



Royal College of Paediatrics and Child Health

The British Paediatric Surveillance Unit (BPSU) is part of the Research Division of the Royal College of Paediatrics and Child Health

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Childhood Tuberculosis survey commenced in December 2003

A 13-month study of the epidemiology of tuberculosis started in December 2003. This study is being run at Queen Mary, University of London in collaboration with the BPSU, Health Protection Agency and SCIEH and has ethics approval from the South West MREC.

After years of steady decline, tuberculosis (TB) notification rates are increasing in the UK, particularly in cities such as London where a quadrupling of notification rates has occurred over the last decade. Several factors have been suggested to be contributing to this increase including immigration from high prevalence countries and HIV infection. TB notifications in children have also increased parallel to overall increases in notifications. Children with TB are especially important in that they represent sentinel events in a population reflecting recent transmission from an infectious adult.

All TB cases in the UK are presently being notified through the enhanced surveillance system. However it is unclear how accurate and complete this system is in ascertaining cases of TB in children. There is also little information on how children with TB are being managed and what services exist for children with TB in the UK.

The **case definition** includes any child less than 16 years of age with newly diagnosed tuberculosis, including:

- Confirmed cases: culture confirmed disease due to *Mycobacterium tuberculosis* complex infections (*M. tuberculosis*, *M. bovis*, *M. africanum*)
- Probable cases: not culture confirmed but have clinical/radiological diagnosis of TB and/or are treated with two or more anti-tuberculosis drugs

Please report any new or suspected case you may have seen in the last month, irrespective of reason for referral or whether or not you are the main clinician responsible for the patient. Please note that notification to the BPSU does not replace standard notification to the enhanced TB surveillance system.

Paediatricians who have reported a case that meets the case definition will be sent a questionnaire seeking demographic details, clinical features and immunisation history.

The white protocol card with further details on the study is enclosed with this mailing and is also available at <http://bpsu.inopsu.com/current.htm#TB>

If you need any advice regarding the eligibility of a particular case for inclusion in the study, please contact: Dr Delane Shingadia (Tel: 0207 377 7000 ext 3368, E-mail: d.v.shingadia@qmul.ac.uk) or Dr Stephen Teo (Tel: 0207 377 7000 ext 3043, E-mail: s.teo@qmul.ac.uk)

Neonatal Herpes Simplex Virus Survey to Commence in January 2004

January 2004 will see the commencement of a survey into neonatal herpes simplex virus. The survey is to last for 37 months and will be undertaken through the ICH (London) centre for paediatric epidemiology and biostatistics. This study has received ethics approval from the London MREC and is funded from departmental funds.

Surveillance of neonatal HSV was previously undertaken through the BPSU in 1986-1991. The estimated prevalence of infection was then 1.65/100,000 (CI 1.3-2.0/100,000). HSV-1 and HSV-2 were reported in equal proportions, but in one third of cases the virus was not typed. Approximately equal numbers of infants presented with localised, disseminated and CNS infection. Given the rarity of the condition, and the observation that most infants were born to women with no prior history of infection, it was considered at that time that antenatal screening was not justified.

Neonatal Herpes Simplex Virus, contd.

There is evidence that the epidemiology of HSV in the British Isles may have changed. The increasing incidence of sexually transmitted diseases, the likelihood that there have been changes in HSV-seroprevalence because of demographic and social developments, and the availability of improved diagnostic techniques all lend weight to an argument for reassessing the current incidence of neonatal infection. The antenatal screening group of the National Screening Committee has recently discussed whether antenatal or neonatal HSV screening should be reconsidered. It is hoped that data collected from this survey can contribute to this debate.

Surveillance case definition: Any infant under one month

- (a) with a diagnosis of HSV infection, based on virus culture, or serology, or PCR, or
- (b) treated with antiviral drugs for suspected HSV infection

Analytic case definition:

Confirmed case of neonatal HSV:

1. Virus culture, specific IgM, PCR confirming HSV infection on a specimen taken in the first four weeks of life, or
2. Typical clinical manifestations with maternal infection confirmed by either seroconversion or virus isolation around the time of delivery

Suspected case of neonatal HSV:

3. Typical clinical manifestations and treated with antiviral drugs for suspected HSV infection.

Please report any live born or stillborn infant born since the beginning of 2004 in the UK or Ireland with confirmed or suspected neonatal HSV infection, seen by you for the first time in the last month.

For further information contact Dr Pat Tookey, Centre for Paediatric Epidemiology and Biostatistics, Institute of Child Health, London. Tel: 020 7242 9789, E-mail: p.tookey@ich.ucl.ac.uk

Severe Complications of Varicella

The 13-month survey of severe complications of varicella (chickenpox) in hospitalised children came to completion at the end of November. On behalf of the investigators can we thank all those who have reported and completed a questionnaire.

The objectives of the study are to:

Primary: Estimate the annual incidence of complicated varicella in hospitalised children less than 16 years of age.

Secondary: 1) Characterise these complications; 2) Describe the characteristics (age, underlying medical conditions) of these children; 3) Estimate the annual financial cost of hospitalisation for severe varicella; 4) Estimate the annual mortality from varicella in children.

Case definition: Any child less than 16 years hospitalised with complicated varicella, as defined by a list of clinical conditions*, or admitted to a ICU/HDU with varicella or one of its complications. These being -

- bacteraemia; septic shock, TSS / toxin-mediated disease; necrotising fasciitis; encephalitis; purpura fulminans / disseminated coagulopathy; pneumonia (abnormal x-ray); neonatal varicella; fulminant varicella; Reye's syndrome; ataxia and death.

In data available for analysis at the beginning November 2003, 142 cases had been reported, of which 101 (71%) have been confirmed as meeting the case definition. By date of admission, the month with the highest number of reports was March, with a secondary peak in June, mirroring data on chickenpox consultation in general practice in England and Wales¹. Likewise, the age of the confirmed cases also reflects previously published data, with 78% (79/101) reports being for children aged four years or less. In terms of clinical presentation, bacteraemia, pneumonia (abnormal chest x-ray), encephalitis and ataxia were the conditions most frequently reported, being cited in 28% (28/101), 28% (28/101), 24% (24/101) and 14% (14/101) cases respectively. The figures also include five deaths.

Paediatricians are encouraged to report any remaining cases for the period November 2002 to November 2003, The information gathered will be used to inform policy on prevention of severe complications of varicella in the UK.

If you need any advice regarding the eligibility of a particular case for inclusion in the study, or any other information about the study please contact: Dr Claire Bramley, Scottish Centre for Infection and Environmental Health. (Tel: 0141 300 1100, Email: claire.bramley@scieh.csa.scot.nhs.uk).

All reporting clinicians wishing virological testing for severe cases of varicella are encouraged to submit throat swabs and/or vesicle fluid for molecular analysis at no charge. Please contact Dr Judy Breuer, Consultant in Virology, St Barts and The London. Tel: 020 7 377 7141.

Reference: 1. Brisson M, Edmunds WJ, Law B. Epidemiology of varicella zoster infection in Canada and the United Kingdom. *Epidemiology and Infection* 2001;127:305-14.

The Scottish Centre for Infection and Environmental Health – Scotland's National Surveillance Centre

The quarterly bulletin over the next few editions would like to introduce you to the workings of those organisations associated closely with the running of the BPSU. This first article by Dr Claire Bramley centres on the Scottish Centre for Infection and Environmental Health (SCIEH), whom she represents on the BPSU Executive.

Background: “An outbreak of typhoid fever in Aberdeen in 1962 that affected over 500 people and overwhelmed health services highlighted the need for a national organisation to provide expert operational support. This led to the founding of the Communicable Diseases (Scotland) Unit in 1969, as a national resource for the prevention and control of infectious disease. Since then, the unit has expanded to cover environmental health issues also and now has over 100 staff from a variety of backgrounds including medicine, nursing, biological and physical sciences, information technology and administrative support. SCIEH is responsible for generating and collating new and existing knowledge relevant to the control of communicable diseases and environmental hazards in Scotland, with the ultimate aim of improving the health of the population. SCIEH achieves this through surveillance, operational support and advice, education, and research. We also work closely with colleagues working in similar organisations across the UK and internationally, and in particular with the newly formed Health Protection Agency. The broad subject areas covered are demonstrated in SCIEH's six sections: Immunisation and Respiratory, Environmental Health, Travel Medicine, Gastrointestinal and Zoonoses, Healthcare Associated Infection and Infection Control, and Blood Borne Viruses and Sexually Transmitted Infections.

Surveillance : The collection of accurate and timely information is essential to SCIEH's operations and involves close collaboration with public health and other health professionals at local, national and international level. Routine sources of surveillance information include statutory notifications, laboratory returns and enhanced surveillance schemes, covering a wide range of infectious and environmental hazards. Recent initiatives have included the development of the Scottish Surveillance of Healthcare Associated Infection Programme (SSHAIP), Enhanced Surveillance of Haemolytic Uraemic Syndrome and other presentations of Thrombotic Microangiopathy (ENSHURE) and a pilot programme for Clinical and Expanded Laboratory Surveillance of Illness of Unexplained or Unusual Severity (CELSIUS). In addition, SCIEH has benefited from close collaboration with BPSU in many time-limited and ongoing enhanced surveillance studies since its establishment in 1986. Many of the conditions studied are core to SCIEH's function and provide important information as relates to the health of children Scotland, which would otherwise be difficult or impossible to obtain. SCIEH is responsible for administering orange cards sent to paediatricians in Scotland. Current and recent past studies in which SCIEH has been particularly involved include HIV/AIDS in childhood; invasive *Haemophilus influenzae* infection; Haemolytic Uraemic Syndrome where the stimulus for undertaking such a survey came from SCIEH following the *E.coli* O157 outbreaks in Scotland during the mid 1990's and severe complication of varicella in hospitalised children.

In addition, SCIEH is represented on the BPSU Executive Committee and for studies that fall within our areas of interest, we are always happy to discuss with investigators, collaborate where possible and provide alternative sources of surveillance information, where available. Further information on SCIEH is available at: <http://www.show.scot.nhs.uk/scieh/>, where electronic copies of the *SCIEH Weekly Report* may also be found.”

Yearly Review

Once again we have reached the time of year when it is traditional to look back over the year's activities. During 2003 the BPSU Executive Committee met six times to discuss surveillance proposals and applications. A few changes to the BPSU committee membership were. Notable in this was the recent departure of Professor Angus Nicoll of the Health Protection Agency (HPA), communicable disease surveillance centre, this after 11 years first as medical adviser then as the HPA representative. Angus has contributed hugely to the success and development of the Unit, in particular addressing matters on data confidentiality and international activities. Angus's replacement as HPA representative on the committee is Dr Richard Pebody. Other notable departures include our two medical advisers. Dr Jugnoo Rahi, medical adviser for non-infectious disease steps down after nearly four years following the birth of her first child. Dr Hilary Kirkbride, medical adviser for infectious disease, who recently gave birth to her second child, has also stepped down after two and half years. On behalf of the committee we thank you for your commitment to the Unit. Dr Rachel Knowles of the ICH (London) replaces Dr Rahi as medical adviser for non-infectious disease and Dr Alan Smith from the HPA is now the medical adviser for infectious disease.

Eight studies are currently being undertaken, four of which commenced this year, invasive fungal infections in VLBW infants, severe hyperbilirubinaemia in the newborn, Langerhans cell histiocytosis and childhood tuberculosis. As you will have read a survey of neonatal herpes simplex virus is due to commence in January 2004.

This year eight phase one applications and four full applications were considered. If you are interested in submitting a study application full guidelines for applying can now be download from the BPSU website at <http://bpsu.inopsu.com/methodol.htm> alternatively contact the BPSU scientific coordinator. To encourage those wishing to gain experience in epidemiology the BPSU with support from the RCPCCH introduced a BPSU bursary to the value of £15,000. The response was excellent with 12 applications considered, a study on thyroidotoxicosis chosen, investigator Dr Scott Williamson, Ninewells hospital. We will be advertising for the next bursary in the Spring of 2004.

Recent publications

Our studies have been very successful in presenting and publishing their work over the last year, with prominent papers in the Lancet, BMJ, and *Archives of Disease in Childhood*. Four papers using data collected through the BPSU have recently been published. Copies are available from the BPSU or via the website

- 1) Severe visual impairment and blindness in children in the UK.** Rahi J S, Cable N, on behalf of the British Childhood Visual Impairment Study Group (BCVISG). Lancet. October 2003; **362** 1359 - 1365
- 2) Decline in mortality, AIDS, and hospital admissions in perinatally HIV-1 infected children in the United Kingdom and Ireland.** Gibb D M, Duong T, Tookey P A, Sharland M, Tudor-Williams G, Novelli V, Butler K, Riordan A, Farrelly L, Masters J, Peckham C S, and Dunn D T. BMJ, Nov 2003; **327**: 1019 - 0.
- 3) Variations in initial assessment and management of inflammatory bowel disease across Great Britain and Ireland** Sawczenko A, Lynn R, and Sandhu B K. Arch. Dis. Child. Nov. 2003; **88**: 990-994.
- 4) Features of inflammatory bowel disease in Great Britain and Ireland** Sawczenko A and Sandhu B K Arch. Dis. Child. Nov 2003; **88**: 995-1000

Monthly Analysis

As you will see from **Table 1** the response rate for the six months to September is averaging 90%, lower than expected.. There have also been some notable movements in the rankings, East Anglia having fallen 16 places! Northern Scotland 13 places, the Republic of Ireland 12 and South Western 8 places. Though NWT has risen 8, as a whole London Region is rooted to the bottom of the rankings. **Table 2** highlights the returns for the current studies, 1250 cases have been reported in the pass 12 month of which 589 have so far been confirmed. Two of the newer studies, severe hyperbilirubinaemia and Langerhans cell histiocytosis have had fewer reported cases than expected. If you have seen these conditions since June or any other on the card please report. The validity of the BPSU as a surveillance system depends wholly on you support and involvement, so please keep those cards and questionnaires coming in.

TABLE 1 - % RESPONSE RATE
May-Sept 2003

Region	% retd	Rank (Jan-June 2003)
North	89.0	15 (14)
Yorks	92.2	5 (7)
Trent	91.3	9 (13)
EAngl	86.1	19 (3)
NWT	90.5	11 (19)
NET	83.7	20 (20)
SET	86.9	17 (17)
SWT	86.3	18 (18)
Wessex	90.4	12 (11)
Oxford	93.8	2 (8)
SWest	90.0	13 (5)
WMids	91.5	8 (16)
Mersey	92.1	7 (12)
NWest	93.6	3 (6)
Welsh	94.9	1 (2)
NScot	89.0	14 (1)
SScot	90.8	10 (10)
WScot	92.2	6 (15)
NIre	92.8	4 (9)
RIre	87.2	16 (4)
Total	90.0	

TABLE 2 - ALL CASES REPORTED AND FOLLOW-UPS TO 01/12/2003

Condition	Started						as % of total		
		I VALID	II INVALID		NYK		I	II	III
HIV/AIDS	1986	2506	388	500	228	3622	69	25	6
CR	1990	67	24	47	6	144	47	49	4
PIND	1997	940	179	400	131	1650	57	35	86
Con Toxo	2002	4	1	16	8	29	14	59	28
Varicella	2002	101	19	28	28	178	57	27	17
IFInfect	2003	46	9	19	37	111	41	25	33
Se. Hyperbil	2003	14	3	15	9	41	34	44	22
LCH	2003	1	2	13	17	33	3	45	52
Total		3679	625	1029	464	5797	63	29	8

I = confirmed/already known
IIb = reporting error or revised diagnosis

IIa = duplicate
III = status not yet reported to BPSU by investigator

AIDS/HIV - Acquired Immunodeficiency Syndrome / Human Immunodeficiency Virus
CR - Congenital Rubella
PIND - Progressive Intellectual Neurological Degeneration
Con Toxo - Congenital Toxoplasmosis

Varicella - Severe complications of varicella
IFInfect - Invasive fungal infections in VLBW infants
Se. Hyperbil - Severe hyperbilirubinaemia in the newborn
LCH - Langerhans cell histiocytosis

ALL DATA IS PROVISIONAL & CONTINUALLY BEING UPDATED

So as you can see the work and reputation of the BPSU goes from strength to strength and this is wholly attributable to the contribution members of the RCPCH give. On behalf of the investigators and the BPSU we thank you all.