



Five Nations Health Protection Conference



Tuesday 17 - Wednesday 18 May 2011

Session Chairs

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Consultant Epidemiologist
Communicable Disease Surveillance Centre, Public Health Wales, Cardiff

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We would like to acknowledge the generous sponsorship received from our sponsor who has contributed to the administration costs of this conference.



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 17 May - Wednesday 18 May 2011

The Quay Hotel, Deganwy Quay, Conwy

Tuesday 17 May 2010

09.00 – 10.00	Registration Desk Opens Tea and Coffee available	
10.00 – 10.15	Welcome and Introduction	Dr Meirion Evans Consultant Epidemiologist, Public Health Wales
10.15 – 11.00	Keynote Address What is Evidence-Based Medicine and Why is it Important?	Professor Paul Garner

SESSION I

11.00 – 12.30	Surveillance: What Information For What Action? Chair: Dr Meirion Evans	
11.00 – 11.15	Enteric fever in England, Wales and Northern Ireland – who is at risk?	Joanne Lawrence
11.15 – 11.30	A multi-data source surveillance system for the 2010 Ryder Cup golf competition	Maria Keramarou
11.30 – 11.45	A review of the epidemiology of invasive pneumococcal disease in north-east England post-conjugate vaccine introduction: who is at risk?	Kaye Chapman
11.45 – 12.00	Development of an all-Wales data management system for monitoring neonatal hepatitis B immunisation	Carol Roberts and Luis Gonçalves
12.00 – 12.15	What really happens to TB patients who are categorised as 'lost to follow-up' in West Yorkshire?	Matthew Day and Anna Middlemiss
12.15 – 12.30	<i>Clostridium difficile</i> : monitoring progress in Wales	Mari Morgan

12.30 – 13.30	Lunch
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SESSION II

13.30 – 15.00

Organisation of Health Protection Across the 5 Nations

Session Organiser: Dr Charles Saunders

Chair: Dr Dilys Morgan

13.30 – 13.45

Northern Ireland

Brian Smyth

13.45 – 14.00

Wales

Meirion Evans

14.00 – 14.15

Scotland

Charles Saunders

14.15 – 14.30

England

tbc

14.30 – 15.00

Audience questions and discussion

15.00 – 15.30

Tea

15.30 – 16.00

Attended Poster Session

SESSION III

16.00 – 17.00

Immunisation

Session Organiser: Dr Neil Irvine

Chair: Mrs Monica Graham

16.00 – 16.15

Achieving the unachievable? Attainment of the vital signs

Tracey Hart

16.15 – 16.30

Delivery of neonatal BCG in a Yorkshire hospital

Graham Sutton

16.30 – 17.00

Effectiveness of seasonal 2010/11 and pandemic influenza A(H1N1)2009 vaccines in preventing influenza infection in the United Kingdom: mid-season analysis 2010/11

Richard Pebody

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

Quiz Master: Dr John Cowden

19.45 for 20.00

Conference Dinner at the Quay Hotel and afterwards entertainment by Band Y Braichmelyn

Wednesday 18 May 2010

08.30 – 09.00 Registration Desk Opens - Poster Session

SESSION IV

09.00 – 10.00

Outbreaks I: so what? Lessons learnt and changes in practice

Session Organisers: Dr Lorraine Lighton and Dr Kirsty Foster
Chair: Dr Kirsty Foster

09.00 – 09.15

Facebook Group: I got campylobacter at ***** Hotel

Ashesh Modi

09.15 – 09.30

Pneumocystis jirovecii pneumonia in renal transplant patients in the United Kingdom: increased incidence, clonal variability and outbreaks

Roberto Vivancos

09.30 – 09.45

Typing, Tracing and Transmission. An investigation of a single-strain outbreak of TB, centred around a small community in Birmingham

Ruth Harrell

09.45 – 10.00

A community outbreak of legionnaires' disease in South Wales

Meirion Evans

SESSION V

10.00 – 11.15

Hot Topics

Chair: Dr Dilys Morgan

10.00 – 10.15

Satisfactory resolution of high levels of trihalomethanes in a public water supply

Sarah Doyle

10.15 – 10.30

The influence of mass gatherings restriction on influenza transmission: towards an evidence-based policy framework

David Ishola

10.30 – 10.45

The migrant health guide – development of a tool to help primary care practitioners care for patients who come to live in the UK from abroad

Karen Wagner

10.45 – 11.15

The HPA response to the Fukushima Nuclear Emergency in Japan

Lesley Prosser

11.15 – 11.45

Coffee

SESSION VI

11.45 – 13.00

Outbreaks 2: so what? Lessons learnt and changes in practice

Session Organiser: Dr Lorraine Lighton and Dr Kirsty Foster

Chair: Dr Lorraine Lighton

11.45 – 12.00

Swimming teams – an efficient vector for transmission of *Cryptosporidium*

Rosemary McCann

12.00 – 12.15

Clostridium difficile associated diarrhoea in a residential home: seeding from hospital outbreak or transmission in the home?

Peter Sheridan

12.15 – 12.30

Practical application of updated hepatitis A guidelines for an unusual outbreak

Vicky Watts

12.30 – 12.45

Who should eat sandwiches in hospital? An investigation of a cluster of listeria cases

Kirsty Foster

12.45 – 13.00

E. coli O157 at a nursery and Strep A at a nursing home – why does it take an outbreak to make things happen?

Elizabeth Walton and
Rosemary McCann

13.00 – 14.00

End Of Conference - Lunch

Presentation Abstracts

Tuesday 17 May 2010

SESSION I

Surveillance: What Information for What Action?

Enteric fever in England, Wales and Northern Ireland – who is at risk?

J Lawrence, K Wagner, D Freeman, J Jones

Travel and Migrant Health Section, Health Protection Services - Colindale, Health Protection Agency, London

Aims

To summarise data from enhanced surveillance of enteric fever in England, Wales and Northern Ireland between 2007 and 2009.

Methods

An enhanced surveillance form is completed for every laboratory-confirmed case of enteric fever. Data were analysed using MS Access and Excel.

Results

Enhanced data were obtained for 1214 cases of enteric fever (658 *Salmonella* Typhi, 508 *S. Paratyphi* A, and 48 *S. Paratyphi* B). Of these, 991 were UK residents who had travelled abroad, 66 were new entrants, 36 were foreign visitors and the remainder were unknown or had not travelled.

Of cases in UK residents, 863 (87%) were of non-White British (NWB) ethnicity (478 non-UK born and 259 UK born); 86% (743) of NWB cases were Indian, Pakistani or Bangladeshi ethnicity. The majority of non-White British cases had acquired infection after travel to their country of ethnic origin within the Indian subcontinent (ISC) to visit friends and relatives (VFR).

Where information was available, 36% of UK resident cases (248/691) sought travel health advice before their trip. Advice-seeking behaviour varied by ethnicity and further by place of birth. Cases of White British ethnicity were twice more likely to have sought travel health advice than the NWB [$\chi^2=19.57$, 1 df, $p<0.001$]. Within the NWB, UK born cases were 1.71 times more likely to have sought health advice than non-UK born [$\chi^2=20.32$, 1 df, $p<0.001$].

Conclusion

These data show clearly that people of Indian, Pakistani or Bangladeshi ethnicity in England, Wales and Northern Ireland are at risk of acquiring enteric fever when they travel back to their country of origin in the ISC to visit family. Most of them, particularly those not born in the UK, are inadequately prepared for their trip. More needs to be done in the UK to engage VFR travellers to the ISC with travel medicine services.

Contact: joanne.lawrence@hpa.org.uk

A multi-data source surveillance system in place for the 2010 Ryder Cup golf competition

M Keramarou^{1,2}, D Rh Thomas¹, M Rh Evans¹, S Cottrel¹, S Urquhart³, C Elliot¹, M Temple¹, R Hawkes⁴, R Perks⁵, D Goulding⁶, R Salmon¹

- 1 Communicable Disease Surveillance Centre, Public Health Wales, Cardiff, United Kingdom
- 2 European Programme on Intervention Epidemiology Training (EPIET)
- 3 Accident and Emergency Department, Aneurin Bevan Health Board
- 4 European Tour, Event Medical & World Sports Med, Surrey, United Kingdom
- 5 Welsh Assembly Government
- 6 Health Emergency Planning, Welsh Assembly Government

Aim

To set up an ad hoc surveillance system for the timely detection of public health incidents connected to the 2010 Ryder Cup golf competition.

Methods

Data on episodes of ill-health linked to the Ryder Cup event were collected for the period 27 September to 8 October 2010 from existing and newly established surveillance schemes. Accelerated routine reporting was obtained from: local health protection teams,

NHS Direct, Automated GP surveillance, Out-of-hours Primary Care Providers, and Welsh Assembly Government emergency NHS pressures monitoring. Daily data were obtained from specifically established surveillance sources: a private on-site clinic, emergency admissions to local hospitals, media reports and weather forecasts. A daily situation report was produced and distributed to those responsible for public health in the area around the Ryder Cup venue.

Results

Approximately 65,000 people attended this event from all over the world. The event had little negative public health impact. Media surveillance identified influenza illness in a competitor in the week preceding the competition, but indices of influenza activity remained low during and after the event. Two hundred and six individuals attended the on-site clinic and thirty five were referred to local hospitals, mainly for minor injuries. A decrease in the number of emergency admissions was observed locally. Data on the workload involved will also be indicated.

Conclusions

This was the first time Public Health Wales had implemented enhanced surveillance during a mass gathering event. Satisfactory event surveillance was set up in a short time scale, with minor adaptations to existing surveillance systems and some limited new development. The implementation of daily reporting proved to be a successful strategy and was well accepted by the participating local health departments. The set up of a core surveillance team was vital for this success. Lessons learnt will assist in the planning of the surveillance response to future mass gatherings in Wales, such as the Olympic Games 2012.

Contact: maria.keramarou@wales.nhs.uk

A review of the epidemiology of invasive pneumococcal disease in north-east England post-conjugate vaccine introduction: who is at risk?

K Chapman, D Wilson, R Gorton

North East Health Protection Unit

Background

Invasive pneumococcal disease (IPD) is a leading cause of morbidity and mortality, particularly in young children and older aged adults. Over 90 serotypes

are known with variation in prevalence and virulence. The pneumococcal conjugate vaccine (PCV7), which protects against seven serotypes, was introduced into the routine childhood immunisation programme in 2006. Enhanced surveillance of IPD in north-east England was established to coincide with PCV7 introduction.

Aims

This paper describes the epidemiology of IPD in north-east England between 2006 and 2010 with an aim of interpreting changes in incidence rates, serotype distribution and risk factors of cases post-PCV7.

Methods

A case was defined as a north-east England resident with *S. pneumoniae* isolated from a normally sterile site and a clinical presentation of IPD between April 2006 and March 2010. Cases were ascertained by local NHS microbiology laboratories reporting to the Health Protection Unit. An enhanced dataset was collected (including risk factors, immunisation and outcome) from hospital and primary care. Serotypes were provided by the HPA's Respiratory and Systemic Infections Laboratory.

Results

There has been a downward trend in IPD with a statistically significant year on year decrease in incidence from 11.9 (95%CI 10.6-13.3) cases /100,000 population in 2006/7 to 9.7 (95%CI 8.5-11.0) cases/100,000 population in 2009/10 ($p=0.01352$). This has coincided with substantial changes in pneumococcal serotype distribution in both vaccinated and unvaccinated individuals. The highest incidence rates were in children <1 year and older aged adults, however a substantial burden was observed in adults 35-64 years (34%). Over half of all cases had ≥ 1 risk factor, the most common being chronic lung disease (24%), chronic heart disease (21%) and diabetes (11%).

Conclusions

The enhanced surveillance of IPD has provided insight into the burden of disease in north-east England highlighting those most at risk. This will be useful for informing local preventative strategies particularly for targeting vaccination.

Contact: kaye.chapman@hpa.org.uk

Development of an all-Wales data management system for monitoring neonatal hepatitis B immunisation

C Roberts ¹, L Gonçalves ²

1 Public Health Wales (Health Protection Team)

2 Public Health Wales (Informatics)

Aim

The provision of hepatitis B immunisation to neonates at risk of infection is recommended in national guidance and strategy. The aim of the project was to standardise and automate the process by which Public Health Wales Health Protection Team (HPT) monitors neonatal Hepatitis B immunisation in Wales.

Methods

Co-ordination of the project was managed by a representative from the Health Protection Nurses (HPNs), the Vaccine Preventable Disease Programme (VPDP) and Public Health Wales Informatics.

Initially a user requirements document was developed March 2010 proposing an all-Wales database to standardise monitoring of neonatal hepatitis B immunisation. Comments and advice were sought from HPNs to ensure a relevant and user friendly solution. Representation from the VPDP commented on parameters of data collection to ensure robust reporting of data.

Support from Public Health Wales Informatics was formally agreed and work to build a web based data base commenced October 2010.

Following collaboration between HPNs and Public Health Wales Informatics, a prototype was developed December 2010 for early validation. A version of the data base will be available for use March 2011 for quality assurance with live release April 2011.

Results

An all-Wales database was developed with intranet access enabling HPNs to proactively manage cases within their area, and produce national and local reports. The project took 12 months from start to finish.

Conclusions

A more systematic method to housing and updating neonatal hepatitis B immunisation records allows a more robust approach to monitoring immunisations. In addition, audit of records locally provides opportunity to address uptake of immunisation with healthcare

partners. At an all-Wales level information can be used to monitor national and regional trends in neonatal hepatitis B immunisation, which may inform future work practice and policy.

Contact: carol.roberts6@wales.nhs.uk

What really happens to TB patients who are categorised as 'lost to follow up' in West Yorkshire?

M Day, A Middlemiss, J Thorpe, E Okereke

West Yorkshire Health Protection Unit

Background

TB patients 'lost to follow up' (LTFU) pose a public health risk. However, the generic nature of the term obscures what really happens to these patients and therefore the risk that they represent. To answer this question, we examined patients LTFU via Treatment Outcome Monitoring (TOM).

Methods

All TB cases notified to the HPA 2004 to 2008 were reviewed and characteristics of patients who completed treatment or who were LTFU were compared. Further information was obtained from the free text section on the TOM forms. Where no information was available here, TB nurses returned an audit form with further information relating to these patients' treatment outcome.

Results

2034 cases were reviewed and 202 (9%) of these patients were classified as LTFU. No differences were found in baseline characteristics compared to those who completed treatment. Of these LTFU, only 98 (49%) were correctly classified. Of the remaining 104 patients, who after further analysis were not LTFU, the most common outcomes were 'transferred to services abroad' (n=44, 23%) or 'had completed treatment' (n=30, 15%). 5% (n=10) of patients were transferred within the UK and 5% had died.

Discussion

This process has approximately halved the number of patients classified as LTFU in West Yorkshire and has implications for the validity of national surveillance. A review of the options provided on treatment outcome monitoring is urgently required to ensure the validity of the data. Improvement of the accuracy of the

surveillance system would enable better identification and management of those patients who genuinely are more likely to become LTFU and therefore reduce the risk to the public health.

Contact: matthew.day@barnsleypct.nhs.uk

Clostridium difficile: monitoring progress in Wales

M Morgan, SJ Harris, VM McClure, M Roberts, B Mason, DN Looker, E Davies

Public Health Wales, Cardiff, Wales

Aims

The Welsh Assembly Government (WAG) introduced a minimum 20% reduction target for *C. difficile* in inpatients aged over 65 for each Health Board in Wales for the 2010/11 financial year. A method of surveillance was required whereby both the WAG and the Health Boards could monitor progress against the target as the year progressed, providing a timely assessment of the success of any interventions introduced.

Methods

Surveillance of *C. difficile* has been in place in Wales since 2005, using downloads from a data warehouse to provide six monthly rate reports. In order to assist

in monitoring of the target, downloads were increased to monthly. Data are loaded into a database from which a series of automated reports are run, providing feedback on *C. difficile* numbers on a monthly basis in graphical and tabular format.

Results

Reports have been issued by the seventh of every month since May 2010, providing data up to the end of the previous month. The cumulative totals provided in the graphs are colour coded using a traffic light system. Red indicates the Health Board or Wales is not currently on target to achieve the 20% reduction, amber indicates that it is currently on target or just below and green indicates that numbers are more than two standard deviations below the numbers required to achieve the minimum target. As the year has progressed, Wales and the majority of the Health Boards have progressed from being unlikely to achieve the target to being more than two standard deviations below the numbers required to achieve the minimum reduction.

Conclusions

The monthly reports are a timely and simple method of feedback which allows Health Boards to monitor their progress against the target and feeds into the performance management process at the WAG.

Contact: mari.morgan@wales.nhs.uk

Tuesday 17 May 2011

Session III

Immunisation

Achieving the unachievable? Attainment of the vital signs

TM Hart, J Mullineux, P Driscoll, J Spendlove, S Garner

NHS Salford, England

Aims

This paper will analyse how NHS Salford successfully overcame a long history of poor immunisation coverage to attain all vital signs for children aged 0-5 years and a significant reduction in uptake inequality.

Method

The multi-factorial reasons of persistent poor performance will be discussed within the remit of this paper and subsequent actions. An insight will be given into the project and the formulation of action plans which incorporate information on best practice for those specific groups at risk of not being fully vaccinated. The advantages gained from partnership working will be described and how the development of a multi-organisational team around the targets led to the attainment of all vital signs. Furthermore, the operational aspects of the project will be discussed including the creation of failsafe systems and the development of a small immunisation team to undertake domiciliary vaccination.

Outcome

Coverage figures for all childhood vaccinations (0-5 years) reported through the COVER programme have shown an attainment of all vital signs. NHS Salford is now achieving the recommended 95% target for MMR at two years and second dose at five years which demonstrates an improvement of 16% over a two year period. Attainment has been sustained for over a 15 month period.

Conclusion

Salford is in the lowest fifth of the most deprived areas in the country and consistently had coverage of 78%-80% for all targets and persistent uptake inequalities. Focusing on the issues of underperformance and the adoption of a multi-faceted coordinated programme has led to attainment of all the vital signs and a

considerable reduction of uptake inequalities. It will be seen that this programme can be sustained and operational components replicated in other areas of the country with positive performance outcomes clearly demonstrated.

Contact: tracey.hart@salford.nhs.uk

Delivery of neonatal BCG in a Yorkshire hospital

GC Sutton¹, S Smith², the late M Hey²

¹ Wakefield PCT, Wakefield

² Mid Yorkshire Hospital Wakefield

Aim

To measure whether neonatal BCG is delivered at this hospital in accordance with national policy.

Methods

We studied the hospital's maternity service records for one week to assess whether these explicitly stated each baby's eligibility for BCG, and whether eligible babies were immunised. This Trust has two maternity units, P and D.


Results

In 70 maternities at P, 9 did not record the mother's country of birth, and 26 recoded her nationality or ethnicity rather than country of birth. In 56 maternities at D, 11 likewise recorded a nationality or ethnicity. There were similar proportions for fathers and grandparents.

At P, six babies had an indication for BCG, and in 3 it was given. At D, 19 babies had an indication, 7 received BCG in hospital, and 11 received it via community services.

Conclusions

We were surprised to find no published studies of NHS performance under the 2005 selective BCG policy, nor routine quality monitoring as is done for infections in pregnancy.



A high proportion of eligible babies are identified and immunised with BCG at this hospital Trust. However our study was small, and needs to be replicated elsewhere; an all-Yorkshire study is now commencing.

Contact: graham.sutton@wdpct.nhs.uk

Effectiveness of seasonal 2010/11 and pandemic influenza A(H1N1)2009 vaccines in preventing influenza infection in the United Kingdom: mid-season analysis 2010/11

R Pebody

Immunisation and Respiratory Diseases Departments,
Health Protection Agency, Centre for Infection

This study provides mid-season estimates of the effectiveness of 2010/11 trivalent influenza vaccine and previous vaccination with monovalent influenza A(H1N1)2009 vaccine in preventing confirmed influenza A(H1N1)2009 infection in the United Kingdom in the 2010/11 season. The adjusted vaccine effectiveness was 34% (95% CI: -10 - 60%) if vaccinated only with monovalent vaccine in the 2009/10 season; 46% (95% CI: 7 - 69%) if vaccinated only with trivalent influenza vaccine in the 2010/11 season and 63% (95% CI: 37 - 78%) if vaccinated in both seasons.

Contact: Richard.pebody@hpa.org.uk

Wednesday 18 May 2011

Session IV

Outbreaks I: so what? Lessons learnt and changes in practice

Facebook group: I got campylobacter at ***** Hotel

A Modi, L Lighton

Greater Manchester Health Protection Unit, Manchester

Aim

To investigate an outbreak of campylobacteriosis at a wedding party and discuss the role of social networking websites

Methods

A cohort study supported by microbiological and environmental investigations and review of discussions on a social networking website.

Results

36 out of 58 guests (attack rate 62.1%) fell ill with diarrhoea after eating at a wedding party on 22/5/10. A cohort study was carried out using data collected by questionnaires completed after carrying out interviews with 56 guests (response rate 96.6%). The only statistically significant association after univariate, stratified and multivariate analysis was between the chicken liver pâté and illness with a relative risk of infinity. The pâté was prepared with a new technique using a 'thermomix'. A variety of strains of *Campylobacter* were isolated in 12 of the cases and from the raw chicken livers.

On 27/5/10, a facebook group open to the public was set up named 'I got campylobacter at ***** Hotel', which was joined by 20 members on which more than 50 messages were posted in the following fortnight. At the same time messages were also posted on the travel website 'tripadvisor'. The internet communication led to better dissemination of information but the negative publicity for the hotel also impacted on the investigation.

Conclusion

This point source food borne outbreak involved 12 confirmed and 24 probable cases of campylobacteriosis

with a high attack rate and was epidemiologically linked with the chicken liver pâté. Liver pâté has been recognised as a high risk food item for campylobacteriosis. The use of social networking websites opened up new opportunities for communication during the outbreak. This outbreak highlights the need to raise awareness amongst the public about the risks associated with liver pâté and the need for authorities to develop strategies on communicating with the public as social media evolves.

Contact: a.modi@nhs.net

Pneumocystis jirovecii pneumonia in renal transplant patients in the United Kingdom: increase incidence, clonal variability and outbreaks

R Vivancos¹, S Thomas², C Corless², G Wood³, E Duffel⁴, R McCann⁴, NJ Beeching², and MJB Beadsworth²

- 1 Cheshire & Merseyside Health Protection Unit, Liverpool
- 2 Royal Liverpool University Hospital, Liverpool
- 3 Salford Royal Foundation Hospital, Salford;
- 4 Greater Manchester Health Protection Unit, Salford

Aims

We describe investigation of two concurrent outbreaks of *Pneumocystis jirovecii* pneumonia (PCP) in renal transplant patients (RTP) in the North West of England, and results from survey of renal units which was conducted of renal units to determine incidence and mortality from PCP and whether outbreaks are common occurrences.

Method

We present diagnosis, epidemiological, microbiological (including genotypic sequencing) and environmental investigations of outbreaks in two renal units and results of a UK-wide self-completed online survey of renal units.

Results

Between 2008 and 2010, 21 cases of PCP were diagnosed in RTP attending the transplant unit at the Royal Liverpool University Hospital. A similar increase was seen in Salford Royal Hospital (SRH), where 11 cases were diagnosed between 2009 and 2010. Epidemiological investigations suggest an association with immunosuppression in particular with mycophenolate and prednisolone, and recent changes to immunosuppressive therapy. Genotypic sequencing (ITS1 and mt26S) of available samples has shown a different clonal genotype to predominate in each hospital.

Responses from 36 renal units, revealed that since 16 units (44.4%) had treated RTP for PCP and 8 (22.2%) had also seen cases in non-transplant renal patients receiving immunosuppression. A quarter of all units have experienced an increase in the incidence of PCP in the last decade. Between 2008 and 2010, 79 cases were reported, compared to 28 in the same units in the previous ten years (1998-2007), a ten-fold increase. Mortality rate has remained constant at approximately 20%.

Conclusion

There has been an increase in PCP amongst RTP throughout the UK, and our results show that different genotypes are involved in local clonal outbreaks, suggesting that person-to-person transmission or environmental exposure may have occurred. Recent changes to immunosuppressant regimes and transplant policies may have contributed to the increase incidence of PCP in RTP.

Contact: roberto.vivancos@hpa.org.uk

Typing, tracing and transmission- An investigation of a single-strain outbreak of TB, centred around a small community in Birmingham

RH Harrell, W Welfare, H Mohamed

On behalf of the Outbreak Control Team, HPU West Midlands East, Birmingham, England

Aim

To describe an outbreak of tuberculosis centred on a small geographical area in Birmingham, including the use of MIRUVNTR, social network analysis and repeat active case finding exercises.

Methods

Case definition: Either culture confirmed cases of the same type, or, if no culture confirmation, case identified from contact tracing or screening exercises, with epidemiological links to culture confirmed cases of the outbreak strain.

Case identification

Routine typing of cases, contact tracing and two separate screening exercises at a local school (in 2009 and 2011).

Data from clinical histories was visualised using PowerPoint animations and network analysis to highlight links between cases, and gaps in the known transmission.

Results from the ongoing second screening (using IGRA) in the school will be presented and compared to results from the first screening. This includes a comparison of exposure and risk of latent/active disease.

Results

The chronological history can be clearly visualised, and highlights factors such as a shift in the ethnicity of the cases, and gaps in our knowledge of the path of transmission at certain points. In the first school screening, the odds ratio of active TB for those pupils in the same school year was found to be 6.11 (95% CI 1.91 -19.48). In the second screening within the same school, exposure time of each pupil, within the classroom environment, is accurately known and therefore it is hoped that further information on risk of developing tuberculosis in this setting may be obtained (screening is currently underway).

Conclusions

This describes the usefulness of using appropriate tools to combine strain typing and epidemiological information for understanding the transmission routes during an outbreak of TB.

Contact: ruthharrell@nhs.net

A community outbreak of legionnaires' disease in South Wales

MR Evans ¹, GL Lowe ², J Salmon ², TG Harrison ³, BW Mason ¹, RL Salmon ¹, for the South Wales Legionnaires' Disease Outbreak Control Team

- 1 Communicable Disease Surveillance Centre, Public Health Wales
- 2 South East Wales Health Protection Team, Public Health Wales
- 3 Respiratory and Systemic Infections Laboratory, Health Protection Agency

During August and September 2010, an outbreak comprising 22 cases of legionnaires' disease was identified in South Wales. All case movements and cooling tower locations were mapped. Patient samples were sent to the Health Protection Agency for testing and typing. The Health and Safety Executive inspected registered and unregistered premises in the outbreak area. Water samples were taken from all sites that had operating deficiencies or were epidemiologically linked to the outbreak.

Illness onset dates ranged from 4 August to 10 September 2010. There were 15 males and seven females and median age was 65 years (range 38-86 years). There were two space-time clusters around 15km apart: seven people in the upper Rhymney Valley (cluster A) and six people in the lower Cynon Valley (cluster B). One case was linked to both, but 10 cases

could not be linked to either. Respiratory samples were available from only 11 patients. *L. pneumophila* was cultured/typed from four patients and typed directly from sputum in a further three. Neither cluster A nor B could be clearly characterised microbiologically since six strains were different subtypes and/or genotypes. In total, over 50 environmental samples were tested and all but one (linked to a case not associated with either cluster) were negative on culture. Cluster A was within a 5km radius of a cooling tower and air scrubber, and cluster B within 5km of a cooling tower. All were voluntarily closed and both cooling towers were cleaned and disinfected. All resumed normal operation after microbiological clearance and no further cases were detected.

The outbreak highlights the importance of obtaining as many clinical samples as possible for *Legionella* typing. It was a challenge to investigate because of geographical spread, two distinct epidemiological clusters, paucity of clinical samples for culture, identification of several different strains of *L. pneumophila* in cases, and difficulties interpreting PCR results on environmental samples.

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Wednesday 18 May 2011

Session V

Hot Topics

Satisfactory resolution of high levels of trihalomethanes in a public water supply

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Aim

The aim of the management of this incident was protection of the health of the public and reduction of Trihalomethane levels to below the European Communities (Drinking Water) (No.2) Regulations 2007 parametric value of 100µg/l.

Methods

Contact was made by Kilkenny Water Services Authority with the Consultant in Public Health Medicine and Principal Environmental Health Officer members of their Water Quality Liaison Group about elevated levels of trihalomethanes (THMs) in a public water supply. Levels had been as high as 505µg/l but had reduced to approximately 220µg/l in response to remedial actions.

The supply was a chlorinated, poor quality surface water supply to approximately 1,420 people. It was on the Environmental Protection Agency Remedial Action List because of elevated THMs in the past, with approval being sought from DoEHLG for a new ground water supply 8km away.

The predominant THM was chloroform. Calculations were made of the concentrations of chloroform that would not cause non-carcinogenic health effects on an acute, intermittent and chronic basis based on typical weights and ingestion rates of water for adults, children and babies. IARC has classified chloroform as possibly carcinogenic to humans. Chronic levels of chloroform at which no non-carcinogenic effects are expected are thought to be protective against cancer risk. Advice was given on this basis and a plan agreed to ensure continuing reduction of THM levels.

However, THM levels spiked again to 528µg/l. A more radical plan was needed as consumption at this level could not be allowed to continue chronically, or until the new supply 8km away was commissioned.

Results

A new groundwater supply was sourced close to the treatment plant to supplement the existing supply. In addition, a pre-treatment coagulation/flocculation package plant was acquired to filter the water from the existing surface supply. THM levels are now approximately 50µg/l.

Conclusions

Creative thinking in an acute situation can result in solutions not previously considered, achieving a satisfactory outcome.

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The influence of mass gatherings restriction on influenza transmission: towards an evidence-based policy framework

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Introduction

Droplet spread and direct contact are crucial factors in influenza transmission. Mass gatherings (MG) seem to provide ideal conditions for transmission. A systematic review was carried out to examine the evidence for an association between MG and influenza transmission, and to assess whether restricting MG is effective at reducing or preventing transmission.

Methods

The published literature to July 2010 was reviewed by searching major databases (Pubmed, EMBASE, Scopus, and CINAHL), producing a combined list of 1670 articles that was sifted for relevance by title, abstract, and full-text assessment. A narrative approach was adopted for data synthesis. The findings were explored as a possible basis for rational policy making on restricting mass gatherings.

Results

Eighteen papers met the inclusion criteria, covering MG of varying sizes and settings, and including 5 observational studies, 9 outbreak reports, 3 event surveillance reports, and a quasi-experimental study.

There is some evidence that MG are associated with increased risk of influenza transmission. MG can also be “seeding” events for introducing new influenza strains to an area, and may instigate community transmission in the early stages of a pandemic. Restriction of MG, in combination with other social distancing interventions, may help reduce transmission, but it was not possible to tease out any conclusive evidence on the individual effect of MG restriction.

Conclusion

The evidence suggests that crowd density and event duration may be the key characteristics of an MG that determine the risk of influenza transmission. The type of venue (indoor or outdoor) may also be crucial. These factors potentially represent the basis for a policy-making framework for MG restrictions in the event of a severe pandemic.

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The migrant health guide – development of a tool to help primary care practitioners care for patients who come to live in the UK from abroad

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More people are migrating today than at any other point in human history. Estimated long-term migration to the UK in 2009 was 567,000 (Long Term International Migration, ONS), and the last Census in 2001 showed that 8% of people living in the UK had been born abroad. Whilst the majority of these migrants are young, healthy adults, some will have health issues relating to their country of origin, their reasons for and experience of migration, and/or their living conditions in the UK. Primary care practitioners in the UK may consequently be caring for migrant patients who have health issues with which they are unfamiliar.

The migrant health guide was developed as an online tool with the aim of bringing together available information such as data on the prevalence of diseases and nutritional deficiencies in different countries, guidelines, and patient information in a means that is easy to use and can be quickly accessed during a standard consultation. It was launched by the Health Protection Agency in January 2011 at www.hpa.org.uk/migranthealthguide.

The guide is divided into four main sections; General Information which includes information on entitlements to NHS care and translation services, Countries A-Z which gives relevant information about children’s health, infectious diseases, nutritional and metabolic concerns and women’s health relating to over 100 different countries of origin, Health Topics which provides further detail about infectious diseases and other relevant health concerns, and Assessing Migrant Patients which includes checklists and diagnostic algorithms.

Many health professionals from primary care, and topic experts, have been involved in the development of the guide, and it will continue to evolve as new topics and resources are added. This paper describes its development and content, as well as the next challenge, which lies in evaluating its use amongst GPs and nurses working in primary care.

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Wednesday 18 May 2011

Session VI

Outbreaks 2: so what? Lessons learnt and changes in practice

Swimming teams – an efficient vector for transmission of *Cryptosporidium*

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- 4 UK Cryptosporidiosis Reference Unit, Swansea, Wales

This presentation will describe an outbreak of cryptosporidiosis among members of a local amateur swimming club. 11 cases of diarrhoea were initially notified following a gala – no faecal specimens had been obtained. A cohort study was undertaken rapidly using a combination of telephone and face to face interviews at club training sessions. A total of 49 cases (3 confirmed *C. hominis* and 46 probable) were identified among club members and infection was significantly associated with attendance at one particular training session. Staff and parents at the club were unaware of both the 48 hour exclusion rule before return to school and the 2 week exclusion rule for swimming. The unusual features of this outbreak were:

- Only 3 faecal specimens were submitted, all via EHOs, even though 49 children were ill and despite visits to GP surgeries. No notifications were received.
- Descriptive epidemiology alone would have underestimated the outbreak by a factor of 4 and not enabled identification of the cause of the outbreak and the extent of secondary spread.
- Outbreak reports of cryptosporidiosis linked to pools have highlighted the potential for amplification and perpetuation of outbreaks due to contamination of surrounding pools when a pool is closed during an outbreak. Although the pool was not closed in this outbreak, club members can attend up to 4 training sessions per week at the club pool in addition to galas at pools in other areas. With 49 cases affected, the potential

for continuing contamination of the club pool and other pools where club members compete was high.

- Club members and their parents were very competitive and concerned at missing training or competitions. Although compliance with the 2 week exclusion appeared good, there could be reluctance to report illness in the future.

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Clostridium difficile associated diarrhoea (CDAD) in a residential home: seeding from hospital outbreak or transmission in the home?

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Method

We investigated a cluster of eight cases (two deaths) of CDAD which was initially believed to be seeding from an acute Trust. The attack rate was 17% (8/46) over the previous 12 months. Control measures were closure to new admissions, rapid isolation, testing and appropriate treatment of suspected cases, infection control, environmental cleaning, and improved prescribing of antibiotics and proton pump inhibitors (PPIs).

Results

All isolates were ribotype O27. Only one of the cases was linked to recent admission to hospital. Antibiotic use was high and did not comply with local antibiotic guidelines; and all the residents took PPIs. GP prescribing was improved after an educational visit from the Deputy DPH, CCDC and PCT pharmacy adviser. Sustained support for infection control advice and training was provided. There were no new cases

following the establishment of the Outbreak Control Team (OCT). One recurrent case was treated. Large numbers of residents with type 5-6 stools were isolated and tested but none of them had CDAD.

Discussion

This was a slow burn outbreak and we believe there was transmission within the home. The clustering of three cases around December 2009 and three cases in March 2010 were opportunities to have considered an OCT response. The OCT was effective at implementation of previous advice given to the home and in improving prescribing.

We are concerned that isolating old people with loose but formed stools in their rooms while awaiting stool testing may be unnecessary. We suggest that the policy of isolation of care home residents with loose but not liquid stools should be reviewed.

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Practical application of updated hepatitis A guidelines for an unusual outbreak

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Aims

We describe a recent hepatitis A outbreak, review the practical application of the HPA hepatitis A guidelines¹ and highlight discrepancies with other sources of nationally recognised guidance^{2,3}.

Methods

We followed current guidance in response to a recent outbreak of 3 cases of Hepatitis A and present the important changes from previous guidelines.

Results

We believe the index case acquired the infection in Morocco. Probable workplace transmission then occurred to case 2. Case 3 was a household contact of case 2. Case 3 was a food handler but received vaccine at 17 days post exposure. He was excluded from work for 40 days. He developed hepatitis A 33 days after exposure to case 2.

Discrepancies between HPA guidelines and other national guidance on hepatitis A caused confusion

between HPA and environmental health colleagues regarding exclusion.

Conclusions

It was appropriate to exclude food handlers when hepatitis A vaccine was not received within 14 days of exposure.

Our experience supports the changes to the guidelines. We were fortunate that the food handler complied however consideration was given to using new powers under the Health Protection Regulations 2010.

The guidance recommends exclusion from work for 7 days from onset of jaundice which could have prevented this outbreak; however this relies on timely diagnosis and notification.

We should be alert to the possibility of workplace transmission and the potential to prevent it even when no risk groups are involved.

The index case had not received hepatitis A vaccine pre-travel highlighting the need for better travel health advice.

- 1 Health Protection Agency. 'Guidance for the Prevention and Control of Hepatitis A Infection' (2009) [http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1259152095231]
- 2 Preventing person-to-person spread following gastrointestinal infections: guidelines for public health physicians and environmental health officers. CDPH7 (2004) 362-384 [http://www.hpa.org.uk/cdph/issues/CDPHvol7/No4/guidelines2_4_04.pdf]
- 3 Immunisation against infectious disease C.17 Hepatitis A [http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_124797.pdf]

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Who should eat sandwiches in hospital? An investigation of a cluster of listeria cases

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Background

Over an eight month period, from June 2010 to February 2011, the North East Health Protection Unit investigated eight cases of *listeria monocytogenes* infection in people who had frequent or prolonged contact with a North East hospital.

Five of the eight cases were found to be infected with a rare strain of *L. monocytogenes* (serotype 4, fAFLP 1.33).

Investigations by environmental health officers found the same strain of listeria in sandwiches supplied to the hospital and in environmental samples from the factory producing these sandwiches.

Control measures

Control measures focussed on two main actions

1. Preventing “vulnerable patients” being exposed to “high risk” foods, including pre-packed sandwiches, in a healthcare setting.
2. Removing or reducing the presence of listeria in sandwiches.

What we did: good practice, frustration and challenges

Sandwiches

The legally enforceable standards for the levels of listeria that are permitted in ready to eat foods allow low levels of listeria to be present in ready to eat sandwiches. EHOs worked with the producers to improve the hygiene standards and food handling arrangements in the factory.

Protecting vulnerable patients

The incident control team recommended that sandwiches were not served to “vulnerable” patients – the initial definition of this group included patients on oncology wards or receiving day case chemotherapy. The ICT recognised that there were a large number of patients, both in-patients and at home, who were on medications that would lead to immunosuppression and further work has been undertaken to tighten the definitions of vulnerable patients and advice provided to them as new medications become available.

The issues arising from this incident have been highlighted with the Food Standards Agency; outbreaks of listeria associated with sandwiches in hospitals are not uncommon, and tighter guidance on acceptable levels of listeria in hospital ready to eat food would be welcomed.

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E.coli O157 at a nursery and Strep A at a nursing home – why does it take an outbreak to make things happen?

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We will describe 2 local outbreaks which resulted in a nursery and care home closing temporarily to improve standards of care. The first, *E.coli* O157, affected 5 young babies in a nursery. Inspection of the nursery by PCT infection control staff and Environmental Health Officers identified serious concerns with hygiene and infection control. Child welfare concerns had been raised by parents at a sister nursery at the same time and both Ofsted and Local Authority safeguarding were involved. Risk assessment by the Outbreak Control Team (OCT) resulted in Ofsted suspending the registration of the nursery and the nursery being closed. During the 8 day closure, the nursery owners refurbished the nursery, put into place policies and procedures and facilitated training for staff. All agencies involved will closely monitor compliance with the standards by means of spot checks over the coming months.

The second, an increase in group A strep (GAS) infections, affected elderly and very vulnerable patients at a nursing home. Over 3 months, 2 cases of invasive group A strep infection and 1 GAS wound infection were identified at the home. Inspection of the home by a PCT infection control nurse identified serious concerns with infection control and patient safety. Following a multi-agency OCT attended by agencies including the police and the Local Authority safeguarding team, the Home was closed to new admissions. The Home remained closed to admissions for a period of over 12 months. An intensive programme of infection control training was put into place with staff. Although standards following re-opening were high, it has been challenging to maintain them.

The presentation will explore the roles and limitations of statutory agencies in enforcing standards of care, the mutual benefits that they bring to the OCT and the potential for preventive working outside the outbreak situation.

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Poster Abstracts

Surveillance

Audit of surveillance of acute hepatitis B infection in Greater Manchester

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Aims

A national agreed minimum data set on all reported cases of acute hepatitis B including associated exposure information is being collected in all local health protection units (HPUs) according to the HPA standards since 2008. This is in order to help inform and monitor the UK vaccine policy for hepatitis B. This audit reviews the surveillance and management of acute hepatitis B by Greater Manchester Health Protection Unit (GMHPU) based on National standards, and identifies areas for improvement.

Methods

All cases of acute hepatitis B which occurred between January 2010 and December 2010 were pulled from a file of paper records and/or HPZone (GMHPU information system holding electronic records).

Results

The audit revealed that GMHPU is achieving many of the HPA standards set for surveillance, case and contact management of acute hepatitis B infection. In some circumstances, it was not possible to ascertain whether a standard was being met or whether the information was omitted either due to human error or limitations in layout and/or structure of the form used for data entry. National guidance indicates that HPUs should monitor outcome of patient follow up and contact tracing. Standards are being met with regards to informing contacts and arranging testing and vaccination of contacts through a letter to contacts' GPs. However, it does not appear that GMHPU is following up on the action taken by GPs in response to the letter to ensure appropriate action is taken.

Conclusions

Amendments to the GMHPU acute hepatitis B surveillance and contact tracing form were recommended to facilitate data entry and prompt staff

to undertake all the actions required. There is also a need to discuss local arrangements for ensuring follow up of cases and contacts by GPs, i.e. confirmation of receipt of letter, checking what further follow up has been undertaken by GP.

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Auditing the management of sporadic salmonella cases within two local authorities: Findings and reflections

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Aims

Non-enteric salmonella is a significant cause of infectious gastrointestinal (GI) disease in the UK. Adequate and timely investigation of sporadic cases can help to identify risk factors to prevent onward transmission and help prevent future cases. We undertook an audit of the management of sporadic cases of salmonella GI infection against locally developed minimum standards to identify the epidemiology of sporadic cases, aspects of good practice and areas for improvement.

Methods

Standards were developed by the West Yorkshire HPU for the management of sporadic cases of salmonella in consultation with two local Environmental Health (EH) teams. Local practice regarding laboratory confirmed cases of sporadic salmonella GI infections in the two districts over a 2 year period (Jan 2008 – Dec 2009) was audited retrospectively against the standards. Anonymised data of all cases and detailed data from approximately 55% of the cases was included. EH teams self-audited their local practice in relation to the process standards.

Results

Although the public health response to sporadic cases was similar, both EH teams varied in their record

keeping and documentation. This was partly due to differences in the local demography and disease burden. From the data available it was estimated that direct contact was made (telephone or in person) with 65% of reported cases, and that in 61% of cases there was a record of possible risk factors. The case records were insufficient however to audit the majority of the standards e.g. timescales and actions taken in investigating cases.

Conclusions

The audit has identified areas for improvement of documentation based on agreed minimum data-sets regarding sporadic salmonella cases. This will also be applicable to managing other cases of GI infection.

The audit highlighted the challenges of undertaking audits across organisations with very different perceptions of the audit process and also in conducting audits retrospectively.

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Changing epidemiology of influenza A(H1N1) 2009 in the community in Wales 2009 - 2011

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Aims

Pressure on secondary care in Wales was higher during the 2010-11 influenza season than during pandemic waves one and two. We investigated the hypothesis that this was accounted for by an older age distribution of influenza cases during 2010-2011 in comparison with age distributions observed during pandemic waves one and two using GP consultation data.

Methods

Age specific consultation rates for influenza were assessed using data automatically collected from approximately 80% of practices in Wales between May 4th 2009 and January 16th 2011 through the Audit+ Data Quality System. Pandemic waves one and two were defined as weeks 27 to 34 and weeks 37 to 52,

2009, respectively. The 2010-11 influenza season was defined as week 48 2010 to week 2 2011, although had not returned to baseline levels of activity at the time of analysis. Cumulative age specific consultation rates were calculated and significance of differences in age distributions were assessed.

Results

Influenza A(H1N1) 2009 activity in Wales predominantly affected patients aged under 65 years in all three waves. However, each successive wave of influenza A(H1N1) 2009 activity in Wales has affected progressively older age groups. Children aged under five were predominantly affected in wave one, children aged 10 to 14 in wave two and young adults aged 20 to 24 years during the 2010-11 season. Differences in age distributions were statistically significant.

Conclusion

The increasing age profile of influenza A(H1N1) 2009 activity may help explain higher hospitalisation rates during 2010-11. This should be considered in assessing implications of future waves of influenza A(H1N1) 2009 in Wales.

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Completeness of notifiable infectious disease reporting in UK: an analytical literature review

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Aim

We carried out an analytical literature review of published literature on the completeness of notification in the United Kingdom in order to identify factors associated with reporting completeness, and to investigate whether notification is improving.

Methods

Medline, EMBASE and other electronic databases were searched using a combination of key words. The review was limited to published studies conducted in UK between 1974-2010 that provided quantitative

measurements of the completeness of reporting of notifiable diseases to local, regional or national public health authorities, comparing the total number of disease notifications received through conventional reporting to one or more additional data sources. Relevant data were extracted from eligible studies, entered in an EpiData database and analysed with STATA 11.0 software.

Results

A total of 5349 published articles were screened and 53 studies met the inclusion criteria. Only nine studies presented corrected data (using capture-recapture methodology to estimate the number of cases missed by all data sources). Studies were identified of 13 different notifiable diseases but most were conducted on tuberculosis or meningitis. Reporting completeness varied from 3% to 95%. It was strongly associated with the disease being reported, and appears to have improved in recent decades for tuberculosis and meningococcal disease.

Conclusion

Under-notification leads to an underestimate of disease burden. The use of multiple/secondary reporting sources in addition to the conventional system is important in order to undertake periodic evaluation and to improve case ascertainment. This study will provide a baseline against which to assess the impact of recent changes to public health law, including the introduction of compulsory laboratory notification.

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Geographic distribution of infectious diseases in relation to socio-economic factors in Birmingham

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Aim

There is a well-known relationship between deprivation and many illnesses, chronic medical conditions as well as infectious diseases. The aim of this study was to explore the relationship between socio-economic factors and infectious diseases in the Birmingham population.

Methods

Incidence rates at electoral ward level, using ONS estimated 2008 population, for tuberculosis, hepatitis B, hepatitis C, invasive group A streptococcal infection

(iGAS) and mumps for the period 1 February 2010 to 31 January 2011 were calculated. The published Index of Multiple Deprivation 2007 (IMD) was used as the marker for socio-economic deprivation. IMD was aggregated from Lower Super Output Areas level to ward level using population weights. Maps of IMD and infectious disease incidence were produced and the correlation (Spearman's rank correlation coefficient) between IMD and disease incidence calculated.

Results

The study confirmed the relationship between deprivation and infectious disease in the Birmingham population. A significant correlation was demonstrated for TB, hepatitis B, hepatitis C and iGAS, with higher incidence among deprived communities. In contrast, mumps was negatively related to IMD.

Conclusions

"Healthy Lives, Health People", the national strategy for public health, reaffirms the commitment to reducing health inequalities. This study is the first step taken by the local Health Protection Unit to define and explore how the most vulnerable groups in Birmingham are disproportionately affected by infectious diseases.

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Health care impact of a mass gathering event: surveillance using routine data on A&E attendances

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Aim

To detect changes in the number of patients presenting to local Accident and Emergency departments during the 2010 Ryder Cup.

Methods

Analysis of routinely collected data on new attendances (whether admitted or not) at A&E departments for hospitals in Wales close to the event (the Royal Gwent Hospital (RGH), Nevill Hall Hospital (NHH), University Hospital of Wales (UHW)), using CUSUM technique (after adjusting for day of week, month, and year) to highlight changes in attendance rate.

Results

No evidence of major increase in demand at any of the hospitals during the event.

Prior to the Ryder cup both NHH and RGH daily attendances fluctuate similarly, however during the event attendance at RGH fell whilst at NHH it was sustained, until after the event. The chart for UHW shows no linkage to either hospital or the event.

Discussion

The lack of major changes in demand confirms no major incidents occurred.

At UHW, a tertiary centre, referrals from other centres make A&E attendances unreflective of purely local demand. At RGH and NHH, secondary hospitals, local factors affect both similarly. The separation of the two during the event suggests that one alone was affected by a local event. The cause of this reduced demand at RGH is unclear; declines in illness, or difficulties attending RGH due to traffic congestion, are both possible. The pattern for NHH is also compatible with some work being displaced to it.

Conclusion

No major health event occurred during the 2010 Ryder Cup. The CUSUM technique demonstrates changes in demand for services rapidly in real time as the drop in demand in Newport over during the event shows. This tool could detect “silent” outbreaks associated with major events.

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Information for action; local monitoring of communicable disease data

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Aims

We aimed to examine the public health value of a real time computerised alerting function using communicable disease data collected from Essex.

Methods

We undertook a 12-month prospective study for 50 infections reported from a population of 1.7 million, comparing the detection of clusters by conventional means (reports from the public and local agencies)

with those identified by an alerting function applied to communicable disease notifications entered on an SQL database. The function used the following algorithm to generate an alert. An expected value was generated by calculating the mean (μ) of the number of cases entered onto the system in the week concerned, plus three weeks before and three weeks after it for the previous 5 years i.e. 35 values in all [3]. The alert level was defined as $\mu + (\text{SQRT } \mu * 1.28155)$. In addition we undertook a 10-year retrospective study of those diseases with a particularly variable baseline by fitting a cubic spline and calculating the two standard deviation limit.

Results

The prospective study identified 104 alerts, but none were associated with an outbreak. The retrospective study showed that an alerting function was of most value for identification of *Cryptosporidium* outbreaks, which would not otherwise have been noticed.

Conclusions

Computerised systems for cluster detection can be of value in certain circumstances but do not replace good relationships with stakeholders.

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IoLog: a pilot of a web-based system for sharing of incident and outbreak information across a health economy

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Aims

To run a pilot to judge whether a simple web-based system can enable real-time sharing of incident and outbreak information between Acute Trusts, Mental Health in-patient facilities and care homes across a whole health economy.

Methods

IoLog is a web-based system which allows incident and outbreak information to be shared across a wide range of settings. IoLog enables care teams to enter information about incidents and outbreaks onto a web-

based platform that is accessible to registered users in a defined “domain”; in this case the Cambridgeshire and Peterborough health economy.

IoLog has been piloted by Infection Control professionals and HPA staff over a period of 6 months to enable information sharing and learning between organisations. The website was written to ensure fast, stable operation, even over slow internet connections, and has a simple intuitive interface. Its design features have attempted to balance flexibility while remaining analysable, building upon lessons learned during the operation of other “soft” surveillance systems.

The pilot was conducted with a strong collaborative approach in an attempt to open information streams between organisations operating in different care settings.

Results

IoLog was used widely by Infection Control and HPU teams across Acute, Mental Health and care home settings in the Cambridgeshire and Peterborough area.

It was well received and considered useful by every team using it, allowing simple, structured and fully auditable information to be shared appropriately.

Conclusions

This pilot, of a locally-developed system, has demonstrated that the IoLog website is fit for purpose and provides the appropriate level of functionality to enable ease of use coupled with the collection of the information needed to monitor incidents and outbreaks within healthcare settings. It is likely that it will continue to be used by the teams involved in the pilot and has already attracted significant interest from a number of other areas.

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Is communicable disease control a core public health function? Evidence from 20 years mortality data

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Introduction

Since 2003 Communicable Disease Control has been separated from general public health. A review of infectious disease mortality in Wales since 1990 explores the effect of this change.

Method

Annual registered of Welsh residents Mortality Rates for all causes, selected infectious and parasitic disease (ICD10 codes A00 to B99), directly standardised to the European Standard population, from 1990 to 2009.

Results

All cause mortality showed a regular and steady decline from 1990 to 2009. By comparison the selected infectious diseases whilst initially steady at around 5/100,000 after 2003 it rose steadily to reach 8.8/100,000 in 2009.

As a proportion of all deaths this is reflected by this representing 0.5% in 1990 to 1.5% of all deaths 20 years later.

Discussion

The selected infectious diseases, do not account for many deaths in the principality but their rising number and proportion needs exploring.

These causes of death exclude respiratory infections except TB, so are not affected by changes in death certificates giving bronchopneumonia as the cause of death in the elderly. Both TB and HIV related deaths have fallen in the last 7 years so cannot explain the rise.

But improvements in diagnostic techniques permitting detection of *Clostridium difficile* infection may have contributed to this change. This does not account for the entire rise.

However it is interesting that the initial step rise was contemporaneous with the abolition of Health Authorities in Wales and England and the division of Public Health into a Health Protection and General PH functions, followed by a further step rise with changes to legislation concerning Nursing Homes.

Conclusion

The increasing proportion of all deaths caused by infections warns that protecting the public from communicable diseases is both a core component of and integral to all Public Health practice.

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Panton-Valentine Leukocidin associated *Staphylococcus aureus* infections in London: clinical and socio-demographic characterisation, management, burden of disease and associated costs

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Aims

To describe the epidemiology of Panton Valentine Leukocidin positive *Staphylococcus aureus* in North East and Central London (population 2.8 million) including demographics, infection characteristics, case management and healthcare associated costs.

Methods

Cross-sectional analysis of routine notifications of *Staphylococcus aureus* encoding Panton-Valentine Leukocidin (PVL-SA) to the North East & Central London Health Protection Unit, along with the attached patient questionnaires, between May 2009 and April 2010.

Results

115 cases of PVL-SA were identified. These included 99 skin and soft tissue infections (SSTIs), 15 severe infections (including one death) and one asymptomatic colonisation. 61% of patients were hospitalised and 42.5% required a surgical intervention. Most cases occurred in children and young adults. 29% of the cases occurred in individual who were in the two lowest socio economic groups or who were unemployed. The majority of infections were community acquired; 60% were caused by methicillin resistant strains. Overall, 27% of cases had previous SSTIs in the year preceding their infection, and 32% had contacts with SSTIs suggestive of PVL-SA albeit these were not confirmed microbiologically. 25% of antibiotic prescriptions for PVL-SA were outside of current guidelines and 33% were inappropriate. Decolonisation is currently the responsibility of general practitioners, but was only confirmed in 2.5% of cases. The healthcare associated cost of PVL-SA for the study period in North East and Central London was in excess of £300,000.

Conclusions

Signs and symptoms suggestive of PVL-SA infection in cases and their close contacts are not always recognised, leading to delay in diagnosis and suboptimal case ascertainment. A lack of governance around

effective case management may also be contributing to the burden of disease. Studies designed to evaluate the effectiveness of decolonisation in eliminating carriage, preventing spread and reducing recurrent infections are required.

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Providing public health data to the NHS in Wales

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Aim

Public Health Wales provides information for action in health improvement and health protection across the NHS and public arena. A key challenge to fulfilling this remit is the diversity of data sources needed. The Public Health Data Library (PHDL) aims to simplify this by providing a central resource for all public health information for action, drawing on diverse data to present the right information to the right individuals at the right time, via a consistent user interface.

Methods

A data warehouse was developed, housing various Public Health Wales data. Standard web reports are accessible via the NHS-wide login, enabling full security with ease of access. For ad-hoc analysis by scientists and analysts, access is granted to the data warehouse through external tools such as Excel, and export to STATA.

This solution was pioneered using population data for the Health Information Analysis Team, and subsequently providing a timely person and residence based STI surveillance system in Wales. CSDC managed the STI surveillance system, and in collaboration with them reports were developed for the Public Health Data Library.

Results

This solution allows the user to produce tables, graphs and maps on selected data, and provides the ability to interrogate the dataset on an ad-hoc basis.

Conclusions

A generic solution has been supplied with the ability to meet the requirements of most public health

datasets. The loading of data into the system has been automated in many cases, which has lessened the burden of data manipulation for many teams in Public Health Wales. The report generation and facilities of the Public Health Data Library allow information to be easily shared across NHS Wales, and made it possible to identify public health issues quickly. More Public Health Wales teams are looking to utilise the Public Health Data Library as awareness of it grows.

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The development and applications of a geographic information system for frontline public health protection

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Aim

This paper describes the development of geographic information system (GIS) tools for use in a Health Protection Unit to support the acute service and the delivery of health protection programmes. Examples of the use of GIS at West Midlands East Health Protection Unit (HPU) will be presented.

Methods

The GIS was developed based on Mapinfo and ArcGIS software. Datasets were firstly integrated in proper formats, such as point, lineal and polygon coverages, for incorporation into the GIS. Datasets included incident cases of infectious disease; environmental data (e.g. air quality data); demographic (ONS population estimates, age, ethnicity) and socio-economic (Index of Multiple Deprivation). The GIS was used to map spatial and temporal disease distribution and to explore epidemiological associations among individual cases of infection. Additionally, the unique quantitative analysis techniques of GIS (such as spatial analyst tool, spatial statistics tool and tracking analysis tool) were used to define disease patterns and to analyse the relationship between disease distribution and environmental/socio-economic factors.

Results

The GIS applications have been utilised mainly in the following areas:

- To identify, describe and monitor clusters and outbreaks of infectious disease
- To identify, describe and monitor disease trends
- To analyse the relationship between disease distribution and demographic, socio-economic and environmental factors

The system has been used to help produce routine and ad hoc surveillance reports for internal and external stakeholders.

Conclusions

In the simplest terms, GIS is the merging of cartography, statistical analysis, and database technology. It is a system that captures, stores, analyses, manages, and presents data with reference to geographic location data and as such, has become an essential part of the HPU's surveillance machinery. We have used it successfully to support public health decision-making in incident response and to inform health protection strategy.

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Immunisation

Audit of the routine teenage booster immunisation in Wales

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Aims

To establish whether all areas of Wales had an active programme for delivery of the teenage Td/IPV vaccine.

To investigate whether different methods of delivery of the programme produce different levels of vaccine uptake.

Methods

In May 2010 a questionnaire was circulated to health services for every local authority area of Wales. The questionnaire investigated whether each area had an active programme for offering the teenage vaccine. If so various aspects of the vaccination programme were investigated via closed questions, and the opportunity was given to discuss barriers or aides to achieving high vaccination rates via open questions. Responses were considered alongside the vaccine uptake data for individuals reaching their 16th birthday between April 2009 and March 2010.

Selected results

Questionnaires were received representing every local authority area of Wales. 17 out of 22 areas had a co-ordinated, active programme for offering the teenage vaccine. The vaccine was offered in schools in 13 local authority areas, at GP practices in 7 areas and a combination of the two in one area. No other locations were used. Areas offering the teenage vaccine in schools achieved greater equity and consistency and generally better uptake than areas offering the vaccine in GP practices. Previous vaccine history was not routinely checked in all areas.

Concern was raised that children living in one local authority area but attending school in a different area may not be offered the teenage vaccine. There was support for offering the vaccine in school year 9.

Conclusions

Offering the teenage booster vaccine in schools generally achieves higher vaccine uptake and equity

of service than offering it in GP practices. Bordering areas with differing programmes for offering the vaccine may generate cross-border issues, potentially reducing uptake. Vaccine uptake may be increased by offering the vaccine in year 9.

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Holiday souvenirs – what not to bring home? Acute hepatitis B!

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North East Health Protection Unit

Background

In 2007-2008, the North East Health Protection Unit (HPU) reported concerns about heterosexual acquisitions of acute hepatitis B infection, especially in travellers to Thailand. This paper presents risk factors and relevant histories of acute hepatitis B cases in 2009-10 in the North East.

Methods

The microbiology laboratory or attending clinicians report each case of acute hepatitis B to the HPU. Cases are interviewed by HPU staff to ascertain clinical information, establish date of onset and likely exposure period, possible exposure risks and likely route of transmission, identify household and sexual contacts who may require testing, (+/- hepatitis B vaccine and immunoglobulin). Data have been abstracted from paper and electronic files for these analyses.

Results

There were 32 acute hepatitis B cases in 2009-2010 in the North East (24 male, 66%). Median age was 30 years (range 4 to 80) and the majority were white British (24, 75%). It was reported that 19 (59%) acquired hepatitis B in the UK; 6 (19%) probably acquired it abroad (5 in Thailand) and a further 7 possibly could have acquired it abroad (4 in Thailand). The most likely route of transmission both in the UK and abroad was via heterosexual sex (17, 53%). All female cases acquired hepatitis B in the UK. No cases had been previously immunised and only one case reported seeing their GP prior to travel for advice about immunisation.

Discussion and recommendations

During 2009-2010 in the North East, nine male cases of acute hepatitis B infection were acquired via heterosexual sex in Thailand. This trend, noted during 2007-2008, has persisted despite immunisation being available. Further work is needed to promote hepatitis B immunisation in risk groups especially those travelling to high prevalence countries.

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Intradermal rabies vaccine boosts immunity in people with low rabies antibody levels

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Aims

This study set out to determine if rabies vaccine could be used intra-dermally to boost immunity. Intradermal rabies vaccine is recommended by the World Health Organisation, but not all countries, including England, follow this recommendation.

Method

A group of 12 adults previously given pre-exposure intradermal rabies vaccine were considered to be non-immune to rabies because their rabies antibody titres were known to be less than 0.5 IU/ml. A cohort study examined the immunizing effect of increasing the participants' cumulative dose of intradermal rabies to 2.0 IU.

Results

All subsequently demonstrated rabies antibody levels >0.5IU/ml; supporting evidence of adequate sero-conversion. No adverse effects of intradermal rabies vaccine boosting were noted.

Conclusion

Within the limits of a small study the findings support the hypothesis that adequate levels of rabies antibody can be achieved by a schedule of intradermal injections delivered on at least three occasions with a cumulative rabies vaccine dose of 2.0 IU. This avoids the expense of antibody testing recommended when lower

cumulative doses are used. The use of rabies vaccine by the intradermal route both reduces costs and allows limited vaccine resources to protect more people.

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National minimum standards for administration procedures in childhood immunisation

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Aims

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

Methods and results

Audit of the Child Health System in Wales in 2006 showed that administrative and data procedures for routine childhood immunisation varied. Consultation with Health Boards identified a need for uniform national guidance on maintaining quality and improving consistency. A steering group of Health Board Managers, Health Solution Wales and Public Health Wales developed a document detailing minimum standards for childhood immunisation administrative procedures. Following wide consultation with immunisers, Welsh Assembly Government and service Immunisation Coordinators, these standards are ready for implementation within Wales. The standards provide Health Boards with a means of identifying areas for improvement in local immunisation services and act as a useful training tool for those involved in administrative procedures around childhood immunisation.

The National Minimum Standards for administration procedures in childhood immunisation apply to the following areas:

- Completion of scheduled and unscheduled immunisation forms.
- Basic house-keeping and data cleansing.
- Maximum age for inputting immunisation data on CH2000.

- 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 data at a national level.

Conclusion

Accurate immunisation reporting and recording underpin effectiveness of immunisation services. Adoption of these minimum standards, with routine local audit to ensure compliance will help ensure quality in childhood immunisation service and maximise uptake of childhood immunisation in Wales. We believe Wales is the first country within the UK to implement such standards.

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Nursery schools and immunisation

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Aims

To scope the current level of support, information and integration of immunisation issues into pre-school/nursery services in Wales.

To offer recommendations on how this may be improved.

Methods

Across Wales there are currently around 1300 day and sessional care establishments registered for pre-school children (sometimes referred to as nurseries).

Providers must meet the requirements of legislation at initial registration and maintain them. The National Minimum Standards set out operational practise and outcomes that Care and Social Services Inspectorate Wales (CSSIW) expects the provider to achieve, with some scope for interpretation.

Results

- The National Minimum Standards whilst including a standard on children's health care, do not currently make reference to immunisation.
- Immunisation is not currently referred to within CSSIW's registration or inspection process.
- Of the four organisations identified in Wales as supporting pre-school establishments two provide templates to record health information when children register. One does not provide any template, one is unknown.
- Templates would benefit from updating to include all vaccines in the current UK childhood schedule.

Conclusions

Collecting information on children's immunisation status can facilitate action to prevent the spread of vaccine preventable diseases in child care settings.

Including information on immunisation issues in the training of registered nursery staff would help raise awareness of the importance of immunisation.

Checking immunisation status on entry to nursery school is not currently a part of National Minimum Standards, this means that any data collected currently would not be systematically scrutinised as a matter of course.

There is the potential to include assessment of immunisation status and the promotion of the positive aspects of immunisation within children's and young people's strategy documents.

The specific recommendations from this scoping exercise for supporting organisations, education, Public Health Wales and policy makers identify how improvements can be made.

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Should alcohol misuse be included as an indication for pneumococcal immunisation in the UK?

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Background

Individuals who misuse alcohol are at increased risk of developing serious invasive pneumococcal disease (IPD). In the UK, the 23-valent pneumococcal polysaccharide vaccine (PPV) is recommended for individuals 2-64 years with certain medical conditions, but not those who misuse alcohol. Many European countries and the US include alcohol misuse (AM) as a PPV indication.

Aims

To use data from an IPD enhanced surveillance system in north-east England to address the question of whether individuals who misuse alcohol should be included in national guidelines for PPV.

Methods

A case was defined as a north-east England resident with *S. pneumoniae* isolated from a normally sterile site and a clinical presentation of IPD. Cases were ascertained by local NHS microbiology laboratories reporting to the Health Protection Unit. An enhanced dataset was collected (including risk factors, immunisation and outcome) from hospital and primary care. AM was identified by clinical opinion, most commonly classified using the alcohol use disorders identification test (AUDIT). Effectiveness of PPV was calculated using the indirect cohort method.

Results

Between April 2006 and March 2010 there were 462 cases of IPD in individuals 16-64 years. AM was the most common risk factor identified (18.6%, 85/457). The case fatality rate (CFR) associated with AM cases was 18.5%, statistically significantly higher than cases without a risk factor, 8.0% (Risk ratio: 2.3, 95%CI 1.2-4.4, $p=0.0194$). Of vaccinated AM cases, 58% (7/12) were caused by a vaccine-type compared to 92% (54/59) of non-vaccinated cases. The effectiveness of PPV at preventing vaccine-type IPD was estimated at 77% (95%CI 42%-100%, $p=0.0096$).

Conclusions

Our study has highlighted a high level of AM in IPD cases 16-64 years associated with a high CFR. PPV proved to be effective at preventing vaccine type

IPD in AM cases. This information has highlighted the potential benefit of using PPV in individuals who misuse alcohol.

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Socioeconomic distribution of children in Wales receiving MMR late or not at all

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Aims

To identify how many children resident in Wales are not immunised against measles, mumps and rubella, how many children in Wales received MMR vaccination after two years of age and investigate associations between socioeconomic status and numbers of children not vaccinated with MMR or vaccinated late.

Methods

Immunisation status of children resident in Wales, born April 1st 1990 to July 31st 2008 was assessed using the Wales National Community Child Health Database. The Welsh Index of Multiple Deprivation was used to assess socioeconomic status. Associations between immunisation coverage and socioeconomic status were evaluated at LSOA level.

Results

In this analysis, 11,711 (8.4%) children in Wales had not received MMR immunisation and 46,904 (7.4%) had received MMR vaccination late (after two years of age). There was not an obvious relationship between deprivation quintile and percentage of children unvaccinated, however percentage of children receiving MMR vaccination late increased across the least deprived to the most deprived quintiles. The risk ratio (compared to Wales as a whole) for being immunised later than two years of age was 0.9 (95%CI, 0.86 - 0.91) in the least deprived quintile and 1.14 (95%CI, 1.13 - 1.16) for children in the most deprived quintile.

Conclusion

Coverage of one dose of MMR immunisation in children resident in Wales born between April 1990 and July 2008 is less than the recommended 95%. In this

analysis there were no obvious differences between numbers of unvaccinated children across deprivation quintiles. Children from more deprived areas of Wales were more likely to receive MMR immunisation later than their second birthday, suggesting that they remain vulnerable to measles, mumps and rubella for longer than children in less deprived areas.

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The flu VIP pack. A flu programme planning guide for General Practice

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Aims

To produce a guidebook to help support Primary Care Organisations (Health Boards) and General Practices in delivering an efficient, effective flu immunisation campaign to their local community.

Methods

A scoping exercise identified wide variety of support offered to General Practice across Wales in their annual flu campaigns by Primary Care Organisations. Detailed technical guidance was available in some areas, in others guidance was more user friendly and in other areas no documented guidance on planning seasonal flu immunisation campaigns was available.

No Wales wide guidance was available. The flu Vaccination In Practice (VIP) pack was developed to offer consistent guidance across Wales.

Results

The VIP pack, provides a year planner, an overview of flu campaigns, links to available resources, and gives examples of good practice and innovative ideas for maximising the campaign are. The pack includes:

- A year planner. Suggested timescale/plan for GPs and their annual flu campaign. Addresses staff, management and patient issues.

- Guidance on Read coding and Audit+
- Prescribing flu vaccine. Use of Patient Group Directions (PGDs) and Patient Specific Directions (PSDs).
- Guidance on consent issues
- Financial issues. Quality and Outcomes framework (QoF), Directed Enhanced Services (DES), administration and reimbursement guidance.
- Statistics and uptake links and guidance
- Handling and Storage of Vaccines
- Training and updating staff
- Bulletins and updates
- Guidance on partnership working
- Good practice (examples)
- Leaflet and posters
- Useful contacts

Throughout the document there are tips on running an effective campaign, short patient stories and health care worker's insights. The document is available to view at <http://tinyurl.com/FluVIPP>

Conclusions

The VIP pack provides national level guidance on planning flu campaigns in Wales. This is expected to improve access to supporting resources for planning.

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Outbreaks: so what? Lessons learnt and changes in practice

An outbreak of influenza B in a prison in West Midlands UK, 2008

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Institutional outbreaks of influenza like illness and influenza are not uncommon.

Aim

This report describes a large outbreak of influenza like illness in a prison affecting prisoners as well as staff.

Methods

Cases were investigated by taking pharyngeal swabs for testing by PCR (for RSV, Influenza A&B, enterovirus, Parainfluenza RNA and adenovirus DNA) and viral culture.

Rapid implementation of respiratory illness control measures included isolation of symptomatic prisoners in their cells, suspending work and social interactions between prisoners in other wings, enhanced environmental cleaning, safe disposal of waste and restriction of staff movements between prison wings. Antiviral (Oseltamivir) was used for prophylaxis and treatment, prisoners in clinical risk groups were given seasonal influenza vaccination.

Results

One hundred and twelve out of 680 prisoners met clinical case definition of influenza like illness.

The epidemic curve confirmed an outbreak with an epidemic, consistent with person-to-person transmission.

Influenza B RNA was detected by PCR from nasopharyngeal swabs taken from ten prisoners, all housed on wing A. Influenza B virus was isolated from one specimen and typed as B/ yamagata like virus strain identifier B/ENG/133/2008. One further specimen was positive for RSV suggestive of a recent infection.

Three prisoners in clinical risk groups required hospitalisation for pneumonias.

36% (25/69) of prisoners considered to be in clinical at risk groups were already vaccinated with seasonal flu vaccination including the 48 year old prisoner with co-morbidities who died during the course of this outbreak.

Higher than usual level of absence was noted amongst the prison staff but the outbreak control team was unable to investigate staff illness any further due to lack of occupational health services facilities for the prison staff.

Conclusions

The outbreak remained largely confined to the wing where it started, suggestive of relative success of control measures. Virus isolated in this outbreak belonged to B/Yamagata lineage. These are distinct from the B/Victoria lineage virus (B/ Malaysia/2506/2004-like virus) which was included in the 2007/08 northern hemisphere influenza vaccine. This may partially explain lack of protective effect of seasonal flu vaccination and relatively high incidence of secondary complications. Outbreak highlighted the need for developing prison specific outbreak and pandemic flu plans.

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Campylobacter jejuni outbreak related to a summer wedding party in Suffolk, England in 2010

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Background

An outbreak of diarrhoeal illness occurred among guests attending a wedding in Suffolk, United Kingdom in June 2010. The wedding included a main wedding breakfast which was served early afternoon followed by an evening reception.

The main wedding breakfast had 84 guests and the evening reception had 120 guests. None of the guests who attended only the evening meal had been reported ill.

Aims

Investigate outbreak and identify lessons for future food safety measures and containment of outbreak.

Methods

A retrospective cohort study was carried out and information was collected from 54/84 (64%) guests using a self administered questionnaire. No food samples were available for analysis at the time of investigation.

Results

Thirty four guests reported illness, mainly diarrhoea and abdominal pain and the majority reported their symptoms 48-72 hours after the wedding. Stool samples from eight affected guests were positive for *Campylobacter jejuni*. The most likely source of the outbreak was chicken liver pate which was served as a starter (RR= 5.68, 95% CI 0.87 to 37.13; p=0.01) Six of the eight *Campylobacter* positive samples were further characterised and all six were found to be HSI 1 and genotype 8 or 14 consistent with a common source.

Conclusions

The incubation period and reported symptoms were suggestive of *Campylobacter* infection. This diagnosis was later confirmed microbiologically. Initial epidemiological investigations showed chicken liver pate as the possible source of the outbreak. Food safety officers from the local authority discussed the required standards for future chicken liver pate preparation and food safety management

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Campylobacter, chicken liver parfait and the curse of the celebrity chefs

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Background

It is estimated that 65% shop bought chicken meat is contaminated with *campylobacter* which may be present throughout liver tissue. Despite repeated advice from the Food Standards Agency regarding safe handling and preparation of poultry, most recently in 2010, outbreaks of campylobacteriosis associated with chicken liver products have recently increased, alongside a sustained increase in sporadic cases.

The outbreaks

We report two outbreaks of campylobacteriosis associated with chicken liver parfait served in “fine dining” restaurants which occurred before and after the FSA issued guidance about the safe preparation of chicken livers. The outbreaks affected 26 and 9 suspected cases respectively, including 20 laboratory confirmed cases, one requiring hospitalisation. In both outbreaks, chicken livers were cooked, in accordance with restaurant recipes, at low temperatures and / or for short periods of time, ensuring the livers remained pink. The method in one recipe was insufficient to kill *campylobacter*. Environmental health officers advised both premises to cease preparation of the implicated products.

The curse of the celebrity chef

The increase in outbreaks associated with chicken liver products is probably influenced by culinary fashion. Shortly after the outbreaks, and following FSA guidance, several high profile celebrity chefs published chicken liver recipes in national newspapers, in each case recommending that the livers should remain “pink” or “just seared on the outside”.

The challenge

Celebrity chefs enjoy extensive media coverage and there is intense popular interest in cookery. These outbreaks highlight an emerging challenge of effectively communicating accurate food hygiene messages which contradict the perceived wisdom of popular culture and some celebrity chefs.

Possible strategies might include engaging celebrity chefs, and others, in the promotion of safe food messages. Alternatively, considering the increase in outbreaks, it could be argued that more robust enforcement is required.

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Community screening for Tuberculosis in a high-risk, hard to reach population in South Wales

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Background

In 1996, an outbreak of TB occurred among a group of people connected via very strong social networks.

Cases resided within a population of c.3000 in a deprived area of South Wales. Incomplete engagement with TB Services at that time was suspected. From 1996-2009, twenty-six further linked cases occurred.

Aims

In light of changes to NICE guidance since 1996 and ongoing increased risk within the community, we aimed to re-screen known contacts of cases and offer screening to the wider community, providing onward referral for further investigation and management as appropriate.

Method

Public Health Wales' Health Protection Team engaged with a multi-agency, multi-disciplinary group including prominent representation from community members.

Barriers and facilitators were identified. Letters, tailored to local literacy levels, invited c250 known contacts to be screened. The wider community were informed via the media and local health and non-health networks. Screening occurred day-time and evening sessions held at a venue on the estate.

A free minibus transported those requiring chest x-rays to specially booked appointments at the local community hospital. The specialist TB Physician and Nurse came into the community to run a chemoprophylaxis clinic on the estate.

Results

In total 332 people were screened: 132 of those targeted by letter and 200 self presenters. BCG vaccination was given to 76 children and young people. Chest x-ray referral was made for 76 people, with 100% attendance. Chemoprophylaxis was indicated for 20 people.

Heightened awareness also prompted symptomatic residents to visit their GPs and 2 cases of active TB were diagnosed.

Conclusions

This approach assisted community members to understand their risks, empowering them to help solve their own health problems. Tailoring screening resulted in 'normalising' attendance and a high degree of accessibility, acceptability and satisfaction with the programme

Public health interventions reached individuals in need and those who had not previously engaged with conventional TB services.

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Control of iGAS outbreaks in care homes- what measures are effective?

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Aims

The incidence of invasive group A streptococcal (iGAS) infections is increasing, particularly in the elderly. Outbreaks in nursing and care home care homes are commonly associated with a high morbidity and mortality. Prompt control is therefore important, but current guidance is not definitive in regard to management. We therefore reviewed reported incidents in an attempt to clarify which control measures are most useful.

Methods

We undertook a literature search not restricted by date or language and asked colleagues in the English Health Protection Units for reports of any incidents they had dealt with. We extracted a defined set of data items from each report.

Results

We identified 16 reports covering a total of 31 outbreaks describing 112 definite cases of iGAS. There were few reports from outside the UK and US. Carriage rates of GAS were 5% for residents and 3% for staff. The decision on whether to use selective or mass prophylaxis did not appear to correlate with the presenting features, severity or speed of spread of the outbreaks nor was there a relationship with time to cessation of cases or difficulties in achieving control. Increased risk to roommates of affected patients and the role of environmental contamination was mentioned in some reports.

Conclusions

From the limited descriptive information available either selective (following swabbing) or mass prophylaxis is likely to be successful. There is some evidence that rigorous infection control procedures and thorough environmental cleaning are important. Having a colonised room mate maybe a risk factor for infection. Staff and medical practitioners who attend residents of homes need to be aware of the various presentations of GAS infection, the importance of recognising possible links between cases separated in time and early reporting of GAS infection to local health protection teams.

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Cryptosporidiosis among swimming pool users: changing pool operators' management of faecal accidents

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Background

An outbreak of cryptosporidiosis associated with a swimming pool complex was first identified following illness among birthday party guests attending the leisure centre on the afternoon of the 22nd August 2009.

Initial outbreak investigations established that a faecal accident had occurred in the toddler pool during the morning.

Aims

To investigate associations between specific pool features or activities and risk of cryptosporidiosis

Methods

A retrospective cohort study of swimming pool party guests on 22nd-23rd August was conducted. Participants were interviewed by telephone, using a specifically designed questionnaire.

Results

Completed questionnaires were available for 33 individuals (14 female, 19 male; 14 adults, 19 children).

Two activities and one pool feature were associated with an increased risk of developing symptoms of cryptosporidiosis: swimming (RR 1.61; 95% CI 0.84 to 3.10; p-value 0.052), swallowing pool water (RR 1.42; 95% CI 1.04 to 1.92; p-value 0.046), and using the toddler slide located in the toddler pool (RR 1.41; 95% CI 1.04 to 1.93; p-value 0.04).

The small cohort size and high attack rate inhibited further analyses.

Conclusions

Ingesting oocysts through swallowing pool water provides a plausible biological explanation for the observed increased risk. The increased risk associated with use of the toddler slide is consistent with the report of smeared faeces being seen on the slide.

The slide design (no removable components), and inadequate procedures used for cleaning are likely to have disseminated oocysts widely increasing infection risk to pool-users during and after the faecal accident. Pool management were instructed to amend policies and procedures and to improve staff training at the leisure centre. The Pool Water Treatment Advisory Group (PWTAG) subsequently introduced recommendations on the cleaning and disinfection of faecal smear accidents.

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Factors affecting prevention and control of viral gastroenteritis outbreaks care homes

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Aims

Understanding what factors affect both the occurrence of outbreaks of gastroenteritis and their outcomes is important to better prevent and control them. We assess the effect of quality of care, as measured by Care Quality Commission (CQC) inspection outcomes on the occurrence of outbreaks in care homes in Cheshire and Merseyside, North west England during 2009.

Methods

Retrospective study combining CQC data for 2008, overall rating and environment standards closely linked to infection control, with data on outbreaks in care homes during 2009. We use Poisson regression to model factors associated with outbreak occurrence, and the influence of these in the attack rate in residents in care homes affected with outbreaks.

Results

There are 438 registered care homes in Cheshire and Merseyside, with outbreaks in 136 of them, and 26 with more than one outbreak. Outbreak occurrence was not associated with either overall quality or individual environmental standards; however care home size was associated with outbreaks occurrence (RR 1.013, 95% CI 1.008-1.018, per additional place). Similar association is also present for the occurrence of multiple outbreaks. Once outbreaks occurred, both care home size and better score in the hygiene and infection control standard are inversely associated with attack rate in residents, while delay in reporting the outbreak was associated with higher attack rates.

Conclusion

Outbreaks are random occurrences and as such, quality of care has little impact of their prevention. However, once an outbreak starts good hygiene and infection control standards, and prompt reporting and close working with community infection control staff can help minimise its impact.

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Investigation of Norovirus outbreaks in caravan and campsites and subsequent development of guidelines for prevention of secondary spread

J Taylor, L Evans

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Background

Norovirus is the most common cause of infectious gastroenteritis in England and Wales and in high density tourist areas like the South West, increasing numbers of caravan and campsites are reporting outbreaks of illness. In the summers of 2008 and 2009, large outbreaks of Norovirus were reported from caravan and campsites on the North coast of Cornwall.

Aims

To identify potential sources of infection and develop specific guidance for use by caravan and campsites.

Methods

Outbreak control teams were convened for both outbreaks and a cohort study was carried out in 2009 to try to identify the source of the outbreak using a postal questionnaire that included details of demographics, dates of stay, symptoms, food / drink history and leisure activities.

Health Protection and Environmental Health Officers (EHOs) visited caravan and campsites in the area and the Environment Agency and South West Water investigated water sources.

Results

The response rate was 57%. Statistically significant results were found for: 'swam in sea water off the beach?' (RR=2.12, 95% CI: 1.30 – 3.45) and 'if swam off the beach, swallowed water when swimming in the sea?' (RR=2.01, 95%CI: 1.16 – 3.49). However, results

were confounded by age and no longer statistically significant once adjusted. Considerable secondary spread amongst occupants on site was also identified.

Inadequate infection control practice on caravan and campsites was recognised and advice was given to managers regarding infection control, cleaning and hand hygiene to try to reduce secondary spread.

Conclusions

The South West Peninsula Health Protection Unit will improve and repeat the study during the next outbreak. In collaboration with Cornwall Council Environmental Health Services and the Environment Agency, it has subsequently developed guidelines for sites to use before and during periods of Norovirus activity to reduce the impact of secondary spread and encourage early reporting of illness.

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Outbreak of multi-drug resistant *Acinetobacter baumannii* in an intensive care unit in the UK

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² Mid Staffordshire NHS Foundation Trust

Background

Infections due to multi-drug resistant *Acinetobacter baumannii* (MRAB) are being increasingly recognised in hospitals and intensive care settings resulting in increased length of stay, morbidity and/or mortality.

Aim

We describe investigation and management of MRAB outbreak (resistant to both carbapenems and fluoroquinolones) in an intensive care unit (ICU) of a district hospital.

Methods

Over a period of two weeks in summer of 2010 two cases were found to be colonised with MRAB in an intensive care unit (ICU). This triggered an investigation to ascertain the extent of the outbreak, identify its source, and prevent further infections through implementation of control measures.

Active case finding included screening of other patients in the ICU with nose, throat and wound swabs.

Isolates were sent to the reference laboratory for further characterisation and typing.

Results

A further case was identified four weeks later through active case finding approach.

Decolonisation with chlorhexidine washes was extended to all patients in the ICU after the third case was confirmed. Other control measures included cohorting colonised patients at one end of the ICU, enhanced environmental cleaning including hydrogen peroxide vapourisation and strengthening of contact precautions. Screening of all patients was continued for 6 months twice a week to ensure eradication of MRAB.

All three patients had the same strain belonging to the European clone II lineage designated STAF05AC-1 which by PFGE is highly similar to the South East clone.

Conclusions

MRAB was brought into the hospital environment by a patient repatriated from United Arab Emirates with a tracheostomy in situ. Further transmission possibly resulted from lapses in infection control practices and environmental contamination.

There has been no further cases identified since, which suggests effectiveness of control measures.

All patients transferred into the hospital from outside UK are now screened for MRAB on admission.

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Role of genotyping in a TB cluster investigation in a college

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Greater Manchester Health Protection Unit, Manchester

Aim

To describe a cluster of tuberculosis (TB) cases in a college and discuss the role of genotyping in managing the cluster.

Methods

Active case finding after notification of a TB case in a college and the use of genotyping in identifying links between the cases.

Results

Two cases of TB were diagnosed in students attending the same college in January and April 2010. Contact screening of the second case at revealed that he had been on a college trip to Barcelona in October 2009 with a case who had been notified as Pulmonary TB in September 2009. This case went on the trip against medical advice before treatment had been started and withheld information about his college. Screening of the cohort of 24 students who went to Barcelona led to detection of 6 cases with active disease and 9 with latent infection. Genotyping confirmed that the cases in September 2009 and April 2010 had been infected with indistinguishable strains, while the case in January 2010 was separate. In view of the extensive transmission during the trip, the strain was searched in the strain typing database to query whether it was responsible for any other clusters. However, only 6 occurrences of the strain were found in MycobNet between 2007 to date of which 3 were in the same postcode as that of the cases attending college.

Conclusion

This cluster highlighted the extensive transmission of TB amongst young people that can occur during a short trip. Genotyping was useful in establishing or excluding links between the cases. The strain typing database was useful to exclude other clusters associated with this strain in light of the extensive transmission within the cohort. Finally, this cluster shows the potential of genotyping to identify clusters that may not be identified by contact tracing.

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Saturday night and feverish - viral marketing for the missed mumps generation

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² NHS Walsall, Walsall

³ NHS Worcestershire, Worcester

Aims

In December 2010 a local GP alerted West Midlands West Health Protection Unit to a suspected mumps outbreak among young adults registered at his practice. Investigations aimed to gather further epidemiological data and establish possible links in order to inform control measures.

Methods

All notified or confirmed mumps cases from 1st November 2010 in 3 postcode districts around the practice were identified. Cases were contacted by telephone for detailed histories.

Results

Epidemiology

68 cases (29 confirmed positive) met the mumps outbreak case definition from 1st November 2010 to 15th March 2011*. This compares to 8 notifications (1 confirmed positive) in the same area from April to October 2010 inclusive.

Of the 68 cases, 59% were aged 21-30 years (mean 24), 19 (28%) had received only one dose of MMR, and 35 (51%) had no vaccination history available or were too young to receive vaccination.

23 cases were contacted for a detailed history, during which a local nightclub was identified as a common link; 56% had visited the club and a further 22% were close contacts of people who had visited.

Response

Local GPs were alerted regarding the increase in cases, and asked to invite all people born between 1980 and 1990 for vaccination catch-up. Opportunistic vaccination has had a very poor uptake (<1%). A targeted media strategy included press statements, radio interviews, and a poster campaign in the nightclubs was instituted.

Conclusions

The profile of cases reflects a cohort of people with partial or no vaccination history and limited natural exposure to mumps, consistent with other recent outbreaks. The links to a nightclub are strong but there are considerable challenges in communicating preventative health messages to this age cohort who do not often engage with primary care.

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School outdoor activity trips and *E. coli* O157 – lessons learned from an outbreak

CM Goodall, LM Milne, M Lilley

Bedfordshire and Hertfordshire Health Protection Unit

Background

In July 2010, Bedfordshire and Hertfordshire Health Protection Unit were notified of a case of *E. coli* O157 from a 12-year old patient (index case). The only risk factor identified was being a member of a school outdoor activity trip to the Lake District. 48 children had been on the trip, accompanied by school staff.

Methods

School sickness records were used to identify those who had been on the trip who had developed gastrointestinal symptoms. Faecal samples were requested from those affected. All *E. coli* O157 cases completed an *E. coli* O157 questionnaire and were asked about trip activities undertaken. Isolates of *E. coli* O157 were examined at the HPA Laboratory of Gastrointestinal Pathogens.

Results

Excluding the index case, seven children developed gastrointestinal symptoms. Five of the seven submitted samples, two of which were positive for *E. coli* O157. *E. coli* O157 Phage Type 4 was isolated from the three cases. No staff members were symptomatic. The three cases had similar onset dates and were within the same group for various water and land-based activities.

Conclusions

We identified several opportunities for participants of outdoor activity trips to acquire *E. coli* O157. We have identified specific questions to be asked when investigating future outbreaks of *E. coli* O157 related to school outdoor activity trips. Pre-trip information about the risk of acquiring *E. coli* O157 should be given out routinely by schools to all participants of school outdoor activity trips. This information needs to include specific advice about how to reduce the risk of transmission.

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Hot Topics

Cohort study of a campylobacteriosis outbreak associated with chicken liver parfait

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² Health Protection Agency, North East Health Protection Unit, Newcastle upon Tyne

Aims

In June 2010, an outbreak of 24 cases of gastroenteritis occurred among guests at a wedding reception held at a luxury hotel in Northumberland, United Kingdom. An analytical study was designed to determine the risk from exposures among the 65 guests at the event.

Method

A retrospective cohort study was undertaken, using a self-administered postal questionnaire. Cases were defined as persons who attended the wedding at the hotel on 25th June 2010, reporting an illness with diarrhoea or vomiting, with or without other gastrointestinal symptoms, and with an onset of illness between 26th June 2010 and 5th July 2010.

Results

The response rate was 92% (60 of 65 guests). Overall attack rate (AR) was 24 of 60 (40%). Thirteen cases were laboratory confirmed as having *Campylobacter* infection. Univariate analysis revealed a strong association with consumption of chicken liver parfait: risk ratio (RR) = 30.08, 95% confidence interval (CI) = 4.34-208.44, $p < 0.001$. This association remained after adjustment for potential confounders in a multivariable model: RR = 27.8, 95% CI = 3.9-199.7, $p = 0.001$.

Conclusions

These analyses provide strong support for the hypothesis that this outbreak was caused by the consumption of chicken liver parfait. Examination of kitchen practices provided evidence that this chicken liver dish was insufficiently cooked. Together these findings provide strong evidence linking unsafe catering practices with outbreaks of *Campylobacter*, suggesting that prevention must be achieved through influencing catering practices.

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Tuberculosis contact tracing services in England; progress towards a central database resource to aid contact tracing

J Roberts, B Pankania

South West (North) Health Protection Unit, Gloucestershire

Aims

Tuberculosis (TB) contact tracing arrangements and providers vary across England. The purpose of this exercise is to document contact tracing arrangements across the areas covered by Health Protection Units (HPUs) in England and to make this information readily available.

Methods

Details were obtained for all HPUs in England. Information on the geographical area covered, TB contact tracing service location and staff details were obtained. Information provided was checked by follow-up telephone calls with providers. The London TB register was used for details across London. Contact was made with a number of TB nurses to explore opinions of the contact tracing arrangements across England.

Results

There are 177 TB contact tracing providers across the 26 HPUs in England. This breaks down to 115 outside of London (covering 22 units) and 31 in London. All London providers are acute trust based, whereas outside of London a mix of provision was found. 68 (59.1%) acute trust based, 33 (28.6%) based in community clinics, 11 (9.6%) based in Primary Care Trust (PCT) offices and 3 (2.6%) providing contact tracing directly from the HPU. Reflecting this there are a mix of specialist TB nurses, respiratory nurses, health visitors and HPU staff involved in contact tracing. Mapping techniques allow interesting analysis of the density of providers across England, for example with TB prevalence. Nurses uniformly supported the need for a central database resource of contact details for other areas.

Conclusions

This is an up to date and complete list of TB contact tracing providers in England. Our list was circulated to

all HPUs and to the TB section at HPA Colindale who are planning to integrate this into a database resource that will be available to all TB nurses. Thus this “tool” will enable TB contact tracing services to make contact with each other with ease.

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Where is the evidence for emergency planning and management?

ACK Lee, K Challen, A Booth, P Gardois, S Goodacre

School of Health and Related Research, the University of Sheffield

Aims

This NIHR-funded study seeks to establish what evidence exists for emergency planning and management in the published academic literature.

Methods

A search of electronic literature databases was conducted using search terms derived from key themes and topics in emergency management. The extracted articles were initially filtered for relevance based on their abstracts and subsequently categorised by country of origin, topic focus and publication type. The results were then analyzed for trends.

Results

Over 2,500 article abstracts were reviewed. The vast majority of articles were non-research/non-scientific articles. Many were commentaries, event reports or reviews. The highest level studies seem to use correlational research design. Almost no experimental studies are present. About half were not specific to a country. Where a country was specified, the bulk tended to be from the United States and little originated from the UK or Europe. Many of the articles tended to focus on natural disasters or terrorism, and on the emergency planning or response phase. Little was published on recovery phase issues, emergency informatics and intelligence, or capability assessments and maintenance.

Conclusions

In the wake of 9/11 and Hurricane Katrina, it is unsurprising that there is a significant US bias in the published literature. This applies both to their setting

and emergency planning priorities (natural disasters and terrorism). This highlights a considerable evidence gap for emergency planning and management in the UK or Europe. A key issue is the contextual transferability of the existing evidence to our local settings. In addition, the focus appears to be very much on the peri-emergency period. Of the literature that is available, much of it tends to be of weak evidential strength. There is a critical need to build up a robust, local evidence-base holistically spanning the entire emergency cycle to inform emergency planning and management in the UK.

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Speakers and Chairs

Kaye Chapman

Kaye Chapman joined the Health Protection Agency in 2009 after completing a BSc in Medical Microbiology and a PhD in Bacterial Biochemistry. She is currently based at the North East Health Protection Unit working on a research and development project investigating invasive pneumococcal disease epidemiology.

Matthew Day

Matthew is a Public Health Registrar training in Yorkshire and the Humber. He has completed an attachment at the West Yorkshire Health Protection Unit. His background is in epidemiology and is a member of the UK Faculty of Public Health through examination.

Sarah Doyle

Dr Sarah Doyle MB BCH BAO MRCPI MPH MFPHMI is a graduate of Trinity College, Dublin University. She worked for a number of years in hospital medicine before attaining a Masters in Public Health in University College Dublin. She has more than ten years experience in Public Health Medicine and is currently working as a Consultant in Public Health Medicine in the Department of Public Health in the South East of Ireland.

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

Dr Kirsty Foster, Consultant in Health Protection, North East Health Protection Unit. I joined the Health Protection Agency as a Consultant in Health Protection in 2005, after working in general public health, and prior to that general medicine. My day to day work includes the surveillance and investigation of communicable diseases, management of outbreaks and incidents relating to communicable diseases and non-communicable / environmental hazards.

Paul Garner

Prof Garner is Head of the International Health Group at the Liverpool School of Tropical Medicine and Co-ordinating Editor of the Cochrane Infectious Diseases Group.

He has been working for the last 18 years in evidence-based medicine and public health in a variety of areas, but with a focus on infectious diseases, particularly those of the tropics. As part of the Cochrane Infectious Diseases Group he leads a programme of research coordinating a network of over 150 people synthesising research to inform global, regional and national policies in tropical infections and conditions relevant to middle and low income countries such as diarrhoea, malaria and tuberculosis.

His previous work experience includes the UK NHS, Papua New Guinea as a District Medical Officer, then epidemiologist at the PNG Institute of Medical Research, and a researcher at the London School of Hygiene and Tropical Medicine.

Luis Gonçalves

Luis Gonçalves graduated in 2008 from the University of Glamorgan with an Honours Degree in Network Administration and Security. Luis joined Public Health Wales, Informatics in January 2009 as Computer Programmer and Analyst to work on surveillance projects, including 'STI (Sexual Transmitted Infections) Surveillance System in Wales' and most recently on 'All Wales Data Management for Neonatal Hepatitis B Immunisation'.

Monica Graham

Monica is a Health Protection Nurse Consultant in Northern Ireland leading a team of nine nurses. She leads the Public Health Agency's acute response team and has overall responsibility for the operation of the Duty Room. She contributes to the work of the gastrointestinal disease team.

Ruth Harrell

Ruth is a Specialty Registrar in Public Health in her second year of training, and is based in the West Midlands. She has recently completed a placement at the West Midlands East Health Protection Unit, and is currently based in NHS Coventry.

Tracey Hart

Tracey Hart MSc, BSc(Hons), RGN, RHV, RM is an immunisation coordinator with NHS Salford where she has been in post for 4 years. Previously she has worked as a Health Visitor, Midwife and as a Sexual Health Practitioner. She has extensive practical and

operational management experience of leading immunisation programmes within the community and primary care setting.

Neil Irvine

Consultant in Health Protection, Northern Ireland Public Health Agency

David Ishola

David Ishola is a Specialist Registrar in Public Health and an NIHR Clinical Lecturer at the Centre for Infectious Disease Epidemiology, University College London. He is currently on HPA placements with the London Regional Epidemiology Unit and the Immunisation Department at Colindale.

Maria Keramarou

Having completed my studies in Biomedical Sciences and in Public Health and after having worked as a researcher in University of Crete for a few years, I decided to leave the sunny weather of Greece behind me. I joined Public Health Wales for a two year placement as an EPIET fellow (European Programme for Intervention Epidemiology Training) in order to gain experience in Epidemiology in a beautifully different country. My main research interests include foodborne, respiratory and tropical diseases, as well as women's health.

Joanne Lawrence

Jo Lawrence has a scientific background in microbiology and a Masters in Public Health from Leeds University. She has been working as an epidemiological scientist in the Travel and Migrant Health Section at the Health Protection Agency for almost 10 years. She is responsible for national surveillance of all travel-associated infections in England, Wales, and Northern Ireland with a particular interest and responsibility for enteric fever surveillance.

Lorraine Lighton

Dr Lorraine Lighton was appointed Consultant in Communicable Disease Control in Tameside and Glossop in 1991 and is currently based at Greater Manchester Health Protection Unit. Her special interests include sexual health, zoonoses and information management.

Rosemary McCann

Rosemary Mc Cann is a Consultant in communicable disease control at Greater Manchester Health Protection Unit.

Anna Middlemiss

Anna is a Public Health Registrar training in Yorkshire and the Humber. She has completed an attachment at the West Yorkshire Health Protection Unit. Her background is in NHS management and is a member of the UK Faculty of Public Health through examination.

Ashesh Modi

I am a final year Specialist Registrar in Public Health looking for a job as a consultant in Health Protection. This is my sixth oral presentation at Health Protection conferences, so if you don't like this one, I am sure you could consider me good enough for a job on the basis of one of the others!

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.

Mari Morgan

Mari Morgan is a clinical scientist for the Welsh Healthcare Associated Infection Programme, Public Health Wales. Originally trained in parasitology, she has spend the last 14 years working on the surveillance of healthcare associated infections in Wales.

Richard Pebody

Richard Pebody BSc, MBChB, MRCP, DTM&H, MSc, PhD, MFPHM is a consultant epidemiologist working in the Immunisation and Respiratory Diseases Departments at the Health Protection Agency Centre for Infection. Richard initially worked in clinical medicine and infectious diseases, before entering the EPIET programme - a two year training programme in field epidemiology - being based in Helsinki, Finland in 1997-98. Following completion of his UK training in public health, he worked at the WHO Regional Office for Europe on the measles elimination programme and the response to SARS. From 2003, he has worked at HPA Centre for Infections on various aspects of vaccine preventable diseases, including in particular influenza and the recent pandemic. He is responsible for influenza surveillance at the Centre.

Lesley Prosser

Lesley Prosser is the Emergency Response Group Leader at the Centre for Radiation, Chemical and Environmental Hazards, Health Protection Agency, Chilton, Didcot, Oxfordshire.

Carol Roberts

Carol Roberts is a health protection nurse within the Health Protection Division of Public Health Wales based in North Wales and has been in post since 1996. Carol completed her nurse training 1984 subsequently working in an infectious diseases unit holding the post of staff nurse then sister. Carol has a particular interest in the implementation of the Blood Borne Viral Hepatitis Action Plan 2010-2015 (WAG, 2010) related to the development of an All Wales Data Management System to monitor Neonatal Hepatitis B Immunisation.

Charles Saunders

Consultant in Public Health Medicine (Communicable Disease & Environmental Health) at Fife NHS Board since 1995. Former GP. Member of Health Protection Advisory Group, Health Protection Network, HAI Task Force, National Advisory Board Patient Safety Alliance

Peter Sheridan

A Bristol graduate, he trained and practised as a GP in Bedford before retraining in public health in North West Thames and being appointed successively to consultant posts in health services, DPH and health protection. Currently back on his old patch in Beds and Herts.

Graham Sutton

Dr Graham Sutton is a Consultant in Public Health Medicine based at NHS Wakefield District, in Yorkshire. His main role there is around screening – mostly obviously in cancer screening, but he's interested in applying the learning from those programmes to other areas such as antenatal infection screening. He's also a CCDC with the Health Protection Agency.

Roberto Vivancos

Roberto is a Consultant in Communicable Disease Control in Liverpool. He provides support to Infection Control Teams in 5 hospital trusts and 1 PCT. He has experience in the management and control of outbreaks, having led on the investigation of several outbreaks in a variety of settings. He has an MD in epidemiology of STIs and a number of publications in various aspects of health protection. He holds an Honorary Clinical Senior Lecturer with the University of Manchester.

Karen Wagner

Karen joined the Travel and Migrant Health Section as Migrant Health Scientist in August 2010. Prior to this she held a research post in maternal health at the London School of Hygiene and Tropical Medicine and worked in the Immunisation Department at the HPA.

Elizabeth Walton

Elizabeth Walton is a Specialist infection, prevention and control nurse at NHS Salford.

Vicky Watts

I have been a health protection practitioner at Surrey & Sussex Health Protection Unit since 2009. My background is in Environmental Health. I worked as an environmental health officer in environmental protection at a local authority for 2 years prior to commencing my role at the Health Protection Agency.



Notes



Notes

