



Five Nations Health Protection Conference



Tuesday 1 - Wednesday 2 May 2012

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Aims and Objectives

The aim of the Conference is to provide a focus for Continuing Professional Development for Consultants in Communicable Disease Control, Consultants and Specialists in Public Health Medicine and their colleagues in the epidemiology, and control of infectious, non-infectious diseases and environmental hazards.

The objectives are:

- 1 To refresh participants' knowledge of the recognition, investigation and control of important infections and other environmental hazards.
- 2 To inform participants about significant new and emerging problems in health protection and advances in methods of their investigation and control.
- 3 To stimulate discussion of the practical problems that may confront those responsible for carrying out investigations and implementing control procedures.
- 4 To foster the maintenance and development of professional networks among those working in control of infection and environmental hazards.
- 5 To contribute to the development of policies and standards.
- 6 To provide a focus for health protection issues across the Five Nations.



CPD

The Faculty of Public Health no longer accredits meetings for CPD purposes. Individuals should assess the content of external meetings in relation to their own personal development plan (PDP) and make a judgement about its value. Having attended a meeting, if it provides good quality learning, they should write a reflective note and claim CPD credits.

Five Nations Health Protection Conference

Tuesday 1 May - Wednesday 2 May 2012

The Europa Hotel, Belfast

Tuesday 1 May 2012

<p>09.00 – 10.00</p>	<p>Registration Desk Opens Tea and Coffee available</p>	
<p>10.00 – 10.15</p>	<p>Welcome and Introduction</p>	<p>Dr Gerry Waldron Acting Assistant Director of Public Health (Health Protection)</p>
<p>10.15 – 11.00</p>	<p>Keynote Address What is Evidence-Based Medicine and Why is it Important?</p>	<p>Dr Michael McBride Chief Medical Officer for Northern Ireland</p>

SESSION I

<p>11.00 – 12.30</p>	<p>Surveillance: Data, Information or Intelligence? Session Chair: Dr Meirion Evans Session Organiser: Dr Margaret O'Sullivan</p>	
<p>11.00 – 11.15</p>	<p>GP notifications of infectious disease: is it time to change the machinery?</p>	<p>Brendan O'Brien</p>
<p>11.15 – 11.30</p>	<p>Are non-typhoidal salmonella infections reported in time for action?</p>	<p>Ettore Severi</p>
<p>11.30 – 11.45</p>	<p>Delayed diagnosis of tuberculosis in the Yorkshire & Humber region</p>	<p>Jennifer Thorpe</p>
<p>11.45 – 12.00</p>	<p>Genotype cluster investigations in tuberculosis – a luxury we can ill afford?</p>	<p>Lorraine Lighton and Marko Petrovic</p>
<p>12.00 – 12.15</p>	<p>Changing epidemiology of <i>Pneumocystis jirovecii</i> pneumonia in Northern Ireland, 2002 to 2011</p>	<p>Jillian Johnston</p>
<p>12.15 – 12.30</p>	<p>Antenatal screening for infectious diseases in England: findings of six years of monitoring</p>	<p>Hilary Phelps</p>

12.30 – 13.30 Lunch

SESSION II

13.30 – 15.00

Outbreaks: Exploiting Natural Experiments

Session Chair: Dr Paul Mckeown

Session Organiser: Dr John Cowden

13.30 – 13.45

'To immunity and beyond': increasing our understanding of infectious disease transmission

William Morris

13.45 – 14.00

Data collation and display: ensuring firm foundations to develop the science of outbreaks

Mark Temple

14.00 – 14.15

Outbreak investigation: web, post, telephone or face to face? Choosing the right method for the population

Helen Gollins

14.15 – 14.30

Investigating clusters of tuberculosis cases using VNTR; balancing the value of revealing epidemiological links and public health benefit

Jonathan Roberts

14.30 – 14.45

Crab meat: a novel vehicle for *Escherichia coli* O157 identified during an outbreak in Plymouth, England, 2011

Petra Matulkova

14.45 – 15.00

Management of a measles outbreak in Dublin North City, 2011

Orla Ennis

15.00 – 15.30

Tea

15.30 – 16.00

Attended Poster Session

SESSION III

16.00 – 17.00

Sexual Health: Unwanted Souvenirs

Session Organiser: Dr Kirsty Foster and Dr Neil Irvine

16.00 – 16.15

Infectious syphilis: prevention activities informed by surveillance

Neil Irvine

16.15 – 16.30

A national outbreak of *Shigella flexneri* serotype 3a in MSM, United Kingdom, 2009-2011

Maria Louise Borg

16.30 – 16.45

Impact of the new UK HIV guidelines on HIV testing and early diagnoses in Northern Ireland

Galena Kuyumdzhieva

16.45 – 17.00

Gonorrhoea in young heterosexuals: outbreak management and getting the messages heard

Kirsty Foster

17.00 – 17.45

Public Health Medicine Environmental Group Annual General Meeting

Evening events

18.30 – 19.30

Pre-Dinner Quiz

Quiz Organiser: Dr Lorraine Lighton

19.45 for 20.00

Conference dinner at the Europa Hotel and afterwards entertainment by 'Pure Blarney' ceilidh band

Wednesday 2 May 2012

08.30 – 09.00 Registration Desk Opens

SESSION IV

09.00 – 10.00

Travel Infections: Excess Baggage

Session Chair: Dr Sophia Makki

Session Organiser: Dr Charles Saunders

09.00 – 09.20

Audit of usage of Quantiferon Gold TB Interferon Gamma Release Assay in the Belfast HSC Trust Emilia Mamwa

09.20 – 09.40

Port of Entry Migrant Screening Programme for tuberculosis: should we have the same priorities? – United Kingdom, 2009/2010 Ettore Severi

09.40 – 10.00

TB or not TB? A case of late diagnosed MDR TB in a student from the former Soviet Union Amy McCullough

SESSION V

10.00 – 11.00

HCAI: Role of Health Protection

Session Chair: Dr Martin Schweiger and Dr Sally Millership

10.00 – 10.20

Clostridium difficile infection associated with primary and/or community settings in Northern Ireland: prevalence, ribotypes and risk factors Gillian Smyth

10.20 – 10.40

Prevalence of infections and antimicrobial use associated with care (nursing) homes Dafydd Williams

10.40 – 11.00

Pseudomonas aeruginosa in neonatal units in Northern Ireland Maureen McCartney (Invited speaker)

11.00 – 11.30

Coffee

11.30 – 12:00

Attended Poster Session

SESSION VI

12.00 – 13.00

Hot topics

Session Chair: Dr Dilys Morgan

Session Organiser: Dr Lorraine Lighton

12.00 – 12.15

A cryptic triptych

Dominic Mellon

12.15 – 12.30

Planning and implementation of the national human papillomavirus vaccination programme in Ireland

Brenda Corcoran

12.30 – 12.45

A family tuberculosis cluster in Lanarkshire, 2011

S Josephine Pravinkumar

12.45 – 13.00

HPA and CIEH collaboration! up and running!

Ian Gray and Lisa Harvey-Vince

13.00 – 14.00

End Of Conference - Lunch

Presentation Abstracts

Tuesday | May 2012

SESSION I

Surveillance: Data, Information or Intelligence?

GP notifications of infectious disease: is it time to change the machinery?

B O'Brien, N Cunningham, J Ewing
Public Health Agency, Belfast

Aims

It is recognised that GP reporting of notifiable infectious disease suffers two major drawbacks: notifications are incomplete and are often subject to delay. The introduction of the new GP contract in 2004 saw a significant shift in the way that GPs are remunerated. While the move away from item of service claims for GPs has the potential to reduce the level of GP notifications, the new GP contract ensured more effective use of clinical systems by GP practices. We consider that a more robust notification system could be developed based on automated data feeds from GP clinical systems.

Methods

A review of general practice notifications was conducted in 2003 by the Eastern Health & Social Services Board (EHSSB). This covered approximately 40% of the Northern Ireland population. With the establishment of the Public Health Agency in 2009 all notifications of infectious disease in Northern Ireland are now reported to the Regional Director of Public Health. An analysis of notifications of infectious disease for 2011 was undertaken and compared to the 2003 results.

Results

In 2003 in the area covered by the EHSSB there were a total of 3,353 notifications from all sources. 2,236 notifications (66.7%) were received from GPs. 79.1% of the notifications from GPs were for chickenpox.

In Northern Ireland in 2011 there were a total of 4,407 notifications from all sources. 1,960 notifications (44.5%) were received from GPs. 76.2% of the notifications from GPs were for chickenpox. 105 GP

practices (30% of all practices in Northern Ireland) did not notify any infectious disease during the year.

Conclusions

The level of notifications received from General Practice has fallen significantly since 2003. Following training for GPs on appropriate clinical coding an automated extract from GP clinical systems could improve completeness and timeliness of notification.

Contact: brendan.obrien@hscni.net

Are non-typhoidal salmonella infections reported in time for action?

E Severi^{1,2}, G Dabrera¹, N Boxall¹, L Harvey-Vince³, L Booth⁴, S Balasegaram¹

1 Health Protection Agency (HPA), South East Regional Epidemiology Unit, London, UK

2 European Programme for Intervention Epidemiology Training (EPIET), ECDC, Stockholm, Sweden

3 Health Protection Agency, Surrey & Sussex Health Protection Unit (HPU), Horsham, UK

4 Health Protection Agency, Hampshire & Isle of Wight Health Protection Unit, Whiteley, UK

Aims

In England, laboratories and clinicians must notify non-paratyphoid / non-typhoidal Salmonella cases (NTS), preferably electronically, to the Health Protection Agency (HPA) that transmits to Environmental Health Departments (EHD). EHD follow up cases with questionnaires to investigate the infection source. We evaluated the timeliness of electronic NTS report and the acceptability of EHD follow up investigations in London and South East (SE) regions to identify opportunities for improvement.

Methods

We surveyed the laboratory, the Health Protection Unit (HPU) and the HD in London and SE between

December 2010 and April 2011 to describe processes, measure timeliness of electronic reporting (in days) and assess acceptability of EHD follow up questionnaires among NTS cases. We divided the time between onset and EHD-lead investigations in the periods (1) from onset to electronic laboratory report to HPU, (2) from HPU receipt to transmission to EHD and (3) from EHD receipt to investigations.

Results

The median number of days between onset and follow up was 23 in SE and 26.5 in London. Electronic laboratory report took the largest portion of this time (median number of days: 22 in SE and 24 in London) because of batch reporting. EHD followed up mostly by phone in London (53%) and post in SE (52%). Questionnaires were more often completed when administered by phone (98% in London, 96% in SE) than by mail (52% in London and 60% in SE).

Conclusions

Batch uploads delaying electronic NTS reporting will be addressed with new, real-time data entry software. Phone interviews could further improve the timeliness and completion (acceptability) of surveillance to maximise the public health benefit associated with follow-up of single cases.

Contact: ettore.severi@hpa.org.uk

Delayed diagnosis of tuberculosis in the Yorkshire & Humber region

JC Thorpe, M Kliner, EN Okereke

HPA Yorkshire and the Humber, Leeds

Background

Early diagnosis of tuberculosis (TB) reduces transmission and improves patient outcome. This audit investigates the time to diagnosis for patients with TB and factors contributing to delays. Yorkshire & Humber region, a relatively high burden region for TB in the UK, has on average prolonged times to diagnosis, with 59% of cases having a long total delay of over 60 days. Delay in the diagnosis of TB is multi-factorial, dependent on both patient and healthcare systems.

Methodology

Data was extracted from the national Enhanced Tuberculosis Surveillance System (ETS) for three complete years, 2009-2011. Data was analysed to

assess patient, healthcare and total delays and risk factors associated with them.

Results

Of the 2009 TB cases notified to ETS between 2009 and 2011, complete date criteria was available for 75%. The median patient delay (time from onset of symptoms to first presentation) was 30 days; 50% had a long delay (>30 days). The median health care delay (time from first presentation to diagnosis) was 26 days; 46% had a long delay (>30 days) and the median total delay (time from onset of symptoms to diagnosis) was 75 days; 59% had a long delay (>60 days). Initial analysis indicates that increased healthcare delay was associated with female gender, working age and white ethnicity. Prolonged patient and healthcare delay appeared to be significantly more common for ISC ethnic groups. The relationship between diagnostic delay and other risk factors including country of birth, recent migration, deprivation and site of disease, will be explored further.

Conclusion

Significant delays were found in diagnosing tuberculosis in the Yorkshire & Humber region. We make recommendations for actions to reduce both patient and healthcare delays in diagnosis of TB.

Contact: jennifer.thorpe@hpa.org.uk

Genotype cluster investigations in tuberculosis – a luxury we can ill afford?

LL Lighton¹, M Redshaw², M Petrovic¹

¹ Greater Manchester Health Protection Unit, England

² Tameside Hospital NHS Foundation Trust, England

Background

Since 2005 all isolates of *Mycobacterium tuberculosis* submitted to a tuberculosis (TB) reference laboratory in England have been MIRU VNTR typed. Specialist staff undertake preliminary review and if they identify possible significant clusters, it is expected that a full cluster review is undertaken by HPA/NHS staff. Thresholds have been set for local, regional and national investigation of clusters. A local cluster is defined as 5 or more persons within 24 months (2 years), of which 2 occurred in the last 6 months; with TB caused by indistinguishable strains, residing within one health protection unit area.

Methods

Greater Manchester Health Protection Unit was notified in 2011 of a cluster of 10 cases of tuberculosis with indistinguishable MIRU VNTR typing resident in one part of Greater Manchester, Sussex and Essex. The TB nurse who had been involved with the public health management reviewed the epidemiology of each case in collaboration with the CCDC to identify links.

Results

Most of the cases were part of a known family outbreak over three generations. Some of the cases who did not have family links had spent time at the same prison, although it could not be confirmed that there was any direct contact between them. The cluster investigation team agreed that there was no specific action that should be taken in relation to the prison. Similarly, some cases were known to be heavy drinkers, but it was not possible to confirm direct epidemiological links.

Conclusion

This investigation made substantial use of scarce TB nurse resource which might be more effectively deployed in the identification and treatment of cases and management of contacts. We argue that until TB nursing services are adequately resourced, routine investigation of genotype clusters is a luxury we can ill afford.

Contact: lorraine.lighton@hpa.org.uk

Changing epidemiology of *Pneumocystis jirovecii* pneumonia in Northern Ireland, 2002 to 2011

J Johnston¹, L Patterson¹, PG Veal¹, A Nager², B Smyth¹, P Coyle²

¹ Health Protection Service, Public Health Agency, Belfast, Northern Ireland

² Regional Virus Laboratory, Belfast Health and Social Care Trust, Belfast Northern Ireland

Aims

To describe the epidemiology of *Pneumocystis jirovecii* pneumonia (PJP) in Northern Ireland from 2002 to 2011, and establish if a cluster of cases in renal transplant patients (December 2009-May 2011) was confined to renal patients or part of generalised rise in incidence.

Methods

All cases with a laboratory confirmed diagnosis of PJP from the Regional Virus Laboratory (RVL) database,

between 1 January 2002 and 31 July 2011, were included. Laboratory and clinical information was collected on all cases. Descriptive analyses, numbers and proportions, were performed in Stata. Statistical significance was determined at $P < 0.05$ for all analyses. Multiple locus DNA sequence typing (MLST) system was also developed to identify different PJ genotypes.

Results

60 cases were identified; the number increased from 0-3 cases each year before 2008, to 19 cases each in 2010 and 2011. Median age was 54 years, more men were infected than women (2:1) and 93% had an underlying condition causing suppression of the immune system. Before 2008, cases were younger (47 years), more likely to be male (75%), HIV positive (75%) and diagnosed in Belfast location (62.5%). Since 2008, PJP is diagnosed throughout N.I in a variety of conditions suppressing the immune system. MLST typing was performed on 20/60 cases- 5 of the 8 samples taken from renal patients showed a single genotype. The remaining 12 cases in a variety of conditions suppressing the immune system each had a different type of organism.

Conclusions

There is evidence of a generalised rise in incidence of PJP in Northern Ireland since 2008, due to increased case ascertainment of PJP for a number of reasons - increased clinical awareness, change in testing regime and change in the type of tests used. The predominant genotype of PJ organism in renal patients supports the theory of an outbreak of PJP.

Contact: jillian.johnston@hscni.net

Antenatal screening for infectious diseases in England: findings of six years of monitoring

H Phelps, L Coole, J Kearney, F Ncube

Health Protection Agency

Introduction

National antenatal infections screening has been pivotal in the prevention of vertical transmission of HIV, hepatitis B, syphilis and rubella. The 2010 revised Infectious Diseases in Pregnancy Screening Programme Standards set a 90% screening uptake target for all four infections. The national monitoring programme has revealed significant problems with data flows and management; six year results and data issues are explored.

Methods

Information is requested at maternity or trust level on number of pregnant women attending antenatal care, number previously diagnosed with hepatitis B and HIV, number screened for each infection and test results. The proportion of booked women screened (uptake) and the proportion of positive tests are calculated, differentiating between newly and previously diagnosed for hepatitis B and HIV. Exclusions and adjustments were made due to missing or poor data.

Results

Approximately 700,000 women booked for antenatal care in 2010. Screening uptake for all infections increased over the period 2005-2010: from 93% to 96% for hepatitis B; 89% to 96% for HIV; 94% to 97% for syphilis and 94% to 97% for rubella susceptibility. The proportion of women who tested positive for hepatitis B (0.43% in 2010), HIV (0.17%) and syphilis (0.15%) remained stable over the past six years. Rubella susceptibility increased from 2.6% in 2005 to 4.5% in 2010. Just under half of hepatitis B cases and over one third of HIV cases identified through antenatal screening in 2010 were diagnosed in current pregnancy. Issues with data included problems with booking data sources, lack of a standardised maternity dataset and manual records in maternity units.

Discussion

Both data quality and screening uptake have improved over time. The national standardised maternity dataset under development, combined with Key Performance Indicators already introduced, will improve the quality and utility of the outputs from the National Antenatal Infections Screening Monitoring programme.

Contact: hilary.phelps@hpa.org.uk

Tuesday 1 May 2012

Session II

Outbreaks: Exploiting Natural Experiments

'To immunity and beyond': increasing our understanding of infectious disease transmission

W Morris¹, M Temple², K Lamden³

¹ Health Protection Agency, East Midlands HPU, Nottingham City Hospital, Nottingham

² Public Health Wales, CDSC Wales, Temple of Peace and Health, Cardiff

³ Cumbria and Lancashire Health Protection Unit, Health Protection Agency

Network maps of outbreaks of mumps and resistant influenza demonstrate that the transmission of diseases is not uniform; and raises the question 'Why, despite all the potential for exposure to infection, do some people not become ill?'

Currently security services use Social Network Analysis (SNA), a mathematical branch of social sciences, to investigate organised crime and these tools can be utilised to explore the individual's actual role in outbreak development.

Current models of disease transmission assume that all susceptible contacts of an infectious case are equally at risk. However, by considering the personal attributes of individuals in the networks it may be possible to explain why some individuals remain uninfected.

Aims

To demonstrate how visual displays of all the information relating to an outbreak facilitates a better understanding of transmission of infection.

Methods

Maps of outbreaks with SNA tools to explore each individual's role in an outbreak, and to identify how disease spreads in the real world.

Results

Key people and locations crucial to the spread of infection were identified. However, other individuals despite being excellently positioned to spread disease failed to do so and their attributes were explored for explanations of this effect.

Conclusions

Investigation of the attributes of individuals in key positions within a social network who fail to transmit infection may suggest the success of public health measures taken to limit outbreaks. Using the SNA and routinely collected data, is a possible cost effective approach to assessing public health interventions.

Contact: william.morris@hpa.org.uk

Data collation and display: ensuring firm foundations to develop the science of outbreaks

J Mark F Temple¹, William Morris²

¹ Public Health Wales, CDSC Wales, Temple of Peace and Health, Cardiff

² Health Protection Agency, East Midlands HPU, Nottingham City Hospital, Nottingham

Introduction

We routinely classify reported cases of communicable disease as possible, probable and confirmed. However, we assume contacts/exposures identified in the response as all of one certainty even if we attempt to classify their importance, by estimating the degree of exposure or closeness.

This lack of detail may mean that efforts are expended attempting to pursue exposures/contacts that may be unimportant whilst also under stressing confirmed exposures/contacts. By displaying contacts both by their full transmission potential and likelihood, might focus on important sources or at risk individuals sooner.

Method and results

A three dimensional classification of contacts in an outbreak was used to enhance routine contact data by constructing a network diagram, using the classifications shown in the table.

By displaying each dimension in a network diagram, using colour intensity, width, and pattern, the areas of certainty might be identified. Adding another

dimension, represented by nodal shape, allows this system to extend into food borne and hospital outbreaks.

Using this approach with routine histories obtained in various investigations, this proposal will be tested. The network diagrams will be shown and comparisons made to usual statistical methods.

Discussion

	Closeness/ duration	Frequency	Likelihood
1	Same room sleeping	Every day	Confirmed (reported twice)
2	Household contact	3+ times weekly	Probable (reported twice)
3	8 hours or more work or social	< 3 times weekly	Possible (reported <0.5 certain)
4	Between 4 & 8 hours	Monthly	
5	Less than 4 hours	< monthly	

Colleagues' views are sought on developing a quinquennial standard for routine use to help both with complex outbreaks that involve many jurisdictions and to allow standardised data collection to be undertaken.

This latter use would provide a large database from which to develop new methods to investigate routine small outbreaks to prevent them, and so reduce workload.

Contact: mark.temple@wales.nhs.uk

Outbreak investigation: web, post, telephone or face to face? Choosing the right method for the population

H Gollins¹, R McCann¹, W Welfare¹, H Meadows², E Sutcliffe², J Kinghorn-Hooper²

1 Greater Manchester Health Protection Unit
2 Salford City Council

Greater Manchester Health Protection Unit was recently involved in a large food borne outbreak. During the investigation, a secure web based survey was used to collect information on possible exposures. The response rate for the investigation was high compared to previous investigations. This presentation will give a brief description of the outbreak but focus on the strengths and weaknesses of using web based surveys to collect epidemiological information in an outbreak situation.

Seventy five people became ill following a function. There were 20 confirmed cases and 55 probable cases of campylobacter. A web based outbreak questionnaire was developed in select survey and a link emailed to all those who attended the event. 71% (115/162) of those who attended the event responded to the survey. A cohort study identified a statistically significant association between eating chicken liver pate and illness.

Historically, collection of outbreak information has been undertaken through face to face interviews, postal or telephone surveys. Such methods involve significant resource for both data collection and entry; with constraints including timely collection of intelligence and response rate. It is important that outbreak investigations are cost effective. A review of the published and grey literature on the use of electronic data collection tools identified a limited evidence base to guide the choice of method.

Using web based surveys in outbreaks can be highly effective if this reflects the usual communication methods of those involved. It is important that issues of equity of internet access and use are considered by the outbreak control team before choosing an approach.

For our investigation, select survey was an effective data collection tool. It was straightforward to design, simple to disseminate and created a high quality dataset with limited need for cleaning.

Contact: helen.gollins@nhs.net

Investigating clusters of tuberculosis cases using VNTR; balancing the value of revealing epidemiological links and public health benefit

J Roberts, M Santry, R King, B Pankhania

South west (North) Health Protection Unit and Avon TB Forum, UK

Variable Number Tandem Repeat (VNTR) sequencing of Tuberculosis allows identification of clusters of cases that may share a common link and are now reported to Health Protection Units (HPUs). We ought to debate further the use of VNTR, it is a question of to investigate further, how much or not at all.

Aim

We report the process of following-up a possible link between cases sharing a common VNTR. Our aim was to identifying new contacts who may have TB infection.

Methods

Three initial cases were reported to the HPU with identical VNTR, but initial examination of the cases details showed no obvious link between them.

Two further cases were reported with the same VNTR later in the year and intensive investigation and interviews were conducted with the new and earlier cases.

Results

Through this work we identified a common link to a local Taxi firm for all but one case. We were able to ascertain that an individual had been treated for TB at the taxi firm some years earlier. Follow-up of this individual's VNTR confirmed they also had the same strain and hence were our likely source. For the one case not linked to the taxi firm, we found that they may have acquired the infection at an outpatient clinic where one of the cluster cases was noted to have been present. We contacted the taxi firm and offered screening to staff contacts of the source case. However, the proprietor declined our invitations.

Conclusions

Whilst one avenue of investigation did not yield further results, we have identified possible transmission of TB to an immunosuppressed person at an outpatient clinic, suggesting extra caution is required in such clinical settings. As VNTR is a new innovation it is important to record and document such findings to inform ongoing cost/benefit analysis.

Contact: jonathan.roberts2@nhs.net

Crab meat: a novel vehicle for *Escherichia coli* O157 identified during an outbreak in Plymouth, England, 2011

P Matulkova^{1,4}, *M Gobin*¹, *J Taylor*², *F Oshin*², *G Thould*², *K O'Connor*³, *I Oliver*¹

- 1 Health Protection Agency South West, England
- 2 Health Protection Unit South West South, England
- 3 Environmental Health Office, Plymouth City Council, England
- 4 European Programme for Intervention Epidemiology Training (EPIET), European Centre for Disease Prevention and Control, Sweden

Since 05/08/2011, the Health Protection Unit, South West England, was notified about six cases of infections with Vero cytotoxin-producing *Escherichia coli* (VTEC) O157 phage type (PT) 21/28 verotoxin (VT) 2 linked to

Plymouth. From 12/08/2011 onwards we investigated in order to identify the source of the outbreak and prevent further spread.

We defined a case as an onset of diarrhoea after 20/07/2011 in a person living in or visiting Plymouth in the 10 days before the onset, and with either laboratory diagnosis of VTEC PT21/28 VT2 or an epidemiological link to a laboratory-confirmed case. We searched for further cases using national surveillance and laboratory data. We conducted a case-control study. Controls were recruited among healthy persons living in Plymouth nominated by case-patients or recruited among Local Authority and NHS staff. We interviewed participants using a structured questionnaire. Simultaneously environmental health officers conducted food and environmental investigations, including microbiological sampling and food supplier tracing.

A total of nine adult cases were identified as laboratory-confirmed (n=8) or epidemiologically-linked (n=1). Six were from Plymouth and three were visitors. Symptom onset ranged between 31/07 and 16/09/2011. Compared with 28 controls (median age: 54.5 years, 61% female), the eight laboratory-confirmed cases (median age: 60.5 years, 75% female) reported eating crab meat away from home more often (88% versus 11%; OR=58; 95% CI 4-2700). The suspect crab meat was identified and linked to a local, unapproved supplier whose unregulated processing site could not be inspected.

This outbreak points to crab meat as a novel possible vehicle of *E. coli* O157 infection. By 19/08/2011 we removed all suspect crab meat from food establishments. The unapproved supplier was prevented from further distribution and local outlets were alerted about the importance of only using registered suppliers. Since then no further associated cases have been reported.


Contact: Petra.Matulkova@hpa.org.uk

Management of a measles outbreak in Dublin North City, 2011

*O Ennis*¹, *M Ward*¹, *A Clarke*^{1,2}, *M Fitzgerald*¹

- 1 Dept of Public Health, HSE-E, Dr. Steevens' Hospital, Dublin
- 2 School of Public Health and Population Science, Woodview House, UCD, Belfield, Dublin

In August 2011 the Dept of Public Health in Dublin was notified of an outbreak of measles, in children who had been in a residential summer camp. This paper provides an analysis of the epidemiological situation, and outbreak control measures.



Measles notifications in Dublin started to rise in February 2011. By early August there was a marked increase in the weekly cases, with 22 cases in late August, (week 34). By October, 86% of all measles cases nationally, were from Eastern region. The mean age of affected cases was 7.7 years (1 month - 41 years); 22 were hospitalised. Over 70% of cases were confirmed. There were 19 separate clusters in crèches, schools and workplaces. The pattern seen in this 2011 outbreak, where the cases were all in HSE-East (Dublin, Wicklow and Kildare), differs markedly from that of the 2010 national measles outbreak, when only 32% of cases were in the HSE-E.

The control activities included: a media campaign, awareness raising, and mobilisation of the community, a targeted school-based blitz immunisation campaign, a GP 'mop up and catch up of school aged children' and MMR vaccination from 6 months in the outbreak area, MMR vaccination of close and crèche contacts, and exclusion of unvaccinated contacts. General practitioners, hospital staff, social workers, public health nurses, pharmacies, crèches and pre-school services, were notified of the outbreak.

Despite improvement nationally in MMR uptake rates, this outbreak demonstrates that vulnerability exists, and break-through outbreaks occur if uptake is low. Factors contributing to the rapid spread of measles in Dublin include low MMR uptake, social deprivation, high population density and the absence of school immunisation services. The outbreak control team recommended the immediate re-instatement of the school immunisation programme in the area.

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Tuesday 1 May 2012

Session III

Sexual Health: Unwanted Souvenirs

Infectious syphilis: prevention activities informed by surveillance

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On average, 43 episodes of infectious syphilis have been reported annually through enhanced syphilis surveillance (ESS) arrangements in Northern Ireland, 2001-2010. 74% (318/431) of cases occurred in men who have sex with men (MSM). This study aims to compare behavioural risk factors in MSM and heterosexuals with infectious syphilis, and their relevance to safer sex messages and secondary prevention activities.

The ESS database was analysed to examine sexual orientation of episode by variables: route of infection, use of condoms, number and type of sexual contacts in the three months prior to diagnosis, and implicated venue or network. Adjusted odds ratios (AOR) for the association between sexual orientation, anonymous sexual contact, gender, and age group were calculated by logistic regression.

Oral sex is the probable route of infection for 41% heterosexual and 86% MSM episodes. 0.7% (6/269) of MSM always used condoms for oral sex and 39% (102/259) for anal sex. 2.9% (2/67) of heterosexuals always used condoms for oral sex and 12.5% (11/88) for vaginal sex. MSM had a median 2 (range 0-200) sexual contacts, and heterosexuals a median 1 (range 0-6). Anonymous contact was associated with male gender (AOR 4.6:95%CI 1.5-13.7), MSM (AOR 1.9:1.02-3.5) and age 40+ (AOR 1.9:1.1-3.3). 38.4% (122/318) MSM episodes identified venues/networks; saunas (60), gay nightclubs/bars (39) and internet/chatlines (28). 10.6% (12/113) heterosexual episodes identified nightclubs/bars, with no venue identified by more than one episode. Partner notification identified 18.3% (57/312) MSM and 20.9% (23/110) heterosexual episodes ($p=0.54$).

Safer sex messages should highlight that unprotected oral sex is a major route of infection for syphilis for both MSM and heterosexuals, and continue to promote the need to limit numbers of partners. Partner notification is an important secondary prevention activity for both heterosexuals and MSM. Currently venue/network outreach is practicable only for MSM.

A national outbreak of *Shigella flexneri* serotype 3a in MSM, United Kingdom, 2009-2011

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Aims

Cases of *S. flexneri* in the UK are usually travel-related, however an increase in UK-acquired cases was identified in 2010/2011. Initial cases occurred mostly in men who have sex with men (MSM) and were of serotype 3a. A national outbreak investigation was launched to describe, monitor and manage the outbreak and identify associated risk factors.

Methods

Enhanced surveillance was conducted from September to November 2011. *Shigella* isolates were forwarded to the national reference laboratory for serotyping, PFGE analysis and sensitivity testing. A questionnaire was completed for UK-acquired *S. flexneri* cases or cases associated with travel to countries with low risk for *Shigella* infection. In depth interviews with confirmed MSM cases were held to identify risk factors for infection. Long-term trend data from the national reference laboratory was also analysed to determine when the outbreak started and to provide context.

Results

Data analysis revealed a 28% average increase in cases since 2009, mostly attributable to a rise in serotype 3a in male cases aged between 30-50 years.

Enhanced surveillance detected 36 UK-acquired *S. flexneri* cases, 30% of which were confirmed in MSM. Almost half of the MSM cases were diagnosed with serotype 3a. Although the interviewed MSM cases led a relatively low risk sexual lifestyle, they all reported having a casual sexual partner in the week preceding

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illness. They were also unaware of *Shigella* and of the risks associated with unprotected oral and oroanal sex.

Conclusions

Shigella spp. surveillance is being reviewed in order to identify reasons for the delay in identifying the outbreak, which appeared to begin in 2009. Despite considerable likelihood of under-ascertainment of MSM status, enhanced surveillance revealed a high incidence of *S. flexneri* in MSM.

The outbreak will continue to be monitored through routine arrangements and further work to investigate risk factors for transmission among MSM is planned.

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Impact of the new UK HIV guidelines on HIV testing and early diagnoses in Northern Ireland

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Background

HIV diagnoses at late stage remain a challenge in Northern Ireland (NI) despite new HIV guidelines (2008) promoting testing in all facilities. We explored the impact of these guidelines in terms of (1) testing by healthcare setting and (2) disease stage at diagnosis before (2000 -2008) and after (2009-2010) issuance.

Methods

We obtained a regional dataset with HIV tests performed 2000-2010. We matched the regional database of positive results with enhanced surveillance database of first-UK diagnoses made in NI using gender, date of birth and date of test. We described HIV testing by year and healthcare setting. We used logistic regression among first-diagnosed HIV cases to identify factors associated with CD4 count <350 cells/mm³ (a proxy for late diagnosis) through calculation of odds ratios (OR) for 2000-2008 and 2009-2010.

Results

Of 161,974 tests performed in 2000-2010 in NI, 69.4% occurred in 2000 -2008 and 30.6% in 2009-2010. Highest increases between 2000 and 2010 occurred in Genitourinary medicine clinic (GUM, 1,482 to 14,583, +984%), hospitals (914 to 8,542, +957%), and primary care (504 to 1,832, +340%). We matched 71% (396/558) of enhanced surveillance records to laboratory database. Overall, 69% (273/396) of diagnoses occurred in GUM and 7% (28/396) in primary care. In 2000 - 2010, 49% of newly diagnosed HIV patients had CD4 count <350 cells/mm³. Persons diagnosed in 2009-2010 were more likely to have a CD4 count > 350/ mm³ (OR 0.58, 95% confidence interval [CI] 95% 0.37-0.92).

Conclusions and recommendation

Testing increased in all settings from 2000 to 2010, with more early diagnoses in 2009- 2010. Remaining barriers to HIV testing in primary care must be identified and addressed.

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Gonorrhoea in young heterosexuals: outbreak management and getting the messages heard

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Background

Increases in gonorrhoea infection in young heterosexuals have been reported in two distinct areas of the North East of England over the past 6 months. Multi-agency working between GUM, public health, health protection and communication teams has attempted to increase awareness and reduce transmission. From initial case and partner notification information, there appeared to be misunderstandings about the routes and risks of transmission, along with a perception that a negative chlamydia test could be regarded as an STI 'all clear'.

Methods

Following the report of increase in area 1 in September 2011, a number of interventions were put in place, including enhanced surveillance, network mapping of contacts and cases, raising awareness amongst healthcare professionals, other organisations working with young people and with young people themselves. An increase in cases in area 2 was reported in November 2011. Similar interventions are being introduced and ongoing work to explore any links between the clusters.

Results

65 cases of gonorrhoea have been reported in area 1 since May 2011 (compared to a usual annual number of 15); in area 2 clustering of cases has occurred at higher rates than previously seen, although overall number of cases has not increased. Partner notification and network mapping has shown multiple casual partners although no large extended sexual networks. Dual-testing of chlamydia screening samples is now being considered to further outbreak control.

We report the lessons learned from managing these two clusters and how they can be applied to future STI clusters.

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Wednesday 2 May 2012

Session IV

Travel Infections: Excess Baggage

Audit of usage of Quantiferon Gold TB Interferon Gamma Release Assay in the Belfast HSC Trust

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Introduction

Gamma-interferon detection is a critical tool in tuberculosis (TB) control programmes. It helps optimise use of healthcare resources by limiting clinic visits, reducing unnecessary treatment or referrals and reducing contact tracing workload. This test has been regionally funded for 4 indications namely occupational health screening, contact tracing, new UK entrant screening and investigation of complex clinical TB cases.

Aim

To classify and compare local usage with regionally funded indications and determine compliance with national guidelines.

Method

A retrospective review of TB Quantiferon requests from September 2007 to June 2011.

Results

Some 372 Quantiferon requests were made during the study period with significant increase in requests over the years. One in five were positive. The highest positivity rate of 1 in 2 was in the non EU patient population compared to 1 in 7 in those of perceived British/ROI nationality. Occupational health was the main test user with about 40% of the total requests. Contact tracing contributed about 15% of total requests. Over 25% of the requests were sent to investigate active TB which may be contrary to HPA recommendations. Over 10% of requests were made prior to commencing biological treatment which is currently not one of the regionally funded indications. The remaining requests were from new entrant screening and other non-funded indications. Over half of Occupational health requests were sent appropriately after a positive mantoux screen but 1 in 10 requests were sent despite negative mantoux results and over a quarter had no prior mantoux screen.

Conclusion

There has been significant rise in quantiferon requests over the years. Although occupational health is the main user, significant test usage is for non funded indications in particular pre-biological treatment. Funded indications need to be reviewed in view of the new UK NICE guidelines currently awaiting approval in Northern Ireland.

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Port of entry migrant screening programme for tuberculosis: should we have the same priorities? – United Kingdom, 2009/2010

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Aims

Tuberculosis (TB) incidence in migrants into the United Kingdom (UK) sharply increased since 2000. To reduce importations, Heathrow and Gatwick airports screen new entrants >15 years of age, from countries with annual TB incidence >40 per 100,000 population, who intend to stay >six months, using chest radiography. We studied a cohort to estimate the yield and accuracy of screening and to identify risk groups.

Methods

We followed new entrants screened between 10.06.2009 and 30.09.2010 for subsequent TB diagnosis (UK standard definition). We used probabilistic methods to match key identifiers with cases identified from the national Enhanced TB Surveillance (ETS) until 31.12.2010. We considered cases reported within three months of entry as screening consequences. We calculated the yield, sensitivity, specificity and predictive values of screening. We used Poisson regression to identify groups at increased risk for TB diagnosis in

ETS, controlling for nationality, immigration status, age and sex.

Results

Of 200,199 entrants followed, screening identified TB in 678 (0.34%) and ETS subsequently captured 90 cases (0.04%, 59 of which within three months). Thus, screening yield was 0.03% (59/200,199) for a positive predictive value of 8.7% (59/678), a sensitivity of 60.2% (59/98) and a specificity of 99.7% (199,482/200,101). Refugees and entrants from countries with annual TB incidence >150 cases per 100,000 population were more likely to be diagnosed with TB in ETS (adjusted relative risk (RR) 4.3, 95% Confidence Interval [CI] 2.2-8.3 and RR 5.8, 95% CI 3.6-9.3, respectively).

Conclusions

TB screening of entrants has a low yield, low sensitivity and very low positive predictive value. Selective screening or post-entry follow up of refugees and persons from countries with TB incidence >150 cases per 100,000 population could improve the programme.

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TB or not TB? A case of late diagnosed MDR TB in a student from the former Soviet Union

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Background

Countries of the former Soviet Union have higher rates of multi-drug resistant tuberculosis (MDRTB). Within one-week of arriving from Kazakhstan, a student presented to A&E. X-ray reported as suspicious for TB, but was not followed up. Case attended classes and six weeks later saw a GP who suspected TB. Thereafter, case checked into hotel to await confirmed diagnosis.

Aims

- Identify potential transmission.
- Examine missed opportunities.
- Determine responsibility for screening costs.

Methods

- Identify contacts.
- Screening to identify cases of 'open TB' before they depart for home on international flights.
- Obtain passenger details for contact tracing.
- Obtain patient records; interview school and hospital staff to record events.

Results

- Forty-one students from 19 countries identified as contacts; eight were still in UK; five were screened.
- No abnormalities detected; students allowed to travel home with instructions.
- Six passengers identified. One UK resident identified and followed-up by HPA.
- X-rays and drug sensitivities forwarded to health authorities in contact's home countries.
- Treatment for communicable diseases is free to visitors (DoH guidance); screening is not treatment, and in order to follow WHO guidance screening costs were absorbed by the NHS.

Conclusions

The missed opportunity to recall this case led to higher NHS costs and greater number of contacts. Training for healthcare practitioners includes risk factors and clinical symptoms of TB; this case presented with a full house of signs and symptoms, nonetheless a differential diagnosis of TB was missed. A&E departments ought to record patient contact details and recall patients and/or alert GPs following any abnormal test results.

Central Government ought to set rules for foreign language schools and other such establishments regarding pastoral care for international students.

DOH to formulate guidance on financial recovery for NHS organizations following similar screening exercises.

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Wednesday 2 May 2012

Session V

HCAI: Role of health protection

***Clostridium difficile* infection associated with primary and/or community settings in Northern Ireland: prevalence, ribotypes and risk factors**

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Aim

To describe the epidemiology of *Clostridium difficile* infection (CDI) in primary and community care settings in Northern Ireland.

Method

Enhanced surveillance of CDI in community and primary care settings was introduced in April 2010. Since January 2011, CDI enhanced surveillance proformas have been completed for all CDI specimens taken in care homes and requested from GP surgeries. Data includes patient demographics, residence, prior exposure to antimicrobials and gastrointestinal drugs, previous hospitalisation and CDI ribotype. Cases were differentiated according to likely associations (healthcare onset or community onset).

Result

There were 371 cases of CDI in acute and community settings from 01/01/2011 – 30-06/2011. Of these, 273 were hospital onset, 96 were community onset (5.3/100,000 population) and 2 were from a hospice. Of the 96 community-onset CDI cases, 72% were females (69/96) and 86% were aged 65 years and over (83/96). Almost half of the cases were living in a care home (47/96; 49%). 46% (44/96) of the community-onset cases had received antimicrobial therapy in the previous 1 to 4 weeks prior to CDI onset. 45% (43/96) had received GI therapy. 86.5% (83/96) had some form of healthcare contact prior to symptom onset. Ribotype 078 was the most prevalent for 'community onset-community associated' and 'community onset-hospital associated' cases (13/66; 20% and 6/24; 25% respectively).

Conclusion

The incidence of CDI in acute settings in NI has decreased significantly since January 2009 yet the

incidence of community CDI has been increasing. The use of antimicrobial and GI therapy and previous healthcare contacts are likely risk factors. Similar to the acute setting, ribotype 078 dominates among community CDI cases in NI. This programme of surveillance represents a unique data source, facilitating detailed analysis of the epidemiology of community CDI cases. This will guide effective methods of infection prevention and control.

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Prevalence of infections and antimicrobial use associated with care (nursing) homes

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Aims

To investigate the burden of infections and antimicrobial usage associated with care (nursing) homes within the health board. The six months project was designed to explore the gaps in infection prevention and control practices within care (nursing) homes and to recognize their needs around education, training policies and the burden of infections.

Method

An adaptation of the HALT 2010 questionnaire was used for the study. The survey was carried out using two questionnaires; the facility questionnaire recorded information surrounding the characteristics of all the residents within the care home; whilst the resident questionnaire captures the data on residents presenting with signs and symptoms of infection and/or antibiotic use on the day of the survey.

Result

To date 20 care (nursing) homes across the health board) with a total of 957 available beds has been surveyed, with 860 resident eligible to be included in the surveillance. 421 (48.9%) of the residents were greater than 85 years of age, 30.8% of the population were male, and the prevalence medical devices (urinary, supra pubic and venous catheter) was 9.5%. Signs and symptoms of infection were reported on 3.2% of the residents, with a further 1.6% of residents' prescribed antibiotic therapy.

Conclusion

Following the establishment of health boards in Wales in 2010, and a new Welsh Assembly Government Strategy for Eliminating Preventable healthcare Associated Infections (2011) it remains unclear whose responsibility is to provide the infection prevention and control service for care (nursing) homes. This prevalence survey has provided intelligence on the burden of infections associated within care (nursing) homes as well as the burden of medical devices which links well to the patient safety campaign in Wales. The intelligence gathered during the project will assist the health board to identify the resource required to provide infection prevention and control advice to care (nursing) homes within the locality.

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Wednesday 2 May 2012

Session VI

Hot topics

A cryptic triptych

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Aim

To illustrate a local health protection unit's response to three simultaneous but sporadic cases of Pantone-Valentin Leukocidin associated *Staphylococcus aureus* (PVL-SA) that were, upon investigation, socially and geographically linked. Review current management protocols.

Methods

We reviewed the management of three cases of PVL-SA that were reported to the South West (North) Health Protection Unit during January and February 2012, including the actions taken both before and after an epidemiological link was established. We considered the role of the Health Protection Agency's proprietary incident management database (HPZone) and identified system barriers and practices that may have impaired an effective and timely response.

Results

HPZone failed to link the three cases due to a number of issues, including: student GP registration details outside of the geographical area of the index case; multiple ways of recording the same clinical presentation; absence of critical contact information; students using local equitable access primary care facilities rather than registering with local term-time GP practices. Additionally, data linked to addresses of interest may prove to be signals rather than noise and care should be taken with regards to their investigation.

Conclusion

Our triptych of cases demonstrates how reliance on HPZone for the linking of cases can result in a delay in identifying clusters or outbreaks, particularly in student populations or for persons with more than one postal address. Whilst it can provide a powerful tool to support cluster/outbreak investigation, specific practices and advanced techniques may help to link existing cases and allow for earlier public health intervention. Furthermore, the importance of

getting out of the office (or acute response centre) to investigate cases, clusters and outbreaks should not be underestimated. We learnt a lot about the situation upon making a visit to their residence, in addition we are minded to say perhaps the management protocols ought to be reviewed especially in the context of fomites as a mode of transmission as this was one of our concerns when we made the house visit.

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Planning and implementation of the national human papillomavirus vaccination programme in Ireland

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In January 2010 the Department of Health and Children announced the decision to implement a national HPV vaccination programme for all girls in first year of second level school to reduce the risk of cervical cancer. This presentation outlines the challenges to the planning and implementation of this programme.

An options paper was prepared for the vaccination of a double cohort of girls (to include the 2009/2010 and 2010/2011 cohorts ~ 60,000) aiming for a vaccine uptake of 80%. An implementation plan was devised incorporating governance, training, communications and information materials, vaccine procurement and information technology (IT).

It was agreed to start the programme in 21 schools in May 2010 with full roll out in 735 schools from September. A national training plan was developed and delivered to health professionals. This included the development of medication protocols for the administration of HPV vaccine by nurses.

Information materials for health professionals and parents were designed and distributed and a new interactive website www.hpv.ie developed. Extensive liaison took place with the Department of Education, school management, parents' organisations and other relevant bodies.

Vaccine was procured and distributed and an enhanced reporting mechanism to monitor adverse events was introduced. A standardised method to monitor vaccine uptake in the absence of the planned IT system was put in place.

Challenges included scheduling the required three vaccine doses in the academic year, scheduling the different timings for the May and September cohorts, nurse vaccination, running mop up clinics and adverse publicity.

The HPV vaccination programme commenced as planned for all girls in first year in 2009/2010 and 2010/2012 (total cohort 58,096). Uptake for three vaccine doses was 81.8% (48,429) which exceeded the target of 80%. The lessons from this successful roll out will be used in other school based immunisation programmes.

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A family tuberculosis cluster in Lanarkshire, 2011

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Aims

Following a number of hospital admissions, smear positive tuberculosis (TB) was diagnosed in a young woman previously treated for latent TB. We describe the resultant TB cluster in Lanarkshire, Scotland, which necessitated screening in nursery children and hospital contacts. Learning points included the management of latent TB and the use of IGRA testing in a community setting.

Methods

Initial investigation identified the need for extended contact tracing. In addition to screening of social contacts, risk assessment and screening in a nursery and among hospital contacts was required. All children and staff in the nursery were offered screening. Children under 2 years of age were offered chemoprophylaxis until testing was complete. Hospital systems were used to identify potential contacts from hospital admissions and risk assessment was used to identify those requiring IGRA testing.

Results

Three cases of active TB were identified in this family cluster. Latent TB was identified in 3 further household members and in 3 social contacts. No cases of TB were identified in the nursery. Of the screened hospital contacts 5 had evidence of latent TB. The MIRU profiles of these cases were indistinguishable. There was a clear link with a previous case of TB in the West of Scotland of which the index case had been a contact.

This investigation had significant resource implications. The use of IGRA testing in a community setting proved particularly challenging.

Conclusion

The TB cluster may have resulted from incomplete treatment in a patient with latent disease. Delays in diagnosing the onset of active disease may have contributed to transmission of the disease and impacted on the scale of the investigation. This incident highlights the need to raise awareness of TB amongst clinicians. Methods of highlighting a diagnosis of latent TB in case records are being trialled.

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HPA and CIEH collaboration: up and running!

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Aims

Health Protection Units (HPU) of the Health Protection Agency (HPA) and Local Authority Environmental Health Practitioners (EHP) work closely together every day to protect the health of their local populations. With significant changes to the public health role and functions of these organisations in the near future, the HPA and Chartered Institute of Environmental Health (CIEH) have been actively working in collaboration to strengthen these working arrangements through local and national initiatives.

Methods

In 2011 the HPA approached CIEH to identify public health issues where collaborative working could



drive forward improvements and consistency in local partnerships between HPU and EHPs.

Results

The first step in this process was completed in May 2011 when the HPA, CIEH and Local Government Group signed a joint statement commending a 'Model Memorandum of Understanding between Health Protection Units and Local Authorities', to clarify roles and responsibilities on health protection issues.

At the same time, they began collaboration on the HPA National Communicable Disease Outbreak Plan which is currently in its third draft.

At a local level two EHPs, from Surrey and Sussex HPU and Lewes District Council, produced the Health Protection Regulations 2010 Toolkit to complement the Department of Health guidance. In July 2011 CIEH launched the toolkit as a national web based practical suite of documents to assist EHPs when exercising their powers under the Regulations.

The most recent collaboration resulted in a joint policy from the HPA and CIEH entitled 'Public Health Operational Guidelines for Typhoid and Paratyphoid (Enteric Fever)' launched on 10th February 2012 at CIEH, London.

Conclusions

The HPA and CIEH recognise that working together to protect public health is important to make effective use of resources and expertise and to ensure the highest levels of health protection, particularly during the transition period whilst Public Health England is established.

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Poster Abstracts

Surveillance: Data, Information or Intelligence?

'CHIPS' - Child Health Immunisation Process Standards

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Aims

To ensure quality in the Child Health System for immunisations in Wales by implementing nationally agreed standards and audit which promote consistency in appointing, data collection, reporting and surveillance data quality; underpinning efforts to improve immunisation uptakes and eliminate inequalities.

Methods

National Minimum Standards for administration procedures in childhood immunisation were implemented in December 2010. In the summer of 2011 an audit was undertaken to provide a baseline for comparison with future audits, in the expectation that these standards, along with regular audit, will improve practice across Wales positively impacting on childhood vaccine uptake rates.

The standards

- Completion of scheduled and unscheduled immunisation forms
- Basic house-keeping and data cleaning
- Maximum age for inputting immunisation data
- Call and recall procedures
- Management of 'living in, treated out' children
- Management of 'living out, treated in' children
- Timeliness on inputting data and immunisation outcomes
- Clinic scheduling
- Missed appointments, outstanding lists and no consents
- Immunisation status reporting and recording
- Local and national audit, monitoring and improvement
- Reporting immunisation at a national level

Conclusion

The results of the baseline audit show that Health Boards in Wales are meeting or exceeding many of the standards, areas for consideration to increase overall compliance include:

- Ensuring formal arrangements are in place with neighbouring areas to share information about children living in one area and vaccinated in another
- Ensuring a mechanism is in place to monitor the return of forms sent out by Child Health departments
- Producing a vaccine history for children entering primary and secondary school
- Annual audits

We believe Wales is the first country within the UK to implement and audit such standards at a national level.

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Changing profile of tuberculosis cases in Northern Ireland, 2000-2010

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Background

Changing immigration patterns can influence the profile of tuberculosis (TB) cases. The epidemiological profile of TB cases in Northern Ireland (NI) is changing, with an increasing proportion of foreign-born cases. This study presents an overview of TB cases in NI 2000-2010.

Methods

Data on TB cases reported to the Enhanced Tuberculosis Surveillance System, 2000 to 2010 were analysed. Median intervals and inter-quartile ranges (IQRs) were calculated by UK-born / non-UK born and by age. Differences were compared using chi square test and logistic regression; results are presented as odds ratios (OR) with 95% confidence intervals

(95%CI). P values < 0.05 considered statistically significant.

Results

715 TB cases (65% UK-born, 32% non-UK born, 3% unknown). Non-UK born cases increased from 7% in 2000 to 53% in 2010 (OR 15.99, 95% CI 5.17-49.46). 40% of all cases in the 15-44 year age-group, (17% in 2000 - 51.5% in 2010). 51% of cases over 65years in 2000 decreasing to 29% in 2010. Foreign-born cases significantly younger (median 32 years, IQR 27-42) than indigenous cases (median 64years, IQR 46-76). Clinical presentation: pulmonary 66% (n=470), extra-pulmonary 34% (n=245), the latter more common in foreign-born cases (OR 2.24, 95% CI 1.32-3.78). Mean times from onset to start of treatment, 67 days (IQR 32-124), no statistical difference between the two groups. 80% (8/10) of MDR/XDR cases foreign-born. The odds of cases being lost to follow-up for treatment outcome significantly more in foreign-born cases (OR 8.54, 95% CI 2.96-24.67).

Conclusions

The profile of TB cases in NI has changed in the last decade. This change has been influenced by immigration, reducing the age profile and contributing to increased numbers of multi-drug resistance. The increasing proportion of foreign-born cases highlights the need to have an integrated culturally sensitive service for new entrants and TB cases to ensure optimum access to diagnosis and treatment.

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Cryptosporidiosis: a swimming pool related outbreak in the midst of a cluster of unknown aetiology

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Background

Eight cases of cryptosporidiosis were notified within a 16 day period in Fife, August 2011. Prompt recognition of this unusually high rate of notifications enabled rapid institution of an incident investigation. In total, 23 cases of cryptosporidiosis were notified in Fife residents between August 14th and October 14th 2011.

Objectives

The aim of the investigation was to determine the causal factors for the outbreak in order to implement relevant control measures to mitigate the incident.

Methods

An Incident Management Team (IMT) was formed which coordinated the investigation. Environmental Health Officers (EHOs) rapidly established links between a number of early cases and a local swimming pool.

Results

Investigations into the pool identified water treatment system failures in addition to sub-optimal water treatment practices. This was compounded by multiple faecal incidents. Although the swimming pool constituted a possible exposure route for nine cases it could not account for the majority of cases. Many non-conclusive exposure routes were identified for the outstanding cases including animals, foreign travel and outdoor recreational activities.

Conclusions

This incident appeared to comprise a swimming pool related outbreak in the midst of a cluster. Even if we conjecture that the pool was a causal factor for a subset of cases there was still a vast excess of cases out-with the expected notification rate during this two month period which begs the question of how we account for the additional cases.

Following this investigation, practices at the swimming pool were revised in addition to implementing various primary prevention strategies. Not only did this incident provide opportunities to improve practice but it highlighted how integral the notification system is to the public health service. Trends out-with baseline rates are recognised promptly which allows timely instigation of investigations which can limit the potential impact of an outbreak.

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Descriptive epidemiology of *Cryptosporidium* followed by analysis of risk factors between *C parvum* and *C hominis* in Northern Ireland

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Cryptosporidium is an important cause of diarrhoeal disease worldwide. There are many different types of *Cryptosporidium* with at least two species causing human illness. *C. hominis* has a narrow host range, almost exclusively associated with infection in humans. *C. parvum* has a broad host range of animals and humans

Aims

To establish current incidence, geographical and seasonal variation of cryptosporidium cases and to compare the epidemiology of reported cases of *C. parvum* and *C. hominis* in Northern Ireland.

Methods

All laboratory confirmed *Cryptosporidium* cases reported from 1 January 2004 – 31 December 2010 were analysed for trends, seasonality and geographical distribution while risk factor exposures for *C. hominis* and *C. parvum* were obtained from EHO questionnaire received between January 2009 to June 2011. Data was analysed in SPSS Version 18.0. Univariate analysis. Chi square test using Yates correction or Fisher's exact test for categorical variables and independent t-test for continuous variables.

Results

- On average 118 *Cryptosporidium* cases are reported annually (7.1/100,000 population)
- Incidences were high in rural areas
- *Cryptosporidium* incidence rise in the spring and often a further small peak in the autumn
- The majority (158/30, 84%) are *C. parvum*
- Foreign travel is more associated with *C. hominis* than *C. parvum* (p 0.01)
- Animal contact is more associated with *C. parvum* than *C. hominis*. (p 0.01)
- No significant difference in risk for age, gender, drinking water, swimming pool, food/drink, contact with person with diarrhoea, and farm/zoo visits between *C. hominis* and *C. parvum*.

Conclusions

Routine cryptosporidium genotyping in NI has demonstrated that the epidemiology of *C. parvum* and *C. hominis* is different and is consistent with other UK studies. Combining these genotype may lead to misleading findings especially in a rural region where the cattle population approximates to the human population (1.7 m).

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Implementation of a single common epidemiological software package across Wales as a resource to support outbreak investigation

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Aims

To implement a single software product to be used for outbreak investigation and analysis by health protection professionals across Wales.

Methods

A technical appraisal of four software products; Epi Data, Epi Info for Windows, Microsoft Excel and Microsoft Access was carried out to assess longevity, usability, robustness and installation across a network. Two products were ruled out and two products recommended from this appraisal stage were further tested to evaluate usability, entering data, analysis of data and creating outputs. Once a product was selected for use, training was cascaded to health protection and environmental health staff across Wales. The training programme was then evaluated.

Results

Microsoft Excel should only be used for ad-hoc manipulation of data as it represents an unsafe method of collecting and storing data. Epi Data and Epi Info for Windows both provided acceptable tools for the collection of data and were more easily utilised than Microsoft Access. Epi Data and Epi Info for Windows can also be used to undertake basic statistical analysis required for outbreak investigations. Epi Data and Epi Info for Windows were therefore selected for user acceptability tests. This process identified that while

Epi Info allowed for easy data entry, data manipulation was not as intuitive. In comparison, Epi Data was straightforward to use in both aspects. Results of user acceptability survey following the role out of Epi Data training in Wales will be presented.

Conclusions

Epi Data was identified to perform satisfactorily to the level required by public health professional involved in outbreak investigations. Training was successfully cascaded, improving preparedness for future incidents and outbreaks.

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Is there a practical benefit from linking two *Clostridium difficile* surveillance datasets?

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Aims

We aimed to improve our understanding of the epidemiology of *Clostridium difficile* infection by linking data from the HCAI data capture system and the North East *C. difficile* Ribotyping Database (NECdRD). We combined information from these two systems in order to investigate whether identified ribotypes were associated with those samples that were Trust-apportioned, community or hospital specimens, and different specialities.

Methods

Data from the HPA HCAI data capture system and the NECdRD were used. The NECdRD is a regional project which aims to ribotype any toxin positive *C. difficile* sample in the north east of England. Samples taken from July 2009 to December 2010 and processed in a North East laboratory were included in this study. Records from the HCAI Data Capture System were matched to data from the NECdRD using NHS number as a unique identifier. Matching was undertaken in Microsoft Access. Data validation and subsequent analysis was undertaken using Microsoft Excel and STATA v11.2.

Results

Of the 1621 records on the NECdRD, 1513 (93.3%) had a NHS number. Of these, 89% (1345/1513) were matched to a corresponding record on the HCAI Data Capture System. Approximately 18% (240/1345) of samples were submitted from a community setting. Ribotypes significantly associated with Trust-apportioned cases were 016 (RR 1.92 95% CI 1.16-3.16) and 106 (RR 1.67 95% CI 1.17-2.36). Ribotype 027 was associated with samples from geriatric medicine (RR 1.78 95% CI 1.15-2.75).

Conclusions

Linking information from these two datasets provided intelligence about the epidemiology of *C. difficile* that was more detailed than that which was available from examining the two datasets independently. The association of certain ribotypes with samples from the community and from various specialities is of interest and deserves further research.

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Mumps surveillance: Cost implications of testing too early

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Aims

Mumps is a notifiable viral disease. Testing should be done 2 – 6 weeks after the onset of the first symptoms. This audit aimed to assess whether testing kits were being used at the right time, positivity rates and any cost benefit in later testing.

Method

Retrospective review of 50 consecutive cases notified to the HPU within a three month period with a possible diagnosis of mumps.

Data analysed:

- Date saliva test kit sent
- Date of saliva specimen
- Final result

Intervention: delay implemented to sending of testing kits.

Further 62 consecutive patients reviewed within another three month period 10 months following

implementation of the intervention. Results compared to the first round. Cost benefits calculated using Colindale cost estimates for serology testing and PCR testing (necessary for samples taken prior to 7 days post symptom-onset).

Results

Round one: all saliva testing kits used before two weeks testing timeframe.

Round two: 40% kits used within testing timeframe.

	Positive results	Negative results	Testing kits not returned
Round One	12%	52%	36%
Round Two	11%	42%	47%

Cost benefit = 25% saving to wider service.

Conclusions

More samples being taken at the right time should have reduced any false negatives during the second round. This has not translated into a rise in positive diagnoses from saliva testing kits, nor a rise in patients admitted with mumps suggesting missed diagnoses.

Unreturned testing kits increased in the audit second round, and early samples being sent for PCR dropped to zero. This confers a cost benefit of 25%, which could be increased if testing kits were only sent to those patients who still needed them. Test results are purely a surveillance tool, so a delay in diagnosis does not impact on patient care. As such there is little evidence to warrant additional costs.

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Regional audit of neonatal BCG programme in Northern Ireland

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Aims

Regional audit to establish whether the neonatal BCG programme in Northern Ireland is achieving the standards on tuberculosis (TB) prevention, set out in the Regional Service Framework for Respiratory Health and Well-being and developed in accordance

with national recommendations from NICE guidance on TB and the Green Book.

Methods

Three criteria were developed in line with the Service Framework: TB risk assessment should be performed on all newborn babies (standard = 100%); BCG vaccine should be offered to all eligible babies (standard = 100%); and eligible babies should be offered the BCG vaccination within 8 weeks (standard = 100%). Data were collected from the Northern Ireland Child Health System (CHS) in September 2011, for live births born between 1st April 2009 and 31st March 2010, then entered and analysed on an Excel database.

Results

25,544 live births in Northern Ireland during the study period. Criterion 1: 97% (24,806/25,544) of live births had TB risk assessment recorded, ranging from 96% to 99% in trust locations. Criterion 2: 5% (1,418/24,806) of live births had one or more TB risk factor, ranging from 3% to 7% in trust locations. 78% (1,116/1,418) of live births with a record of 1 or more TB risk factor, received BCG vaccine at some point between their birth and 15 to 28 months of age, ranging from 72% to 85% in trusts locations. Criterion 3: 96% (530/552) of live births (for whom information was available) received BCG before 3 months of age.

Conclusions

The Public Health Agency TB Action Plan, 2011-2013, prioritised the review of BCG programmes, following the 2006 DHSSPS recommendation to change from the universal programme to a risk based programme. This audit demonstrates variation in uptake and highlights the importance of monitoring uptake to ensure high levels are achieved after the introduction of a new programme.

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Reporting of drinking water exceedances to the Northern Ireland Public Health Agency (PHA)

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Aim

Regional interagency guidelines require water quality exceedances, of public and private drinking water supplies, are reported to the Public Health Agency (PHA) Health Protection Duty Room where they are triaged, assessed and managed according to agreed protocols. Reports and actions are recorded on HPZone.

This paper describes the number and range of exceedances during 2011 and subsequent Public Health response in a mainly rural region with a population of 1.8 million. NI Water (NIW) provides information on the public drinking supply, the Drinking Water Inspectorate (DWI) supplies data on registered private supplies, Environmental Health Departments (EHDs) report on water quality exceedances from both public and private supplies obtained in response to complaints, inspections and random sampling.

Method

Data were extracted from HPZone. Monthly validation of reports is undertaken with each data provider. Analysis was undertaken by type of supply, nature and extent of exceedance, month of report and if a boil water advice notice was issued.

Results

In 2011 there were 249 water quality exceedances (136 chemical and 113 bacteriological) reported to the Duty Room. NIW reported 201 (81%) exceedances, the DWI reported 23 (9%) and a further 25 (10%) by EHDs.

42 boil water notices were advised, one affecting 3000 properties. 24 samples had an E. coli count >10 cfu/100 ml (max 70). The main chemical exceedances in rank order: lead 27, aluminium 14, iron 10, Ph 9. There were 28 exceedances due to taste and odour and 2 arsenic failures.

There were 27 lead Exceedances reported which resulted in appropriate control and remedial measures being advised to occupiers in relation to replacing lead pipe work.

Conclusion

Responding to water quality issues is an important public health function. Interagency collaboration has facilitated enhanced reporting to the PHA, development of interagency guidelines and response arrangements.

Acknowledgements

NI Water, B Corr and colleagues at the Drinking Water Inspectorate, and local Environmental Health Departments.

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Social deprivation and invasive pneumococcal disease in North-East England

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Background

Some communicable diseases disproportionately affect poor and vulnerable groups and are associated with worse health outcomes. Invasive pneumococcal disease (IPD) is an important cause of morbidity and mortality, however the relationship between IPD and deprivation has not been well described.

Aims

This paper describes the relationship between social deprivation and IPD in North-East England.

Methods

A case was defined as the identification of *Streptococcus pneumoniae* from a normally sterile site with a clinical presentation of IPD between April 2006 and March 2011. An enhanced dataset was collected for each case from hospital and primary care. Socioeconomic deprivation was defined by the 2010 English Index of Multiple Deprivation (IMD) of the lower super output area (LSOA) in which the case was a resident. IMD and individual domains of deprivation were analysed as quintiles using chi square test for trend to assess for simple trends in proportions.

Results

There was a linear increase in incidence of IPD from 6.9 cases/100,000 population in the least deprived quintile to 13.0 in the most deprived ($p=0.00158$). For individual domains of deprivation there were significant linear increases for income; employment; education, skills and training; and health and disability, but not for barriers to housing and services; crime; or living environment. There was a decrease in the percentage of cases in at-risk groups that had received pneumococcal vaccination with increasing social deprivation; 75% in the least deprived quintile to 52% in the most ($p=0.02174$). There was a non-significant linear increase in case fatality rate from 14.8% in the least deprived quintile to 20.0% in the most deprived quintile ($p=0.08027$).

Conclusions

Socially deprived areas of north-east England are disproportionately affected by IPD with less favourable case outcomes. These findings highlight the need to understand the mechanisms by which deprivation is associated with increased incidence.

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South Yorkshire Health Protection Unit pertussis audit and review

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Aim

To audit the compliance of pertussis surveillance and the public health management of cases at South Yorkshire Health Protection Unit (SYHPU), according to the 2011 National Guidelines (version 1.2).

The objectives were to review SYHPU pertussis surveillance against the guidelines; to review SYHPU pertussis public health actions against the guidelines; and to make recommendations for good practice if needed.

Methods

All cases of pertussis notified to South Yorkshire Health Protection Unit and identified using HPZone with a date of onset 1st January 2010 – 31st December 2011 were included.

Each record was checked for reporting of information as set out in the guidelines, and audited against seven standards that addressed completeness of data

recording; the public health management of cases and contacts; and laboratory testing.

Results

66 cases were included in the audit.

For 80% of the cases, public health action for exclusion, antibiotic treatment and prophylaxis of contacts was not indicated because they were notified more than 21 days since symptom onset. For those cases prescribed antibiotics, 68% were prescribed within 21 days of symptom onset, and 77% were given a recommended antibiotic.

In terms of data completion, there was a significant amount of missing information. In particular information was missing for case vaccination status, confirmation that vulnerable contacts were or were not present, and information that would indicate whether or not cases should be excluded.

Conclusion

The management of pertussis cases according to the guidelines is important to ensure that public health actions are undertaken consistently and according to best evidence.

Improvements to the quality of data collection, and raising hospital clinician and GP awareness of the most recent guidelines are highlighted as the key recommendations from this audit.

A re-audit should be undertaken within the next 6 months.

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Time for new tools to turn data into information for intelligent action?

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Aim

Interpreting changes in frequency of rare events is difficult with our usual statistical tools. Automated data collection increases the data volume, but rare events remain. Thus whilst there is no surveillance system for non-infectious hazards, action for infectious diseases is often delayed, despite improved surveillance. Bayesian change point methods offer a possible solution to both these problems.

Method

Weekly notifications of pertussis and reports to Wales CDSC teleconference of cases were tabulated from 2010. The teleconference co-ordinator was asked, retrospectively, to estimate when a sustained rise in Pertussis began. The time Bayesian change point analysis indicated that the rate of notifications rose was compared to this informal estimate.

Results

The mean notifications in 2010/11 and reports to CDSC teleconference were 1.06 and 0.86 respectively. The teleconference co-ordinator reported that he became aware of an increase in mid May. Bayesian change point analysis suggests the sustained rate initially changed in mid April and again in early May, with a likelihood of 0.29 and 0.19 respectively.

Discussion

In this case the clinical impact of an earlier detection would have been minimal. However, CDC uses change point methods with syndromic surveillance to address concerns about biological or chemical attacks. This example suggests that this approach may have uses in local infectious disease surveillance systems too. An advantage this approach has, over current methods, is that, it also gives the probability as well as the size of any change detected, thus giving greater intelligence to HPTs. However, routine use might increase false alerts, so further work is needed before this method became routine in health protection practice. This simple study indicates that development work to refine data analysis methods to maximise the benefit of increased data availability, whilst minimising false alarms is worthwhile.

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Outbreaks: Exploiting Natural Experiments

Cohort study of a dual pathogen point source outbreak associated with the consumption of chicken liver pâté

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Aims

In October 2009, a dual pathogen outbreak of campylobacter and salmonella occurred in which 59 cases were identified among guests attending a regional conference in the north of England. The aim of the study was to identify a vehicle for transmission and support other sources of evidence for the ongoing outbreak investigation.

Methods

A retrospective cohort study was used to investigate the outbreak and active case finding was performed through the conference organisers and environmental health officers. A focused questionnaire was distributed to all guests via the event organisers 10 days after the conference.

Results

Response rate among guests was 61% (107/175). A strong association was found between illness and consumption of chicken liver pâté, supporting the hypothesis that chicken liver pâté was the most likely cause of the outbreak. A logistic regression model produced a highly significant ($p < 0.01$) odds ratio for the pâté of 14.7 (95% CI: 2.5-87.6).

Conclusions

This is the first mixed pathogen outbreak documented associated with the consumption of chicken liver pâté and adds to the evidence of potential hazards associated with the undercooking of poultry livers. A rapid outbreak investigation with collaboration between several organisations and the venue led to identification of the most probable source. Reviews of temperature and duration of cooking are especially important if any changes to standard cooking practices are made. Early identification of unsafe cooking practices in establishments, with generally high standards of hygiene, can prevent future outbreaks.

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Diarrhoea and vomiting outbreaks: we don't know what we are missing?

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Background

Outbreaks of gastro-enteritis are common in care homes, healthcare settings and the wider community. The most common pathogen identified is norovirus with an estimated UK incidence 47.0 per 1000 person-years. However, norovirus is the only virus routinely tested for. The burden of other viral pathogens is not well characterised as testing is not routinely undertaken. Information from the IID2 study shows an estimated incidence of sapovirus 26.1 per 1000 person-years, rotavirus 12.7 per 1000 person-years, adenovirus of 10.2 per 1000 person-years and astrovirus 5.3 per 1000 person-years.

In north east England faecal samples are obtained in approximately 65% of care home outbreaks. In 61% of outbreaks where specimens were obtained norovirus (genotype 1 or 2) was identified but for 39% of outbreaks no pathogen was identified on routine testing.

Aims

To raise questions about routine testing for pathogens in outbreaks that are suspected to be due to a virus but where no pathogen is identified on routine testing.

Methods

We describe two outbreaks, one in a care home and one associated with a catered function, where routine testing for bacteria and norovirus did not initially identify any pathogen, but on further testing sapovirus was detected.

Results

Outbreak 1: Catered event 54/89 guests with diarrhoea and vomiting. Sapovirus detected in 1 specimen. Norovirus detected in 3 later samples.

Outbreak 2: Care home: 45/74 residents and staff with diarrhoea and vomiting. Sapovirus detected in 8 /12 samples.

Conclusion

Sapovirus infection (and other viral gastroenteric pathogens) can produce a similar clinical picture and has the same mode of transmission to norovirus.

HPUs should consider referring samples from outbreaks where no pathogens have been identified for testing for other viral pathogens. HPA should consider the possibility of offering testing for other viral GI pathogens in HPA regional laboratories.

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Direct and indirect costs of nursery closure on parents and impact on children's mixing patterns

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During a nursery outbreak of *Escherichia coli* O157, nine children had suspicious symptoms although only two were laboratory confirmed (seven were negative). The nursery has rooms for children aged 0-3 (rmA) and 3-5 (rmB) years. Since all cases occurred in rmA it was closed for two weeks. The whole nursery was deep cleaned. Guidance issued to parents covered: household infection control measures; symptoms of infection; importance of minimising contact with other children. The outbreak control team surveyed parents to evaluate costs of rmA closure and awareness of O157 risks, as there has been little evaluation of the impact on parents.

A web-based questionnaire surveyed alternative childcare arrangements; additional questions were asked regarding reasons for rmA closure and awareness of O157 transmission. Results were anonymised and analysed using both quantitative and qualitative methods.

The study had a low response rate with 14 surveys completed, covering 14/49 children from rmA and 5/51 from rmB. Over a normal two week period the 19 children attend 126 sessions (half days). For the majority of sessions during closure a parent or family member looked after the children at home and/or worked from home (65%). Children were looked after by family at another home (25%). 79% of parents reported engagements being cancelled due to childcare

constraint. No respondents reported their child attending another nursery, creche or childminder. 64% reported no additional childcare costs. Preliminary analysis showed parents understood and supported rmA closure, although eight respondents felt rmB should also have been closed. Most parents (71%) appreciated the importance of excluding their child from nursery.

Although no conclusions can be drawn because of the low response rate, it suggests there is considerable impact on parents when nurseries are either fully or partially closed. However, parents broadly supported health protection advice given throughout the outbreak.

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Intention to eat analysis – investigation of a *Clostridium perfringens* outbreak by automated menu choice records in a prison setting

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Aim

To investigate an outbreak of *Clostridium perfringens* using automated menu choice records in a prison in North East England.

Methods

Following an outbreak of diarrhoeal illness in a prison, food choice records for the affected house block were obtained to identify potential exposures. This method was chosen in order to extract data rapidly and provide timely results. Therefore, the analysis of the cohort was based on food ordered (intention to eat) rather than food consumed. Univariate analysis was undertaken and the exposures that were significantly associated with disease were further examined using stratification and multivariable regression models. The model was created by including variables with p values <0.05 in a stepwise manner.

Results

A total of 32 individuals reported illness in this outbreak, all with diarrhoea and/or abdominal cramps

and a similar time of onset. There were 10 confirmed and 22 probable cases. Illness was short lived in all cases. Results of faecal samples suggest the cause was infection with *C. perfringens*.

Data analysis showed that illness was associated with eating chicken stir fry. Kitchen practices were deemed to be of a good standard and no significant issue was identified in the food preparation process.

Conclusion

An outbreak of *C. perfringens* occurred in one house block of a prison in North East England.

An analytical study, carried out on an intention to eat basis, suggested that consumption of chicken stir fry was associated with illness. Analysis of such outbreaks using this menu based approach is quick and feasible. Advantages and disadvantages of such methods are discussed, together with implications for prevention and control of such outbreaks in the prison setting.

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Investigating the Ches Vegas strain

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Aims

To investigate a tuberculosis (TB) cluster and demonstrate the benefits of using:

- TB strain typing
- A novel link analysis tool
- A new standardised tool for information collection

Methods

14 cases of TB matched at 24 loci were identified nationally. 9 lived in or had links to Chesterfield. A further 8 cases matched at 15 loci were found to be epidemiologically linked.

A variety of risk factors were identified including homelessness, alcohol dependency and other lifestyles issues.

A novel link analysis tool that has been used by the police and subsequently developed by EMN HPU was used during the investigation.

A new tool was developed to support the systematic collection of information during interviews with cases.

Results

Epidemiological links were established to a previous TB cluster in the town.

Detailed knowledge of the previous cluster had been lost due to changes in personnel and organisational changes.

Conclusion

TB strain typing proved very useful as it identified initial links that would not have previously been made and helped rule out unrelated cases. This has also led to a more focussed direction of contact tracing with newer cases.

Link analysis provided a unique illustration of the cluster connections, capturing the level of diverse information available relating to contacts including shared social and work activities and spaces. It will be an invaluable resource for preserving and maintaining organisational memory on complex investigations.

The use of a standardised tool assisted a systematic approach to gathering key information. The tool has been adopted as standard by the TB service to improve the efficiency of obtaining the information needed.

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Unexpectedly high tuberculosis latency in a Regency Spa town in rural England

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Background

We would like to present our experience in undertaking a large contact tracing exercise amongst school aged children in a low prevalence, low risk community following the delayed diagnosis of a 16 year old student with highly infectious pulmonary tuberculosis. Revised NICE guidance recommends the use of IGRA testing in large outbreak investigations.

Method

Over 200 children were tested using T-SPOT.TB test. We arranged mass screening over 3 days at the affected school. Children were recalled for repeat blood tests



if results were reported as indeterminate or if they were unable to be bled on their first visit.

Results

16% of those screened in the first tier (i.e highest risk of school/social contact) had a positive IGRA test. Due to this unexpectedly high percentage, screening was extended to the second tier. This yielded a percentage which was considered closed to the expected background prevalence in this community. Two children had slight chest x-ray changes but were asymptomatic.

Conclusion

The unexpectedly high percentage of positive IGRA tests in this low prevalence, low risk community indicates the highly infectious nature of the index case and the consequences of a delayed diagnosis.

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Sexual Health: Unwanted Souvenirs

Antenatal syphilis – should Health Protection Units be more actively involved in case management and follow-up?

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Background

All women in the UK are offered screening for syphilis as part of their antenatal care, and there are clear guidelines for the management of syphilis in pregnancy.

Congenital syphilis is therefore an avoidable condition and efforts of healthcare professionals involved in the care of women with syphilis should be concentrated to ensure this outcome is prevented. In the North East of England, 3 cases of congenital syphilis were reported to the Health Protection Unit in a 14 month period. In two cases, the mothers' infections were diagnosed in pregnancy; in the third case, the mother was diagnosed after congenital syphilis was diagnosed in the baby.

Management of a positive antenatal syphilis result has parallels with the management of antenatal hepatitis B. From 2006 – 2010 between 0.1 – 0.26% of pregnant women in the North East tested positive for HBV; this compares with 0.05 – 0.12% of pregnant women testing positive for syphilis.

Methods and findings

A regional audit of pregnant women with syphilis (2006 – 2010 incl) highlighted some key areas in antenatal management of syphilis (n = 42) including higher proportion of infectious syphilis compared to non-pregnant women, delays in referral to GU services for appropriate management and partner screening, poor communication between specialities, poor screening of partners and poor recording of pregnancy outcomes in GU notes.

Discussion

In antenatal HBV infection, HPU staff work closely with antenatal screening, midwifery and health visiting teams to ensure that the appropriate public health actions (vaccination and serological testing of babies) are carried out. We suggest that consideration is given to providing similar support to the investigation and management of antenatal syphilis and will use data

from the audit and regionally developed good practice guidelines to support this discussion.

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Detection of chronic hepatitis B through antenatal screening in Northern Ireland: what happens next?

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Introduction

Antenatal Hepatitis B screening has been recommended in NHS since 1998, with follow up for both neonate and mother. Antenatal hepatitis B screening in Northern Ireland is carried out in NIBTS. The outcome for the mother with a positive result has not been assessed previously. An increase in referrals to the RVH Liver Unit in the past few years suggests that either the number of positive cases detected is increasing or referral of positive cases to appropriate specialist services is improving.

Aim

To determine compliance with national guidelines on referral and follow-up of hepatitis B positive antenatally screened pregnant women in Northern Ireland.

Method

A retrospective study. The RVL database was searched for all hepatitis B positive pregnant women from January 2004 to December 2010. Maternity case notes were reviewed for evidence of referral to specialist services. Laboratory records were reviewed for subsequent hepatitis serology samples. The RVH GUM database was reviewed for documented evidence of follow up.

Results

We identified 256 hepatitis B positive cases. There was a dramatic improvement in the rate of referral for follow-up over the study period from 8% in 2004 to 49% in 2010. Of the 256 cases, 102 (40%) were appropriately referred to Hepatology/gastroenterology. Of the 102 cases, 84 (82%) had

HBV DNA tested. Of the 256 cases, 157 (61%) had HBeAg tested and of these 33 (21%) were positive. Of these 33 HBeAg positive cases 21 (63%) received appropriate follow up.

Conclusion

Despite a significant improvement in referral rates over the past 7 years, over 40% of women with chronic hepatitis B detected through antenatal screening are not seen by appropriate specialist services. We recommend early patient referral, multi-language information dissemination in view of perceived ethnicity, and GP input in tracking down all pregnant hepatitis B patients lost to follow up.

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Investigation into an increase of new diagnoses of HIV in North East Essex

S Salimee¹, L Emmett², T Elston³, M Ramogi⁴, on behalf of the Incident Management Team

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Background

In August 2010 the HPA was alerted to an increase in newly diagnosed HIV cases in North Essex. A review confirmed a significant increase compared to 2008 and 2009. A multidisciplinary incident management team was established to investigate this further and to make recommendations in light of the findings.

Methods

A database containing epidemiological, behavioural and virological data set was created in STATA. Bespoke questionnaires were completed; one for each HIV case newly diagnosed between 01/01/10 and 31/03/11 and one for each partner identified. Voluntary reports of HIV diagnoses by the local laboratory and GU clinic were obtained. Information was extracted from the local laboratory database and the HPA Recent Infection Testing Algorithm (RITA) surveillance system.

Results

28 cases were diagnosed (9 in 2009 and 13 in 2008). 63% of cases were male, 67% heterosexual and 72% white ethnicity. More cases were diagnosed through partner notification or antenatal screening than in previous years. Five individuals were diagnosed with AIDS defining or conditions where HIV testing should have been offered earlier. 12 cases were diagnosed late (CD4 count <350 cells/mm³ within 3 months of diagnosis). 18 separate sexual networks were identified. A number of cases reported unknown numbers of partners.

Discussion

Several actions were agreed; increasing awareness for primary care staff and increased health promotion activity in the community, including working with local army colleagues. The local sexual health clinic has reviewed their clinic forms. This investigation highlights the importance of partnership working between the HPA and local partners.

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Travel Infections: Excess Baggage

Legionnaires disease associated with a cruise ship

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³ Health Protection Scotland

Aims

Overview of public health management and lessons learnt from a cluster of legionnaires disease on a cruise ship.

Methods

5pm on a Friday in May 2011: Swedish authorities informed UK authorities of a second antigen-confirmed legionella case associated with a cruise ship due to arrive in Fife. Public Health Authorities, Environmental Health Officers (EHO), Health Protection Scotland (HPS) held a Problem Assessment Group (PAG) to assess the situation and arrange detailed investigation and sampling of the vessel.

The Ship's Master agreed to provide summary information for departing passengers, for their GP in the event of illness.

Previous recommendations at another UK port by Environmental Health, advising closure of the spa facility, remained in force. Further recommendations advised following the EHO inspection in Fife were accepted by the Master.

Results

There was strong circumstantial evidence but no proof for a link between the 2 cases and the ship. Controls were in place and risks to passengers and crew minimised.

Conclusions

An early PAG allowed actions to be progressed prior to arrival of the ship. Contacting the ship through the Ship's Agent enabled information to be provided to those passengers who were departing in Fife.

The PAG team established good cooperation with the Master and senior officers of the ship.

There was good liaison with and between national agencies, (HPS, HPA and Swedish authorities). This included: advice on International Health Regulations and role of the Maritime & Coastguard Agency; follow-

up details for possible cases. The Fife investigation requested 'continued control' as the ship left for Sweden. There was some lack of clarity on how this was exercised with a constantly mobile and changing ship population. The presentation will expand on learning points including familiarity with port health procedures and the ability to take on considerable workload to manage such an incident.

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Revised guidelines for the public health management of typhoid and paratyphoid in England

Typhoid and Paratyphoid Reference Group (convened by the Health Protection Agency and the Chartered Institute of Environmental Health)

AL Potter

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Aims

A Typhoid and Paratyphoid Reference Group (TPRG) was convened by the Health Protection Agency (HPA) and the Chartered Institute of Environmental Health (CIEH) to revise the guidelines for the public health management of enteric fever. We present the new guidelines for England and the rationale for the recommendations.

Methods


The reference group made recommendations on the basis of literature reviews, analysis of enhanced surveillance data from England, Wales and Northern Ireland, a review of international and local clearance and screening schedules, and expert consensus.

Results

The evidence and principles underpinning the new guidance are summarised.

There is little recent evidence of secondary transmission causing outbreaks in England despite evidence of poor compliance with extensive clearance schedules.

Travel history is important to determine likely source of infection; enhanced surveillance data shows that 96% of cases who have a travel history develop



symptoms during or within 28 days of return from an endemic area.

Contacts who are co-travellers to a case have a higher risk of developing infection. Otherwise the risk can be managed by a 'warn and inform policy', i.e. informing cases and contacts of the nature of symptoms and advising them to seek help if these symptoms develop within 28 days.

Arising from this, significant changes from previous guidance include:

- algorithms to guide risk assessment;
- rationale for risk assessment and management now defined by both risk group and travel history;
- outline of investigation of non-travel cases;
- simplified microbiological clearance schedules for cases and contacts;
- targeted co-traveller screening and utilisation of 'warn and inform' approach for contacts;
- management of convalescent and chronic carriers.

Conclusions

An evaluation of the guidelines is outlined and will add to the evidence base. The potential for simplification and improved consistency between international guidelines has been identified.

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HCAI: Role of Health Protection

***Legionella pneumophila* serogroup 1 in a birthing pool**

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Aim

We undertook a risk assessment following the finding of *Legionella pneumophila* serogroup 1 in the water from the supplying a birthing pool.

Methods

We worked with the hospital estates department to identify and advise on corrective measures to eliminate legionella. We undertook a literature search with the terms 'infant, newborn' or 'neonate' and 'legionella' to investigate the risk of legionellosis in newborns.

Results

Initial sampling of the Birthing Pool revealed 50 cfu/litre *Legionella pneumophila* serogroup 1 in water from the tap outlet. General control measures including extending water softening to all hot and cold water services, removal of non-essential thermostatic mixing valves, on-going review of 'dead legs' and removal of flexible hoses, and hyperchlorination of the main cold water 'down service' water tank had only a temporary effect. A filter (Pall-AquaSafe Water Filter) was fitted to the tap, but this resulted in unacceptable delay in pool filling, which necessitated adding two further taps. Our literature search found 22 cases of infection in babies under 2 months, two of which were related to water births.

Discussion

We were concerned that water could remain in the pool for up to 2 hours during labour and birth which meant there was a possibility of multiplication to higher counts. There was also a possibility of the baby inhaling contaminated water during birth. As a result of the literature search it was agreed by the local Director of Infection Prevention and Control and the HPU that the pool should remain closed until the feed water was free of legionella.

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Panton-Valentine Leukocidin associated *Staphylococcus aureus* infections in Northern Ireland: Public Health management in the community

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Aims

The reporting of the incidence of Panton Valentine Leukocidin positive *Staphylococcus aureus* (PVL-SA) infections is increasing in Northern Ireland. Data from the enhanced surveillance of PVL-SA reporting was examined in order to inform and monitor the Public Health management of these incidences in the community.

Methods

All PVL-SA cases notified to the Public Health Agency (PHA) for the period 1st January 2011 to 31st December 2011 were reviewed. Data was collected on every notification using an enhanced surveillance form and logged onto HP Zone electronically. Cases were ascertained by notification from local and national microbiology laboratories to the PHA Duty Room.

Results

18 cases of PVL-SA infections were identified which indicates a 50% rise on those reported for the same period in 2010. These were primarily skin and soft tissue infections with most cases occurring in children and young adults. It would appear however, that there were gaps in the awareness of aspects of care and management which were highlighted and identified through review of the data.

Conclusions

More data is needed on the incidence of PVL-SA infections to ensure appropriate assessment of the risk of these infections among patients, thereby avoiding inappropriate identification and management. Contact tracing and co-ordination of decolonisation of close contacts is very resource intensive for primary care. More support is required especially regarding appropriate antibiotic therapy and developing and evaluating effective prevention and control efforts against transmission in the community. The Health Protection team recently revised the guidance and management protocols in an effort to address these

issues. Future interventions such as educational programmes and support need to be considered to raise awareness and knowledge of PVL-SA in the community.

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The impact of clinical pharmacy services on *Clostridium difficile* infected patients' length of stay in a hospital in Northern Ireland

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Aims

To determine the effect of different variables on hospital length of stay (LOS) of patients had *Clostridium difficile* infection (CDI) during *Clostridium difficile* outbreak, in a hospital in Northern Ireland, and whether these patients were hospitalised longer than a control group of patients.

Methods

Logistic regression statistical analysis was performed following univariate examination to different variables (i.e. demographics, CDI classification, past medical history, disease risk factors, antibiotic use and receiving clinical pharmacy interventions), that could affect LOS for CDI patients in Antrim Area hospital. The patients with longer hospital stay than expected were identified as those who had a standardised hospital CDI-episode LOS result >150. LOS of the CDI group of patients was compared with a control group of general medicine patients, who were matching in hospital admission date and age-adjusted Charlson comorbidity index score.

Results

Mean LOS of 178 patients who were diagnosed having CDI upon admission or during hospital stay between April 2007 and December 2008 was 35.46 days [95% confidence interval (CI) 30.29 – 40.62], 39.3% of them had a longer than expected LOS. Eight variables were transferred to the logistic regression run. Only the 'not receiving inpatient clinical pharmacy service

interventions' parameter had a statistically significant relationship with longer hospital stay than expected. Its regression coefficient with standard error (S.E.) was 1.05 (0.37), and the odds ratio with 95% CI was 2.87 (1.38 – 5.96), which was statistically significant ($p=0.005$). The group of 178 control patients had mean LOS of 11.36 days (95% CI 9.09 – 13.63), significantly ($p<0.001$) less than CDI LOS by 24.1 days.

Conclusions

CDI patients stays longer in the hospital than general medicine patients. Inpatient stage clinical pharmacy interventions had a protective role against longer hospital stay than expected for CDI patients, more likely by providing adjustments to their antibiotic treatment regimens.

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Using a risk assessment tool to support the management of HCAI

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Aims

To adapt an existing dynamic risk assessment tool into one that is suitable for supporting the management of health care associated infection (HCAI). Substantial financial, human and social costs are incurred each year as a consequence of HCAI. Management attention has generally focused on human hygiene related behaviours and specific treatment therapies. Dynamic risk assessment should enable other mitigation approaches to be deployed in an appropriate manner to provide more effective management.

Methods

The risk assessment model used in HPZone utilizes five independent risk attributes. These attributes are severity, spread, uncertainty, ease of intervention and context. Each of these is assessed for purpose in HCAI incidents and can be modified if that adds value to its use in HCAI management. The risk attributes require some form of benchmarking to aid consistency.

Participants at the 5 Nations Conference will be invited to score 3 scenarios using the risk assessment tool to determine if the model is fit for use by a group of health protection practitioners.

Results

Results will be based on the scoring of scenarios made available at the 5 Nations Conference.

Conclusions

Risk assessment is one of the main tools the health protection professional can bring to add value to their participation in managing HCAI incidents. Risk assessment should be repeated each time there is a new event or significant new information. Mitigation steps should be developed for each of the 5 variables that are proportionate to the risk and assessed in their effectiveness.

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The value of innovation: a literature review comparing traditional and safer needle technologies in terms of their impact on the epidemiology and cost of needlestick injuries

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Background/Objectives

The UK Government is committed to fostering innovation to improve quality of care and aid productivity savings. A decrease in the incidence of needlestick injuries (NSIs) was observed in the USA due to policy changes in 2000 introducing use of safety-engineered needles. Our study sought to estimate the incidence/prevalence of NSIs among healthcare practitioners (HCPs) by type of needlestick and to examine factors impacting on success/failure of healthcare initiatives founded on innovation.

Methods

A targeted literature review of papers from 2001-2012 was performed to assess prevalence/incidence of NSIs among HCPs. The circumstances of NSIs, including type of delivery device, were explored. Searches for relevant publications were conducted using EMBASE, PubMed, supplemented with a grey literature search and government publications. Search strings included terms concerning NSI epidemiology and risk of blood-borne infections. Results were stratified by HCP type and delivery device (e.g. hollow-bore needle).

Results

Twenty papers were selected for review. NSI incidence was estimated at 0.8–13/100 person-years in the UK (not accounting for under-reporting). Hollow-bore needles accounted for 17.4-68.7% of reported NSIs. Innovative safety delivery devices (i.e. IV catheters) were found to decrease incidence of NSIs in a US-based intervention study from 2.3-2.5/1,000 HCP to 0.2/1,000 HCP within 18 months post intervention. It was estimated that approximately 3,125 injuries could be averted in Sweden by introducing safety devices, which corresponds to cost-offsets of approximately € 850,000 per year.

Conclusions

There is evidence that use of innovative safety devices is associated with decreased incidence of NSI and its associated costs, however, further research on new needlestick technologies such as intradermal devices is required.

Appropriate legislation promoting use of safer devices can play a significant role in fostering innovation. The lack of data in this area highlights the need for improvements in the way the impact of innovative technologies is valued.

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Hot Topics

Adverse events following re-vaccination with childhood vaccines

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Following a vaccine cold chain failure, the viability of vaccines, at two community GP practices was questioned. An Incident Management Team balanced the benefits of revaccinating a group of individuals whom may have not received viable vaccine, against the adverse reactions which may occur from receiving two full schedules of vaccination.

No previous studies have reviewed the effects of multiple vaccinations given to individuals who had received a full schedule of vaccines previously. Most review extra vaccinations or different antigen levels of a singular vaccine. It was decided to re-immunise. Adverse reactions to vaccinations would be monitored using an adverse reaction questionnaire.

A total of 429 people received a revaccination. Of these 77 (18%) completed the adverse reaction questionnaire. A total of 23 (30%) questionnaires did not.

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Assessing tuberculosis policy variation across a small area and supporting policy development for equality and commissioning

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Acknowledgement: TB Teams in West Midlands West

Aims

Tuberculosis (TB) services for the population of the West Midlands West HPU zone are provided by six different teams. The teams deliver services in accordance to local policies developed with each local PCT.

The study aimed to develop a tool that could be used to compare different elements of TB policies across the area. This tool would enable teams to share their practice, supporting service improvement and future commissioning.

Methods

Policy elements from each team were compared using a matrix that grouped different policy themes together. Where an element was included, this was noted in the matrix. If the element could not be found, the box was highlighted.

Results

Every team was able to produce a policy. The existing policies varied greatly between each team. Some teams had an overarching strategy which outlined service aims and listed tasks; while others had in depth Service Level Agreements that detailed required processes for any cases that a team may encounter. Some teams had developed additional policies for specialist areas.

Having a comprehensive strategy can ensure that all patients in that area can expect to receive the same service in accordance to their needs.

Upon further enquiry, it was sometimes found that teams did provide elements of service but did not include them in their policies. This meant that they could miss out on funding through future commissioning and service development.

Conclusions

Teams agreed to share their policies and support each other to develop elements of their service through shared learning.

Teams also agreed to use the matrix alongside the TB toolkit as a commissioning tool to understand how their service can be developed.

This process also supports equality of service provision for patients across the zone.

This methodology can be employed elsewhere to enable policy comparison and development.

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General practice level factors associated with influenza immunisation

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Aim

Describe influenza immunisation uptake and associated factors at general practice level to provide a more complete picture of influenza immunisation uptake in one Welsh Health Board.

Methods

A general practice level, cross sectional ecological study, utilising routine national data and information collected directly from practices by the Health Board.

Results

There is a general, positive association of influenza immunisation uptake between campaign years, and between those 65 years and over and those under 65 in a recognised risk group. In the most deprived areas, there is generally lower uptake in those aged 65 and over which is not apparent in under 65s at risk. There was an apparent association of urban general practices having lower influenza immunisation uptake. Although not statistically significant the association was stronger for the 65 and over group ($p=0.052$) than the under 65 at risk group ($p=0.132$).

55% of general practices were aware of the national target, this was not found to be associated with influenza immunisation uptake.

There was an apparent positive relationship between QoF (Quality Outcomes Framework of GMS contract) achievement and uptake, although this was not statistically significant in either patients aged under 65 at risk ($p=0.205$) or in patients aged 65 and older ($p=0.950$).

Accessibility issues have more impact on uptake in those 65 and over.

Conclusions

Socio economic status is associated with influenza immunisation uptake. As deprivation increases so uptake decreases in the older group and increases in the younger group. Other influences include: QoF, promotional activity, previous year and other risk group performance.

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Increasing influenza vaccination uptake: An evaluation of general practice strategies used in North Yorkshire and York

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Aims

Increasing influenza vaccine uptake in GP practices can prevent a major cause of morbidity and mortality in risk groups throughout the UK. In 2009 a survey was conducted in North Yorkshire to evaluate the methods used in planning, raising awareness and delivering the seasonal influenza vaccine campaign in GP practices. The aim of the study was to find the most effective practice strategies for increasing influenza vaccine uptake.

Methods

All general practices in North Yorkshire excluding the Armed Forces were selected as the sample for this study. 98 practices were targeted for completion of a telephone questionnaire containing questions regarding the previous year's influenza campaign. This information was linked to influenza vaccine uptake and practice factors (e.g. size and deprivation). Negative binomial regression was used to examine associations between practice strategies and uptake levels achieved.

Results

Data was collected from 91% of the practices targeted (88/98). Two multivariable negative binomial regression models were created exploring the statistical association of vaccine uptake, with factors selected on the basis of relevance to clinical practice and statistical significance. Distribution of letters to all risk groups was associated with an increase in vaccine uptake of 4% (95%CI: 0%-7%) in the over 65s and 6% (95%CI: 0%-13%) in the under 65s. A practice's own knowledge of its own uptake rates is associated with a 2% (95%CI: 0%-5%) increase in uptake in the over 65s and 7% (95%CI: 0%-15%) in the under 65s.

Conclusions

Increased vaccine uptake at the upper confidence intervals would reduce morbidity and mortality associated with influenza in risk groups. Identification and implementation of the most effective strategies will allow practices to utilise scarce resources more effectively in future campaigns.

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Intradermal micro-needle influenza vaccine and patient acceptability

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Aims

The intradermal (ID) micro-needle influenza vaccine is one example of an innovative approach to the issue of disease prevention. Potential benefits of ID vaccination over classic-intramuscular (IM) administration include ease of use, acceptability and an improved immune response. This study aimed to investigate the acceptability of Intanza[®] [influenza vaccine (split virion, inactivated)] amongst patients who received it during the 2011/12 influenza season.

Methods

A cross-sectional questionnaire study was carried out. Participants were asked to complete a short survey in the period immediately after having received Intanza[®] at their local GP practice. Data was collected on demographic characteristics, self-perceptions of influenza risk, factors influencing the decision whether to be vaccinated and the acceptability of Intanza[®].

Results

Responses were collected from more than 1700 (n=1753) participants drawn from practices across England and Wales. The majority of participants were aged over 65 (n= 1337; 76.26%). A total of 1123 (64.06%) participants felt at risk of influenza, with age being the most common reason. The most frequently cited factor that would make participants more likely to be vaccinated again next year was advice or recommendation from a GP/nurse. Of the total sample, 94.69% (n=1660) were either 'very satisfied' or 'quite satisfied' with the ID vaccine. Reasons for this were the low levels of pain involved (62%), the size of the needle (23%) and the speed of administration (59%). 99% of those receiving the ID vaccine said they would consider having the vaccine in the future.

Conclusions

The ID micro-needle influenza vaccine Intanza[®] has an extremely high level of acceptability amongst patients. This study shows it to cause minimal pain and discomfort to those receiving the vaccine, a consequence of Intanza[®]'s innovative micro-needle injection system. The study also highlights the continuing role of GPs and nurses in helping sustain and improve influenza vaccine uptake.

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Is preparedness for CBRN incidents important to general practitioners in East London?

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Introduction

General practitioners (GPs) have an important role in public health response to CBRN incidents, including disseminating information to worried patients and undertaking risk assessments of patients. We undertook the first known UK survey of GPs' CBRN preparedness to assess knowledge and attitudes towards CBRN preparedness among GPs in East London, in the area of the Olympic Park.

Methods

A questionnaire was developed, focusing on perceived roles in and self-preparedness of GPs to CBRN incidents and GPs' access to resources and policies for dealing with these. This was sent via electronic PCT cascade systems to local GPs in June 2010 and responses collected over an 8 week period.

Results

Of 157 GPs, 56 responded (36%), although some responded collectively for their practice. The majority (73%) of respondents recognised roles for themselves in CBRN incidents including recognition of illness, supporting decontamination and appropriate reporting. However, 79% of GPs also felt unprepared for such incidents. The most popular topics for training to address this was clinical presentation of CBRN exposures (79%). Most practices had no policy for dealing with suspect packages (91% of respondents) and white powder incidents (100%).

Conclusion

Most GPs identified an important role for themselves during CBRN incidents but felt unprepared for this. Guidance and training has been made available. As the UK will host events including the 2012 Olympics, preparedness for GPs will continue to be an important consideration in the UK.

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Managing an outbreak of *Pseudomonas aeruginosa* infection post cartilaginous piercing

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Cosmetic body piercing is more common amongst women and favoured by those aged 16-24, however estimation of resulting complications is not well reported. This presentation reports the investigation and management of an outbreak of *Pseudomonas aeruginosa* affecting adolescents who required hospital admission, linked to one piercing parlour.

We report the management of an outbreak of perichondritis, initially identified as a potential problem by ENT staff, to the Health Protection Unit (HPU). During the preceding 7-10 days, 3 adolescents post cartilaginous ear piercing had each required admission for intravenous antibiotics and incision and drainage of abscess. The same city centre piercing parlour was implicated in each case, *Pseudomonas aeruginosa* infection confirmed in the 1st case.

The emergent situation and case ascertainment required collaborative work between laboratories, primary care trusts, primary and secondary care and local authority (LA) licensing departments.

Outbreak control meetings were convened, expert opinion from HPA scientists at the reference laboratory informed decisions regarding public safety and sampling at the piercing parlour. Samples were submitted to the food, water and environment laboratory for investigation.

10 people with infected piercings required hospital admission between 30th April and 3rd June, when a change in skin preparation solution had been made at the premises. Interviews with staff and inspection identified poor infection control knowledge and practice. 8 women and 1 man were diagnosed with the same unique strain of *Pseudomonas aeruginosa* as that isolated in the skin preparation sprayer at the parlour.

The workload in managing this outbreak was significant, requiring collaboration with the local authority, who continue to pursue the possibility of prosecution of the proprietor. Ongoing work is suggested to raise client knowledge and expectation when choosing a piercing parlour and to ultimately raise standards of infection control.

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The introduction of hepatitis C blood spot testing for 'hard to reach' groups in a rural Scottish health board

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8 Health Protection Specialist Nurse, NHS Borders

9 BBV MCN Coordinator, NHS Borders

Aim

The introduction of hepatitis C (HepC) blood spot testing for 'hard to reach' groups in a rural Scottish health board.

Method

In the Borders we introduced a simple blood spot test for HepC for 'hard to reach' individuals attending the Borders Community Addictions Team and the third sector Big River recovery, support and needle exchange service for intravenous drug users (IDUs). No appointments are required. As well as HepC we took the opportunity to offer testing for HIV and HepB on the same sample.

Results

Since starting the scheme in September 2009 we have tested 421 samples – 16 have been HepC PCR positive from 12 clients, a further 19 have been HepC antibody positive, 16 of these were PCR negative, 3 had insufficient samples for PCR thus status remains unknown. 5 samples were HepB core antibody positive, none were surface antigen positive. No samples have been HIV positive. These numbers were substantially lower than expected numbers using national estimates of Hep C prevalence.

Of the 421 samples tested the majority (76.5%) were aged 26-45 years old. Of these 66.2% were male and 33.8% were female. Only 3.8% were between 16-20 years old. However of the 12 clients who were HepC PCR positive 25% were 16-20 years old. Of the 12 HepC PCR positive cases none have been successfully treated despite having direct referral arrangements to secondary care. This was mainly due to failure to attend local hospital clinic appointments.

Conclusions

Blood spot testing for blood borne viruses (BBVs) is an acceptable method of testing amongst 'hard to reach' groups such as IDUs. The prevalence of BBVs in our rural board was found to be much lower than expected compared to national estimates. Unfortunately attendance at appointment based secondary care services for treatment has been a problem. Other approaches are now being explored including outreach treatment clinics and further training for staff dealing with IDUs. Although this initiative didn't achieve its primary aim of moving people into HCV treatment, it did provide valuable opportunities to have focused discussions around identifying and reducing BBVs even if individuals weren't yet ready to move into a treatment programme. It also provided useful epidemiological data on local HepC prevalence for future planning purposes.

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laboratory staff and environmental health staff. 88.9% of respondents found Transmit to be somewhat useful, useful or very useful to their daily work. The main areas of interest were immunisation and vaccine-preventable diseases (65.0% of respondents), news (65.0%) and health care associated infections (65.0%). Respondents were keen to see links to relevant guidance (66.7%) and data comparing Northern Ireland with other regions (61.9%) in future issues. A number of readers commented that Transmit should be more widely distributed.

Conclusions

Measures have been put in place to ensure that Transmit is more widely disseminated to its target audience. Readers' preferences for content have informed planning of future editions. We plan to repeat this survey in Summer 2012 to assess if our survey recommendations have made an impact.

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Transmitting the message, not the disease: evaluation of a health protection bulletin

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Aim

The Public Health Agency Northern Ireland (PHA) has a lead role in protecting the population from infection and environmental hazards. Training and education of health professionals and local authorities is a key role of our health protection service. In June 2010 the PHA launched a health protection bulletin, Transmit, with the aim of keeping stakeholders up to date with current health protection issues. Following twelve months of publication we carried out a reader survey to evaluate whether 'Transmit' meets its readers' needs.

Methods

We developed an online survey using the web-based SurveyMonkey® tool. Objective and non-leading questions were designed by health protection staff and agreed with the Transmit editor. A web link to the survey was forwarded by e-mail to all on the Transmit mailing list. The survey was publicised in the May 2011 issue of Transmit.

Results

Twenty five responses were received over a five week period. Respondents included health professionals,

Speakers and Chairs

Maria Louise Borg

European Programme for Intervention Epidemiology Training (EPIET) fellow based at Health Protection Agency, South West Region. Graduated as a medical doctor in 2005 and specialised in Public Health Medicine, University of Malta.

Brenda Corcoran

Dr Brenda Corcoran is a Consultant in Public Health Medicine at the HSE National Immunisation Office where she is responsible for the planning, co-ordination and implementation of all national immunisation programmes. She is a member of the National Immunisation Advisory Committee.

Orla Ennis

Orla Ennis graduated with a Ph.D. in Biochemistry and Molecular Biology from the Dept of Biochemistry, Trinity College Dublin. Following several years of research and teaching, in Trinity College Dublin, and the National University of Ireland, she entered the Dept of Public Health, HSE-E. She now works in the Dept of Public Health, Dr. Steevens' Hospital, Dublin, as a surveillance scientist, where the focus of her work is on infectious disease surveillance.

Meirion Evans

Meirion is a Regional Epidemiologist at the Communicable Disease Surveillance Centre, Public Health Wales and Senior Lecturer, Department of Primary Care and Public Health, Cardiff University. He worked as a CCDC for 10 years before taking up his present post.

Kirsty Foster

Kirsty Foster is a Consultant in Health Protection working in the North East of England. She is the regional lead for sexual health and HIV.

Helen Gollins

Helen is a Public Health Specialist Registrar in the Mersey Deanery. She completed the work she is presenting today during her placement at Greater Manchester Health Protection Unit. Helen is currently based at NHS Stockport. Her background is in generic public health and health intelligence.

Ian Gray

Ian Gray is a Principal Policy Officer at the Chartered Institute of Environmental Health where he is

responsible for public health and health protection. He had a long career in local government before joining the Health Development Agency where in 2000 he led the project to set out the vision for future development of the environmental health function and the publication in 2002, of Environmental Health 2012 - A key partner in delivering the public health agenda has been highly influential in shaping modern training and practice. In 2006 the CIEH awarded him Fellowship by Election and in 2007 he received the President's Award from the Royal Society for Public Health for excellence in professional practice. In the Queen's Birthday Honours, 2009, Ian was awarded the MBE for his services to public health.

Lisa Harvey-Vince

Lisa Harvey-Vince is a Chartered EHP working in the Surrey and Sussex Health Protection Unit. Lisa has 20 years experience in Environmental Health, including managing a team. She is the co-author of the Health Protection Regulations 2010 Toolkit, launched nationally last year by the CIEH, HPA and Lewes District Council, for which Lisa was awarded the HPA ViP award for Excellence and Innovation in 2011.

Neil Irvine

Dr Neil Irvine is a consultant in health protection with the Public Health Agency in Belfast. He has lead responsibility for the health protection aspects of sexual health, including the surveillance of HIV and Sexually Transmitted Infections.

Jillian Johnston

Jillian Johnston previously worked as a GP in UK. She is currently a Specialty Registrar in Public Health in Northern Ireland, with an interest in Health Protection.

Galena Kuyumdzhieva

I am an EPIET (European Programme for Intervention Epidemiology Training) fellow at Public Health Agency, Belfast, 2010-2012. I am also a specialist in epidemiology of infectious Disease in Bulgaria and with experience in Health Protection. My research interests include HCAI and HIV/STI.

Lorraine Lighton

Lorraine Lighton qualified in medicine at the University of Manchester in 1979. She was appointed as CCDC in 1991 and currently works at Greater Manchester HPU.

Sophia Makki

Sophia Makki currently works as a Consultant of Communicable Disease Control in the East Midlands North team of the HPA. She is the lead consultant for Derbyshire.

Sophia came in to Public Health Training in 2003 knowing that she wanted to work in Health Protection. This interest developed as a result of her varied experiences living and working in the Sudan, Hungary and England.

Her grandfather was from Northern Ireland; she has never visited before and is therefore particularly looking forward to attending this year's 5 Nations conference.

Emilia Mamwa

Dr Emilia Mamwa is a ST3 Registrar in Medical Microbiology based at the Royal Victoria Hospital, Belfast Health and Social Care Trust.

Petra Matulkova

Currently a Fellow in the European Programme for Intervention Epidemiology Training (EPIET), ECDC, based at the Health Protection Agency South West England; M.D. by background, graduated in the Czech Republic.

Michael McBride

Dr Michael McBride was appointed to the post of Chief Medical Officer for the Department of Health, Social Services and Public Safety in September 2006.

The policy areas for which Dr McBride is responsible as Chief Medical Officer are population health, safety, quality and standards and medical professional issues.

Prior to joining the department he had been Medical Director at the Royal Group of Hospitals from August 2002.

Dr McBride graduated with Distinction from Queen's University Belfast in 1986 and completed his undergraduate and postgraduate training in Northern Ireland. In 1991 he attained a Research Fellowship at St Mary's Medical School and Imperial College London, where he carried out research into new drug treatments for HIV.

Dr McBride has been a Consultant in the Health Service since 1994 when he was appointed Consultant Physician in HIV medicine at the Royal Group of Hospitals and has more than 10 years health service management experience.

He has a longstanding interest in continuing medical education and was Postgraduate Clinical Tutor in the Royal Group of Hospitals between 1996 and 2000 and Director of Education in the Royal Hospitals from 2000.

As Medical Director at the Royal Hospitals, he contributed to strategic change at trust, regional and national level. As the Trust lead for clinical and social care governance, he had responsibilities for all aspects of clinical quality and patient safety.

Dr McBride took up the post of Chief Medical Officer during a time of significant change for Health and Social Care in Northern Ireland. He has been closely involved in the development of the new Health & Social Care structures post Review of Public Administration, including the establishment of the Public Health Agency and also in developing a range of Service Frameworks across Northern Ireland.

Maureen McCartney

Maureen McCartney is a Consultant in Health Protection in the Public Health Agency. Her main areas of work are blood-borne viruses and influenza. She is the chair of the Northern Ireland hepatitis B and C managed clinical network. Today she is standing in for the assistant director, health protection in the PHA who was the health protection lead for the pseudomonas incident.

Amy McCullough

Amy is currently a Specialty Registrar on the South West Public Health Training Programme. She obtained her Masters in Public Health at The University of Cardiff and has also got Membership of the Faculty of Public Health. Prior to training in Public Health, Amy had over 6 years experience working in the health and social care sector, and has worked in a number of different health environments within this time. This includes working in both acute and primary care trusts, and the Department of Health.

Paul Mckeown

Paul McKeown is a Consultant in Public Health Medicine at the Health Protection Surveillance Centre and a Senior Lecturer in Epidemiology and Public Health at the RCSI. His speciality areas are infectious disease epidemiology and environmental issues. He trained in General Practice in the UK and moved to Public Health in 1991. He has been head of the Gastrozoonotic Unit at the Health Protection Surveillance Centre in Dublin which is Ireland's specialist agency for the surveillance of communicable diseases, since 2001. He serves on

a number of national and international committees concerned with foodborne illness and environmental issues. His research interests include gastrointestinal disease, outbreak management and the epidemiology of emerging infections.

Dominic Mellon

Having previously working in local and regional health emergency planning roles in the South West of England, Dominic is currently attached to the South West (North) Health Protection Unit as a Public Health Specialty Registrar.

Sally Millership

Dr Millership trained in microbiology and had a spell as Senior Lecturer in Bacteriology, Royal Postgraduate Medical School from 1986 to 1993, before moving into Communicable Disease Control with a few sessions of microbiology in a local trust. She started as the first CCDC in Essex in 1993 during a reorganisation of the health authorities, and is about to experience her fifth major reorganisation of commissioning and public health since then. She has published on a wide variety of topics in microbiology and communicable disease control. Her major interests are the control of health care associated infections in the community and information systems to support surveillance.

Dilys Morgan

Dilys is Head of the Gastrointestinal, Emerging and Zoonotic Infections Department at the Health Protection Agency - Colindale, London. She has had an interesting career alternating between UK public health and research/field epidemiology in the more remote parts of Africa.

William Morris

William Morris completed his law degree in 2008. He has worked for both the Thames Valley police and the Army for about fourteen years as an intelligence analyst. He started working with the East Midlands North HPU in 2008. His particular interests include the application of crime intelligence software methods to epidemiological investigations. He is currently completing the MSc in Applied Epidemiology at Nottingham University.

Brendan O'Brien

Brendan recently completed specialty training in public health medicine in Northern Ireland. He is also a registered healthcare informatician. He is about to take up his new post as a Consultant in Public Health with the Institute of Public Health in Ireland.

Marko Petrovic

Marko Petrovic qualified in medicine at St. Bartholomew's Hospital Medical College, London in 1986. Appointed CCDC to the Greater Manchester HPU in 2002 and has since been GMHPU and HPA NWTB lead.

Hilary Phelps

Hilary Phelps is a scientist in epidemiology at the Health Protection Agency where she monitors national antenatal screening for infectious diseases and the prevalence of HIV in women giving birth in England. Hilary has an MSc in Public Health Nutrition from the London School of Hygiene and Tropical Medicine and a Bachelor in Health Science from the University of Miami.

S Josephine Pravinkumar

S Josephine Pravinkumar has been a Consultant in Public Health Medicine in NHS Lanarkshire since May 2009. Her main areas of work include Emergency Planning, Respiratory Infection, Coordination of Tuberculosis Services and Health Care Associated Infection.

Jonathan Roberts

Specialty Registrar on the Public Health Training scheme in the South West Region since 2008, previously a Senior Research Scientist with the South West Regional HPA and before that a Post-doctoral research fellow in Respiratory Medicine at the University of Birmingham. My background through undergraduate and PhD studies is in molecular biology.

Ettore Severi

Ettore Severi is an EPIET (European Programme for Intervention Epidemiology and Training) fellow currently based at the HPA South East Regional Epidemiology Unit (2010 -2012). He is a pharmacist by training (Universita' degli Studi di Siena) and holds an MSc in Epidemiology from LSHTM. He previously worked in HIV and TB in sub-Saharan Africa. His interests include outbreak investigation and history of infectious disease epidemiology.

Gillian Smyth

Gillian Smyth has worked for the Public Health Agency (NI) for 5 years. She is working in the Health Protection Department as an Epidemiological Scientist with responsibility for the monitoring of Healthcare Associated Infections.



Martin Schweiger

Son of a shoe maker who opted for the smell of hospitals rather than the smell of leather, but once qualified was challenged by preventable ill health. Two decades of practice as a CCDC in Leeds, West Yorkshire, leaves him convinced that there is still a lot to do. Working with others on Risk Assessment and more recently on HPZone which provides a framework for future constructive opportunities in health protection.

Mark Temple

Starting in Valleys General Practice for over ten years, before seeing the light and retraining in Public Health, I work in CDSC in Cardiff. Having an interest in applied mathematical approaches to problem solving, when the standard tools don't work, seems useful enough to keep me busy having fun! It may also help my understanding of disease control.

Jennifer Thorpe

Jennifer Thorpe has been an epidemiological analyst for the Yorkshire & Humber Regional Epidemiology Unit since March 2009. She is currently studying for her Masters of Public Health with the University of Manchester. Tuberculosis is her main area of interest and one of her lead surveillance responsibilities. She is also the Enhanced Tuberculosis Surveillance System coordinator for Yorkshire & the Humber.

Dafydd Williams

I started my career as a biomedical scientist before being drawn into the fascinating science of infection prevention and control. Following the completion of my nurse training in 1989 and working on the medical units in Ysbyty Gwynedd for 3 years, I was appointed as Clinical Nurse Specialist in Infection Prevention and Control. Since 1997 I have been part of the Welsh Healthcare Associated Infection Programme (WHAIP) supporting the implementation of clinical surveillance of HAI across Wales. I am currently in my second year of an MSc in Health Improvement and Well being.



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