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New initiative to link surveillance and mortality data

The Health Protection Agency (HPA) and Office for National Statistics (ONS) are launching a new initiative that will attempt to link surveillance data on serious infections held by the HPA with mortality data held by the ONS. This data linkage programme will focus on healthcare-associated infections (HCAI), initially targeting methicillin resistant *Staphylococcus aureus* (MRSA) and build on previous joint work on comparing trends in mortality and morbidity from MRSA (1). It is planned to use this linkage as the framework for a two-year Department of Health funded confidential study of deaths related to MRSA and other HCAI, in response to the audit of deaths referred to in the Chief Medical Officer's report *Winning Ways: working together to reduce healthcare associated infection in England* (2).

The study will involve investigating a small sample of deaths related to MRSA occurring in hospitals to identify possible patient and healthcare factors that may have contributed to those deaths. Potential risk factors will be considered for future quantitative studies to assess if they are associated with an increased risk of mortality. In parallel, the linkage mechanism will be used to estimate the proportion of patients who have a serious HCAI and die within a defined period, and the proportion of these deaths for which the infection is recorded on the death certificate.

The longer-term aim of the linkage programme, is to investigate other infections of public health importance, thus informing public health prevention programmes.

For further information on the Linkage Programme or Confidential Study of Deaths following HCAI please contact Nicola Potz (nicola.potz@hpa.org.uk) or David Bridger (david.bridger@hpa.org.uk) at the Department of Healthcare Associated Infection and Antimicrobial Resistance, Health Protection Agency Centre for Infections, London.

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1. Griffiths C, Lamagni TL, Crowcroft NS, Duckworth G, Rooney C. Trends in MRSA in England and Wales: analysis of morbidity and mortality data for 1993-2002. *Health Stat Q* 2004;**21**:15-22.
2. Chief Medical Officer. *Winning ways - working together to reduce healthcare associated infection in England*. London: Department of Health, 2003.

Misidentification of *Raoultella (Klebsiella) terrigena*

In August 2005, The Health Protection Agency (HPA) Laboratory of Health Care Associated Infection (LHCAI) showed that ten cultures of the organism *Klebsiella terrigena* were misidentifications. The correct classification for all ten isolates should have been *Klebsiella pneumoniae* subsp *pneumoniae*. The cultures were subjected to a panel of biochemical tests. These included fermentation of D-melzitose and deoxy-D-ribose, together with the utilization of histamine, all characters for which *K. terrigena* is positive and *K. pneumoniae* subsp *pneumoniae* is negative.

The cultures had been requested following information from routine exceedence interrogation of LabBase*, which showed that seven cases of *K. terrigena* from sterile sites had been reported. Further investigation showed that

during 2004 there had been 115 reported cases of *K. terrigena* and that with 53 reports thus far in 2005, a similar number were predicted for 2005.

K. terrigena was first described in 1981 (1) and moved to the new genus of *Raoultella* in 2001, together with *K. planticola* and *K. ornithinolitica*. *Klebsiella* is still in common use in most hospitals. Isolated in the main from soil and water it is considered to be an environmental organism and its occurrence in clinical material is rare. Prior to 1992 there were no reported instances of *K. terrigena* in clinical material, but the similarities between *K. terrigena* and *K. pneumoniae* led to a number of studies. One study, of faecal carriage of *K. terrigena* and its presence in clinical material carried out over a two year period, found the organism in only 0.9% of 5377 faecal samples and in ten of 2355 (0.4%) clinical samples (2). The clinical material that tested positive for *K. terrigena* was eight respiratory samples, and one sample each of urine, and material recovered from a wound site. In all except one case, *K. terrigena* was not the only organism cultured and it was questionable whether it was a cause of infection. *K. terrigena* infections and colonisations are rare, and infections are treatable

In the light of this discrepancy and to help avoid additional misreporting, laboratories are advised to refer isolates from sterile sites, that have been identified as *K. terrigena*, to HPA, LHCAI, 61 Colindale Avenue, Colindale, London, NW9 5HT, for confirmation of species identity (tel: 020 8327 7205) **prior to submission on LabBase**.

*LabBase is the database that is used to collect laboratory reports of all micro-organisms isolated from sterile sites at nearly 400 NHS and other laboratories throughout England and Wales. The database is managed and accessed at The HPA Centre for Infections.

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2. Podschun R, U. Ullmann U. *Klebsiella* spp. as nosocomial pathogens: epidemiology, taxonomy, typing methods, and pathogenicity factors. *Clin Microbiol Rev* 1998; **11**(4): 589-603.

Antimicrobial Resistance - inevitable but not unmanageable

The Health Protection Agency (HPA) has published the report Antimicrobial Resistance - inevitable but not unmanageable (1). The report mainly focuses on two themes of antimicrobial resistance: multi-drug resistance in *E.coli* and HIV drug resistance, and outlines the role of the HPA in the control of antimicrobial resistance in general.

The report states that it is inevitable that drug-resistant micro-organisms will continue to appear, making the fight against microbial resistance endless. The HPA's laboratory and surveillance activities are essential to ensure that the NHS stays ahead of the problem. The information is used to devise policies for minimising the emergence of drug-resistant organisms and to guide effective treatment strategies.

Globally, antimicrobial drugs should only be used where necessary and when appropriate. The continuing value of antibiotics and antivirals to humanity depends on the medical and veterinary professions using these drugs carefully, while industry develops new drugs for new challenges.

The full report is available on the HPA website at http://www.hpa.org.uk/hpa/publications/amr_report_05/default.htm.

References

1. Health Protection Agency. Antimicrobial Resistance - inevitable but not unmanageable. London: HPA, September 2005. Available at: http://www.hpa.org.uk/hpa/publications/amr_report_05/default.htm.

Investigations into multi-drug resistant ESBL-producing *E. coli* strains

The Health Protection Agency has launched a report on the increasing problem of infections caused by multi-drug

resistant extended-spectrum beta-lactamase (ESBL)-producing *Escherichia coli* bacteria in England (1). This summarises investigations, findings and actions to date, and makes recommendations on further action.

Since 2003, new, highly resistant strains of the bacterium *E. coli* have spread rapidly in England. As they produce ESBL enzymes, these strains are able to destroy a large number of beta-lactam antibiotics, and they are also multi-resistant to other drug families, making the infections they cause very difficult to treat. The particular ESBLs now being seen belong to a new family called CTX-M, which previously was prevalent only in South America. *E. coli* producing CTX-M type ESBLs are being seen in patients in the community, although mainly in patients with some recent history of hospital contact. ESBL-producing organisms are not new in the UK having first been recognised in the 1980s. These earlier ESBLs belonged to different families (TEM and SHV) and occurred largely in hospital *Klebsiella* spp, often from specialist units.

The report makes the following recommendations:

- All diagnostic laboratories should use methods that will identify ESBL producers, as previously published by the HPA ([National Standards Methods](#)); in addition, laboratories should test a wider, standardised range of antibiotics so that emerging resistances, including those due to ESBL production, are recognised rapidly.
- Guidance to GPs is needed on the submission of urinary specimens to laboratories, especially where ESBL producers are prevalent locally.
- GPs, admitting physicians and junior medical staff should be provided with local updates of microbial resistance patterns, to inform therapeutic decisions and improve infection control measures.
- Serious infections in the community associated with ESBL-producing *E. coli* should be reported to the local Consultant in Communicable Disease Control, as should local investigations of the occurrence of ESBL-producing *E. coli* in hospitals or the community.
- Increased surveillance is needed for *E. coli* that are ESBL producers or ciprofloxacin-resistant, both in bacteraemias and UTIs. ESBL-producing *Klebsiella* spp. should also be monitored.
- The criteria for reporting adverse incidents associated with infection or exceptional antimicrobial resistances need to be clarified.
- Laboratory IT systems need the functionality to record and analyse ESBL-related infections and incidents so that these data are adequately captured by surveillance systems. Likewise, NHS Connecting for Health (formerly the National Programme for IT or NPfIT) should support the surveillance and detection of incidents and outbreaks associated with organisms such as ESBL producers.
- There is a need for more formal treatment and control guidelines to be developed.
- Priorities for research and development include: (i) further definition of the risk factors for infection with ESBL producers; (ii) definition of the extent of community-acquired infection with ESBL producers; (iii) definition of the extent of gut carriage of ESBL producers in the normal population and of transmission between individuals; (iv) definition of attributable mortality in relation to therapy received; (v) definition of the efficacy of infection control measures and (vi) molecular investigation of the uro-pathogenicity traits among ESBL-producing *E. coli* strains.

References

1. Health Protection Agency. Investigations into multi-drug resistant ESBL-producing *Escherichia coli* strains causing Infections in England. London : HPA, September 2005. Available at <http://www.hpa.org.uk/hpa/publications/esbl_report_05/default.htm>