus influenzae* type b (Hib3), Meningococcal conjugate Group C (MenC3) vaccines; and one dose of measles, mumps, and rubella (MMR1) vaccine given at any time up to their first or second birthdays. Numbers were also requested for children who had received a primary course of each antigen (DTPol3, P3, and Hib3), a pre-school booster dose (DTPol4), at least one MMR (MMR1), and two doses of MMR (MMR2) given at any time up to their fifth birthday.

For this quarter, COVER data in England were collected by PCT and summarised by Government Office Regions (GORs). The PCTs and GORs have different boundaries and populations to health authorities and regional health authorities used in quarterly reports before April 2003. The PCT responsible population for COVER data includes all children registered with a general practitioner whose practice forms part of the PCT, regardless of where the child is resident. In addition, the PCT responsible population will also include any children not registered with a general practitioner (GP), who are resident within the PCTs statutory geographical boundary. Children resident within the PCT geographical area, but registered with a GP belonging to another PCT, are the responsibility of that other PCT
<http://www.hpa.org.uk/infections/topics_az/vaccination/REQ05-1.pdf>.

These data are evaluated against the World Health Organization (WHO) targets of 95% coverage annually for each antigen (except MenC) by two years of age at the national level and of at least 90% coverage annually in each strategic health authority (1).

Results

Data were received from all Health Boards (Scotland and Northern Ireland), Administrative Regions (Wales) (PCT/HB/AR), and 293 PCTs (England) (tables 1 and 2). Ten of the 31 PCTs in London were unable to submit data and two submitted partial data this quarter. This is due to problems relating to the implementation of new child health systems as part of the NHS programme for IT, Connecting for Health (2) in all but one, and therefore coverage for London published this quarter should be interpreted with caution. Coverage for all antigens at all ages are always significantly lower in London compared to all other regions in England and the devolved administrations. When coverage for England and the UK is calculated without these PCTs there is a spurious increase in coverage which would be misleading, so the figures for England and UK have been omitted from this report. It is planned to publish England and UK figures and complete London data retrospectively for this quarter and the previous quarter when these data become available.

Coverage at 12 and 24 months

One hundred and seven of the participating localities (34%) achieved at least 95% coverage at 12 months for three doses of diphtheria, tetanus, pertussis, polio, and Hib vaccine (DTaP/IPV/Hib3) and 102 (32%) for three doses of MenC vaccine (MenC). All countries and all English regions except for London, achieved at least 90% coverage at 12 months for these antigens. One hundred and seventy-six localities (56%) achieved

at least 95% coverage at 24 months for DT3, 171 (54) for Pol3, 172 (55%) for Hib3, and 168 (53%) for P3 and MenC. Two English PCTs reached 95% coverage for MMR at 24 months.

Comparisons with the previous quarter can only be made at English region and devolved administration level. Coverage at 12 months for DTaP/IPV/Hib3 and MenC increased in Scotland, Wales, and all English regions except for the East of England (range excluding London 91.7% to 96.3%; increases between 0.1% and 2.1%), and remained the same in Northern Ireland (table 1). Coverage for MMR at 24 months increased between 0.1% and 1.7% in all English regions except for East Midlands, Yorkshire and the Humber, and Wales. MMR coverage was highest in Scotland and Northern Ireland, achieving 90.7% and 90.6% respectively; coverage for English regions (excluding London) and Wales ranged between 83.7% to 87.2%. Increases in all other antigens evaluated at 24 months were reported by North East, North West, Yorkshire and the Humber, Scotland, and Wales, where increases of between 0.1% and 0.9% were observed (table 2) (2).

Table 1 Completed primary immunisations (all antigens) by 12 months: October to end of December 2005

Region/Country	PCT/HB/AR* (total)	DTaP/IPV/Hib3 %	MenC %
North East	16 (16)	93.1	93.1
North West	42 (42)	92.5	92.4
Yorkshire and the Humber	34 (34)	91.7	91.3
East Midlands	28 (28)	92.3	90.5
West Midlands	30 (30)	92.1	92.1
East of England	41 (41)	93.2	92.9
London	21 (31)	83.7	83.3
South East	49 (49)	92	91.3
South West	32 (32)	94.2	94.3
England (Total)	293 (303)	n/a	n/a
Wales	3 (3)	95	94.8
Northern Ireland	4 (4)	95.3	95.8
Scotland	15 (15)	96.3	95.7
United Kingdom	315(325)	n/a	n/a

* PCTs/health boards/administrative regions. n/a = not available.

Table 2 Completed primary immunisations (all antigens) by 24 months: October to end of December 2005

Region/Country	PCT/HB/AR* (total)	DTPol3 %	P3 %	Hib3 %	MenC %	MMR1%
North East	16 (16)	94.9	95.6	94.9	94.7	87.2
North West	42 (42)	95.2	95	95	95.1	86.6
Yorkshire and the Humber	34 (34)	93.7	93.5	93.4	93.2	85.4
East Midlands	28 (28)	96.1	95.9	96	94.4	87.2
West Midlands	30 (30)	95	94.8	94.6	95.1	84.8
East of England	41 (41)	94.5	94.2	94.2	94.2	84.2
London	21 (31)	88.3	88.2	87.8	87.2	72.2
South East	49 (49)	93.5	93	93.4	93.2	83.7
South West	32 (32)	95.1	94.8	95.4	95.4	86.4
England (Total)	293 (303)	n/a	n/a	n/a	n/a	n/a
Wales	3 (3)	96.4	95.8	96.2	96.1	85.9
Northern Ireland	4 (4)	96.8	96.5	96.9	97	90.6
Scotland	15 (15)	97.1	96.9	96.7	96	90.7
United Kingdom	315 (325)	n/a	n/a	n/a	n/a	n/a

PCTs/health boards/administrative regions. n/a = not available.

Coverage at 5 years

Data were received from 299 localities in England, Northern Ireland, and Wales. Compared to last quarter, five year coverage decreased (between 0.1% and 1.1%) for DTPol3, P3, Hib3, and MenC in all English regions (excluding London) and all devolved administrations. Coverage for MMR1 decreased in all regions between 0.6% and 3.1% and decreased by 0.2% and 2.4% for MMR2, except for Yorkshire and the Humber (up 0.1% to 76.2%) (table 3) (2). Data were also received for DTPol4 and MMR2 in children reaching their sixth birthday in Scottish health boards; coverage was 94.6% and 88.3% respectively, very similar to the previous quarter.

Table 3 Completed primary immunisations (all antigens) by 5 years: October to end of December 2005

Region/Country	PCT/HB/AR* (total)	DTPol3 %	P3 %	Hib3 %	MenC %	MMR1 %	MMR2 %	DTaP/ Pol4 %
North East	16 (16)	95.9	95.4	95.7	94.9	90.3	78.8	84.7
North West	42 (42)	95.2	94.5	94.3	94.6	88.8	75.3	80.7
Yorkshire & Humber	34 (34)	94.4	93.8	94	92.7	89.4	76.2	79.4
East Midlands	28 (28)	96.1	95.8	95.7	94.6	90.7	77.5	84.3
West Midlands	30 (30)	95.4	94.8	94.2	94.2	88.9	76.8	82.7
East of England	41(41)	94.2	93.7	93.8	93	84.7	75.6	83.2
London	20(31)	85.8	85.5	85.4	83.1	76.5	53.6	59.8
South East	49(49)	93.2	92.7	92.7	91.6	85.3	72.1	82
South West	32 (32)	96.3	95.6	95.6	94.5	88.3	78.5	86.6
England (Total)	292(303)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wales	3 (3)	95.5	94.2	95.2	94.7	87.4	74.5	84
Northern Ireland	4 (4)	97.5	96.9	96.8	96.2	94.5	85.2	87.3
Scotland 6 years†	15 (15)	–	–	–	–	–	88.3	94.6
England, Wales & Northern Ireland	299(310)	n/a	n/a	n/a	n/a	n/a	n/a	n/a

PCTs/health boards/administrative regions

†No data available at 5 years.

N/A = not available.

MMR sentinel surveillance scheme coverage

In order to give a more timely indication of trends in MMR coverage, a sentinel surveillance scheme has monitored MMR coverage in a sample of children becoming 16 and 24 months of age in a particular month in England from April 1999. Initially, this information was requested every four months for all children in the participating trusts/health authorities who were turning 16 months or 24 months of age in the defined one month period. From March 2001, the request was made quarterly so that the information coincided with routine COVER reports. Since March 2002, this information has been routinely collected every month and was extended in June 2002 to include coverage at 20 and 36 months of age to help determine whether there is further improvement in coverage as children get older, because some parents delay MMR vaccination. This sentinel scheme is based on a sample of trusts/PCTs in England and represents approximately 20% of the population, although monthly reporting is not always complete for the whole sample. This means that these data are not geographically representative or sufficiently detailed to allow us to compare different regions, and will be subject to greater variability than the national data due to varying monthly sample size. Data collected from December 2005 to February 2006 for children in the four age cohorts is summarised in table 4 (range for the three months was from 72.1% to 74.8%, at 16 months, 81.6% to 82.1% at 20 months, 83.7% to 84.6% at 24 months, and 85.8% to 86.3% at 36 months).

Table 4 Monthly sentinel estimates of measles, mumps rubella (MMR) coverage at 16, 20, 24 and 36 months: December 2005 to end of February 2006

Evaluation month	Number of PCT/trusts	Age at vaccination			
		16 months	20 months	24 months	36 months
Dec 2005	37	74.8	81.9	83.8	85.8
Jan 2006	38	72.1	81.6	83.7	86.3
Feb 2006	37	71.9	82.1	84.6	85.8

Comment

MMR coverage at 24 months increased this quarter compared to the last in Wales and all English regions except Yorkshire and the Humber, and East Midlands (increases ranged from 0.1% to 1.1%) (2). This is the third consecutive quarter MMR coverage has improved in the majority of regions. Although overall MMR coverage at 24 months for England cannot be calculated for this quarter due to missing data from ten London PCTs, estimates of MMR coverage at 24 months from a sample representing approximately 20% of children in England are available through the MMR sentinel surveillance scheme. Monthly data for children aged 24 months in October to December 2005 (i.e. born October to December 2003, the same cohort evaluated in this quarterly COVER report) evaluated in November and December 2005, and January 2006 gave coverage estimates of 84.1%, 83.8% and 83.7% respectively (2)(table 4). These estimates suggest MMR coverage at 24 months in England is currently about 84%, compared to 85.9% in Wales, 90.7% in Scotland, and 90.6% in Northern Ireland. For the first time since reporting by PCT was introduced in April 2002, two PCTs in England have achieved the 95% target for MMR at 24 months.

Coverage of MMR1 at five years fell in all regions and devolved administrations compared to the previous quarter (range -0.6% to -3.1%; average -1.9%). A similar 2% drop in MMR coverage was observed across the UK for this cohort, born between October and December 2000, when evaluated at age two in the October to December 2002 COVER report (3). There was considerable adverse publicity in relation to MMR vaccine during the period these children would have been scheduled to receive their first MMR between October 2001 and April 2002 (4). This decrease has also been picked up in coverage of MMR2 for this cohort in all regions and devolved administrations, except Yorkshire and the Humber (range -0.2% to -2.4%).

Continuing problems with the production of national vaccination coverage statistics have resulted from changes to the CHISs in London and Eastern Regions. The appointments and recall system developed as part of CHISs in the 1980s was important in improving vaccination coverage in the UK from previously very poor coverage to the high levels of protection achieved in recent years (5). The problems for the system that has been implemented in Eastern Region as part of the NHS National Programme for IT, Connecting for Health (CfH) (<http://www.connectingforhealth.nhs.uk/>) were largely resolved for the December 2005 COVER report. This was not the case for ten London PCTs that are using the new CHIA (Child Health Interim Application) system.

The immediate clinical impact has included problems with scheduling appointments, with the consequence that parents have not been correctly advised of their children's immunisation needs (6). Affected PCTs have also been unable to contribute to the evaluation of the MMR Capital Catch up campaign. This has national implications, as other regions were hoping to learn lessons from this catch-up that would help in their strategies for improving MMR uptake. It will be important for the identification of children for the new vaccination schedule due to be implemented later this year, especially for the catch-up campaign (7), that the continuing problems in London are resolved. The local NHS teams, DH and Connecting for Health are working, with Health Protection Agency involvement, to resolve these problems.

National coverage figures that omit large parts of London would be incorrect as coverage in London is low. The latest annual COVER report <http://www.hpa.org.uk/infections/topics_az/vaccination/ANNCOVER_2005.pdf> highlights the problems with the vaccination programme in London, and the way that this has contributed to the UK falling below World Health Organization targets in immunisation.

Immunisation is the most effective intervention provided by the NHS for preventing death and disability and for keeping children healthy. Electronic systems for sending appointments and following up children, and for producing COVER statistics, are now an integral part of the childhood vaccination programme and essential to maintaining high levels of coverage. Options and action plans to resolve the continuing problems of the immunisation programme in London need to be identified and developed as a matter of urgency.

Hepatitis B vaccine coverage data in England

Infants born to mothers who are chronically infected with hepatitis B are at high risk of acquiring infection perinatally (8). Infection acquired at birth leads to chronic infection in about 80% of cases, with the consequent risk of chronic liver disease, cirrhosis, or primary hepatocellular carcinoma (9). Since 1988, it has been recommended that such infants receive active vaccination against hepatitis B, with the additional use of hepatitis B immunoglobulin in infants born to anti-HBe negative women. Immunisation can prevent the development of chronic hepatitis B infection in over 90% of such infants (10).

Following the introduction of universal antenatal testing for hepatitis B in April 2001, the Health Protection Agency Centre for Infections (Cfi) has been attempting to collate coverage data on infants born to hepatitis B positive mothers at their first and second birthdays. Since April 2005, this data collection has been integrated into the routine COVER programme (ROCR/OR/0105/002). The data presented below represents coverage for three doses of hepatitis B vaccine in those infants born to HBsAg positive mothers who reached the age of one year in this quarter (ie, those born between October and December 2004), and coverage of four doses of vaccine in infants who reached two years of age (ie, those born between October and December 2003).

Table 5 Neonatal hepatitis B vaccine coverage data in England: October to end of December 2005

Region	Returns with data	12 month denominator	Coverage at 12 months	24 month denominator	Coverage at 24 months
North East	12	8	100%	–	0%
North West	32	29	78%	23	82%
Yorkshire & the Humber	36	37	84%	23	72%
East Midlands	15	7	83%	10	100%
West Midlands	24	26	76%	19	51%
East of England	27	28	71%	9	7%
London	12	80	93%	46	82%
South East	42	18	86%	7	30%
South West	16	5	100%	1	50%
Total	216	238	85.10%	138	64.30%

Data was received for 216 PCTs in England, a 21% increase on the number received last quarter (2), and coverage in one year old children reached 85.1% overall (table 5). Although this is lower than the coverage obtained for routine antigens at this age, the population at risk are highly mobile and high uptake is difficult to achieve (11-15). The largest number of infants at risk are in London, and coverage in the London region was high at 93%, although only 12 of 31 PCTs returned data. Coverage in England for four doses in those aged 24 months was lower at 64.3%, an increase of 5% on last quarter. As data systems may have only recently been established it is likely that 24 month data is less complete and, therefore, this represents an under-estimate of coverage at this age.

Although 45 more PCTs reported this quarter compared to the last, around one-third of PCTs are still unable to provide data and many PCTs that sent in returns had zero cases in this period. It is unclear whether these latter returns represent valid data for areas with a low prevalence of infection or missing data – PCTs reporting no infants at risk are asked to review their data to ensure that information is being correctly recorded. It should be possible to estimate the number of infants at risk from HBsAg prevalence in the local antenatal population. PCTs that were unable to submit data are asked to urgently review the systems for obtaining this data so that this important group of infants can be monitored prospectively.

Relevant links for country specific coverage data

Wales

<<http://www.wales.nhs.uk/sites/page.cfm?OrgID=368&PID=2278>>

Scotland

<<http://www.show.scot.nhs.uk/scieh/>>

Northern Ireland

<<http://www.cdscni.org.uk/surveillance/Coveragestats/default.asp>>

England

<<http://www.publications.doh.gov.uk/public/sb0416.htm>>.

Other relevant links

<http://www.hpa.org.uk/infections/topics_az/vaccination/vac_coverage.htm>

<<http://www.mmrthefacts.nhs.uk/>>

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