



# Health Protection Report

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## News

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### ***Staphylococcus aureus* with Pantone-Valentine Leucocidin from England and Wales: 2005-6**

Pantone-Valentine Leucocidin (PVL) is a toxin which destroys white blood cells and is carried by less than 2% of clinical isolates of *Staphylococcus aureus*. PVL can be detected in both methicillin-sensitive *S. aureus* (MSSA) and methicillin resistant *S. aureus* (MRSA). The majority of isolates causing infection in the UK have been MSSA. Community-associated MRSA (CA-MRSA) are more likely to produce PVL than hospital-associated MRSA. PVL-positive *S. aureus* are normally associated with necrotising pyogenic cutaneous infections and occasionally with cellulitis or tissue necrosis. They can rarely cause other severe invasive infections such as septic arthritis, bacteraemia, purpura fulminans, or community-acquired necrotising pneumonia.

From 2005 to 2006 the HPA *Staphylococcus* Reference Laboratory (SRL) enhanced its monitoring of PVL-SA to help ascertain the burden of PVL related disease. Four hundred and ninety-six cases of PVL- *S. aureus* (SA) were identified in 2006 representing a two-fold increase from the 224 identified in 2005. The number of cases of PVL-MRSA rose from 117 to 159 year-on-year, the remainder being PVL-MSSA. The isolates included strains associated with outbreaks of PVL-related disease in both the community and healthcare settings. The majority of PVL-SA were from individuals who had relatively mild skin and soft tissue infections.

It is not clear if the increased numbers of PVL-SA reflect improved case ascertainment of PVL-related syndromes and/or an increasing prevalence of PVL-SA. Further systematic surveillance-based studies are planned to address this.

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### **Review of risks from tritium**

The independent Advisory Group on Ionising Radiation has published a report reviewing the risks of exposure to tritium, a radioactive isotope of hydrogen [1]. Tritium is used in scientific and medical research and it also has various industrial applications. Following an extensive review of scientific evidence on the risks from exposure to tritium, the Advisory Group suggests that the International Commission on Radiological Protection (ICRP) should consider increasing its radiation weighting factor for tritium from 1 to 2. Radiation weighting factors are used to calculate doses and risks from radiation exposures.

Tritium is a radioactive isotope of hydrogen that decays by beta emissions with a maximum energy of 15.6 keV and a half-life of 12.3 years. It is formed through several processes, both natural and artificial, including nuclear fission and fusion power generation.

The Advisory Group has examined biological evidence from published laboratory experiments with tritium in cell cultures (*in vitro*) and from animal experiments (*in vivo*). They have also reviewed the published evidence for effects on human health (epidemiology). The evidence indicates that tritium has a larger impact on biological systems than gamma rays or x-rays and its relative biological

effectiveness (RBE) is greater than 1. This is the basis for the Advisory Group's recommendation that the RBE value for tritium should be taken as 2 and its suggestion that ICRP should consider increasing its radiation weighting factor for tritium from 1 to 2.

Epidemiological data on risks associated with tritium exposure are not strong because most of the studies conducted worldwide involved small numbers of people. The report therefore recommends that consideration is given to an international collaborative epidemiological study of tritium exposed populations.

In reviewing biokinetic models for tritium the report notes a wide range of animal and human data support the current ICRP models for radiation exposure and that models for tritiated compounds are under development. The report concludes by welcoming the development of new tritium models by ICRP and recommends that they be adopted for routine dose assessments when available.

## References

1. *Review of Risks from Tritium. Report of the Independent Advisory Group on Ionising Radiation.* Documents of the Health Protection Agency. Chilton: Health Protection Agency, November 2007. ISBN: 978-0-85951-610-5. Available at:  
<http://www.hpa.org.uk/publications/PublicationDisplay.asp?PublicationID=0>

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## Consultation: Interferon Gamma Release Assay (IGRA) tests for tuberculosis (TB): position statement and Q&As for healthcare professionals and the public

The Health Protection Agency Tuberculosis (TB) Programme Board has drafted a position statement on the use of Interferon Gamma Release Assay (IGRA) tests for TB. The TB Programme Board has also developed a set of Questions and Answers (Q&As) on IGRA testing for the diagnosis of *Mycobacterium tuberculosis infection*. A consultation on these documents is currently underway on the HPA website at <http://www.hpa.org.uk/consultations/2007/IGRA.htm>.

Stakeholders are invited to comment on these provisional recommendations via the website.  
**The consultation deadline is 23 December 2007.**

If individuals wish to comment they should contact the stakeholder organisation that most closely represents their interests and pass comments to them. Further information on the consultation is available at <http://www.hpa.org.uk/consultations/2007/IGRA.htm>.

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## Unusual illness guidelines – new content on the HPA Deliberate and Accidental Release web pages

The fully revised and updated version of the *Initial Investigation and Management of Outbreaks and Incidents of Unusual Illnesses – A Guide for Health Professionals* version 4.0, 19 November 2007 is now available at:  
[http://www.hpa.org.uk/infections/topics\\_az/deliberate\\_release/Unknown/unusual\\_illnesses.htm](http://www.hpa.org.uk/infections/topics_az/deliberate_release/Unknown/unusual_illnesses.htm)

Sub-documents for specialist professions, extracted from the full document, are also available for each of the following:

- Ambulance service
- Hospital clinicians, including Emergency Departments
- General Practitioners

Occupational Health Services  
Histopathologists and Anatomical Pathology Technologists  
Local laboratories  
Public Health professionals

The document is intended as an aid to decision making for health professionals and other health protection personnel who may be involved in the initial investigation, management and response to cases of unusual illness.

Unusual illness incidents may present as single or multiple cases of unexplained disease or syndrome with atypical signs or symptoms especially if accompanied by high morbidity or mortality. Outbreaks and incidents of unusual illnesses might have any one of a number of causes, including infectious, chemical, or radiological. The aetiological agent may remain undetermined, and there is also the possibility of new and emerging conditions.

Although the document cannot cover all possible eventualities, it is vital that those involved are confident about initial decisions and actions as prompt appropriate actions are likely to be crucial.

Please send comments on the document or web pages to [DrComments@hpa.org.uk](mailto:DrComments@hpa.org.uk)

## HIV/Sexually Transmitted Infections (STIs)

▮ Lymphogranuloma venereum and syphilis – data to the end of 2006

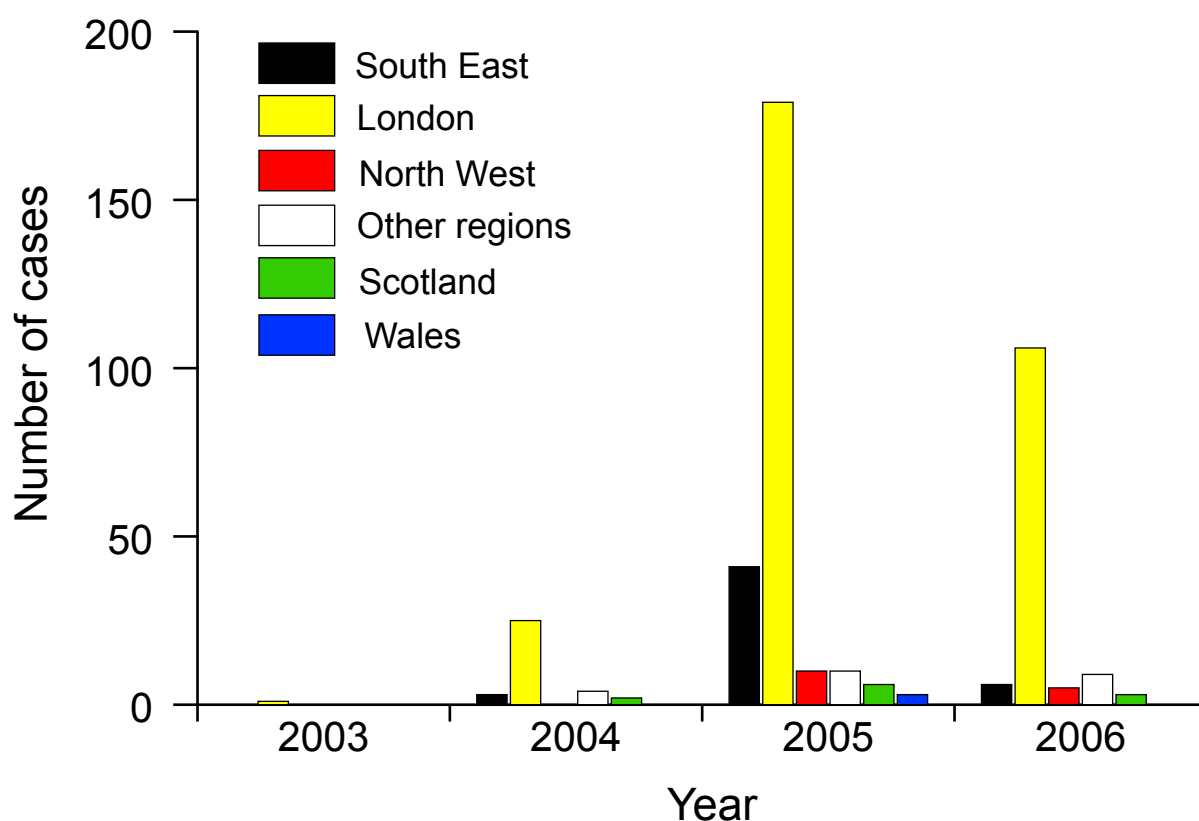
### Lymphogranuloma venereum and syphilis – data to the end of 2006

This report outlines the data to the end of 2006 for the sexually transmitted infections (STIs) lymphogranuloma venereum (LGV) and syphilis. Both of these STIs often have ulcerative presentations and as such are associated with increased transmission and acquisition of HIV [1].

#### Lymphogranuloma venereum

Lymphogranuloma venereum is caused by *Chlamydia trachomatis* serovars L 1, L 2, and L 3. Prior to 2004, LGV was rarely seen in the United Kingdom (UK), but was however, endemic to Africa, Asia, South America, and the Caribbean. Following the emergence of this disease in the Netherlands and other parts of Western Europe, an epidemic is now well established in the UK [2-5] (figure 1). The epidemic is concentrated in the white population of men who have sex with men (MSM) with high levels of HIV co-infection (74%, 309/416), which is similar to ongoing outbreaks of LGV in Western Europe and America, [6]. Initially little was known about the transmission and symptoms of the disease, therefore enhanced surveillance was set up in the UK to collect information on demographics, possible routes of transmission and clinical presentation [7].

**Figure 1 Number of LGV cases reported by the enhanced surveillance system in England, Scotland and Wales: 2003-2006**



### **Clinical picture of LGV**

LGV is separated into three distinct clinical stages. The incubation period ranges from 3-30 days, followed by the primary lesion. This is often a transient painless papule, pustule/ulcer found on the coronal sulcus of males and the vulva, vagina, or cervix of females – oral lesions may be found also. The second stage of infection is characterised by LGV causing inflammation and swelling of lymph nodes and the surrounding tissue. Manifestations of this are inguinal, femoral lymphadenitis, which if they become chronic lead to bubo formation and may ulcerate causing discharge of pus from multiple points, creating chronic fistulas. Second stage LGV follows on from the primary lesion in approximately 10-30 days, after which the third systemic stage follows, characterised by fever, malaise, weight loss. For a minority of patients, the third stage leads to chronic localised inflammatory responses, such as granulomas that may fistulate and severe proctitis in MSM or esthiomene in women (though up to the end of 2006 no cases of LGV in women had been described).

The majority of LGV diagnoses were symptomatic with proctitis (86% [360/418]) while only 16.5% (69/418) of patients had genital symptoms and 22% (90/418) had systemic symptoms. Most cases presented due to their symptoms (83%; [347/418]), with a much smaller number attending in response to contact tracing (5% [21/418]), for routine screening (4.5% [19/418]), and by referral (3.8% [16/418]).

### **Epidemiology of Lymphogranuloma venereum in the UK**

All of the reported cases of LGV were diagnosed in men, 99% of whom were MSM (411/416). Four cases were listed as heterosexual (4/416) while one was of unknown sexuality (1/416). The majority of cases were in the white population (91%, 380/416), with only seventeen cases in the black population (4%, 17/416) and eleven cases listed as being of other ethnicity (3%, 11/416). Throughout the outbreak, most LGV cases were in the 35-44 year old group (44%, 184/416). The next most affected age group were the 45-54 year olds (26%, 107/416) followed by the 25-34 year olds (18%, 77/416).

From October 2004 to December 2006, 444 confirmed cases (416 with epidemiological data) have been reported from across the UK. Cases peaked in the third quarter of 2005 with an average of 32 cases per month, while in 2006 this fell to 11 cases per month.

The majority of LGV cases were reported in London (75%, 311/416) and Brighton (10%, 43/416). Of the London cases 58% (179/311) occurred in 2005, compared with 34% (107/311) cases in 2006. Similarly in Brighton the greatest number of cases occurred in 2005, 86% (37/43) compared with 9% (4/43) in 2006. The North West region has the next largest cluster with 15 cases (10 in 2005 and 5 in 2006). Scotland had a total of 11 cases from 2004-2006, while Wales had 3 cases in 2005 and none in 2006 (Fig 1). From 2004 to 2006, 13% (53/398) of people reported ten or more sexual partners within the previous three months.

## **Syphilis**

Syphilis is caused by the spirochaete, *Treponema pallidum*. Syphilis can be transmitted through sexual contact (acquired) and vertically from mother to fetus (congenital).

### **Clinical picture of syphilis**

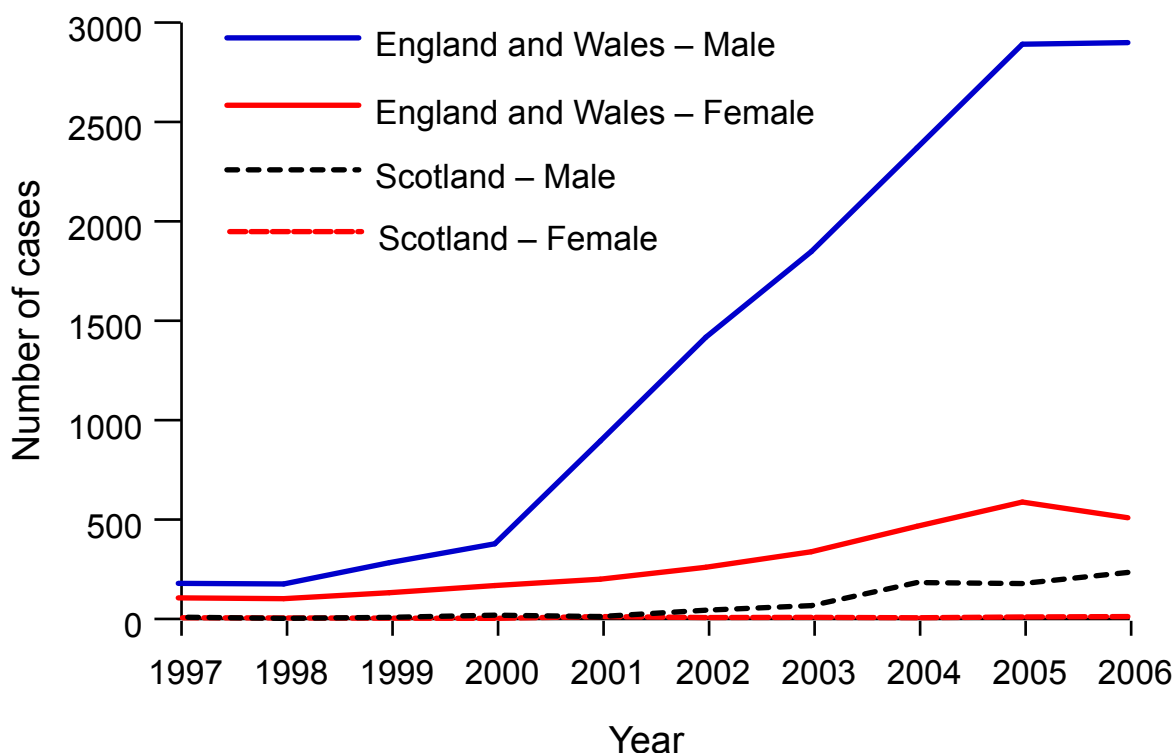
The acquired stage is divided into an early infectious stage, including: primary; secondary and early latent infection (within than two years of infection) and late non-infectious syphilis including, late latent infection and tertiary syphilis [8]. Symptoms throughout these stages vary quite markedly. Approximately 40% of untreated late syphilis patients (infection for greater than two years) will end up with symptoms that cover the spectrum of neuro-syphilis, cardiovascular syphilis and gummata, which are inflammatory nodules that can be destructive within the bone and skin [9].

### **Epidemiology of syphilis in the UK**

In 2006, there were 3702 cases of primary, secondary, and early latent syphilis diagnosed in GUM clinics in the UK : 3169 in men and 533 in women. There were also 1,928 diagnoses of non

infectious late latent and tertiary syphilis diagnoses. There has been a substantial rise in numbers of diagnoses of infectious syphilis in the UK, from 301 in 1997 to 3,702 in 2006 (figure 2).

**Figure 2: Cases of syphilis (primary, secondary and early latent) seen in GUM clinics in England, Wales and Scotland: 1997 to 2006**



Vertical transmission of syphilis may occur during pregnancy, leading to congenital infection in 50-80% of exposed neonates. Where treatment is not given during pregnancy, perinatal death can occur in up to 40% of cases [10]. Congenital syphilis in the UK remains rare, with 5 cases in children aged under two years and 10 cases in those aged two years and above diagnosed in GUM clinics in 2006. Most of these were diagnosed in England, with one case diagnosed in Scotland.

More detailed information is available for 56% (1,906/3404) of primary, secondary and early latent syphilis cases from National Enhanced Syphilis Surveillance (NESS) from GUM clinics in England and Wales. Throughout England and Wales, the greatest proportion of infectious Syphilis in 2006 occurred in the 25-34 and 35-44 year old group (634 & 633/1965 [32%]) followed closely by the 15-24 year old group with 346/1965 (17.6%) cases. There were, however, more men in the 35-44 (582/1725, 33.7%) year old group and more females in the younger 15-24 year old group (89/232, 38.4%).

Most cases of infectious syphilis in 2006 were white (80% [1,524/1,906]), 9.1% (173/1,906) were black, 6.5% (124/1,906) were Asian and 3.6% (68/1,906) were of 'other ethnicity'. However, this distribution varied by sexual orientation. Among men who have sex with men (MSM), 89% (1,146/1,285) of cases were white and 3.5% (45/1,285) were black. Among male heterosexual cases, 56% (194/346) were white and 21% (74/346) were black.

Enhanced surveillance shows that 24% (466/1,906) of people with infectious syphilis in England and Wales are co-infected with HIV. Regional variation occurs with the North East and East Midlands having low levels at 8.3% (10/121) and 6.4% (8/125) respectively, while London and the South East had the highest levels of HIV co-infection at 37.0% (216/586) and 34.0% (38/113) respectively.

Most infectious syphilis cases are found across the major cities in the UK. The peak rates of infectious syphilis among men and women in 2006 were in London (35 and 6.5 per 100,000) and

the West Midlands (16 and 4.3 per 100,000). There was also a high rate of diagnoses among men in the North West (11.5 per 100,000). The lowest rates of diagnoses were among men in Wales (3.0 per 100,000) and Northern Ireland (2.6 per 100,000) and among women in the South East (0.6 per 100,000), Scotland (0.2 per 100,000), Wales (0.5 per 100,000) and Northern Ireland (0.7 per 100,000).

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