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Health Protection Agency announces further research into use of WiFi

The HPA is to carry out a systematic programme of research into wireless local area networks (WLANs) and their use. This will include measurements of exposures from the Wireless Fidelity (WiFi) network and is part of the Agency's ongoing programme of work in the area of electromagnetic fields.

There is no scientific evidence to date that WiFi and WLANs adversely affect the health of the general population. The signals are very low power, typically 0.1 watt (100 milliwatts) in both the computer and the router (access point) and the results so far show exposures are well within ICNIRP guidelines. There has not, however, been extensive research into actual exposure levels, hence the need for a programme of research and analyses.

Following some preliminary work, the Agency proposes to undertake a research project to measure exposures to radio signals from wireless computer networks. The results will be compared with established international exposure guidelines and also with exposures from other commonly used sources of radio signals, including mobile phones. Discussions are underway with partner Agencies, especially those in the Education sector, regarding the practicalities of carrying out the research.

WiFi is becoming increasingly widely used in homes, schools, offices and throughout the general working and public environments. People using WiFi, or in proximity to WiFi equipment, are exposed to the radio signals emitted from it and will absorb some of the transmitted energy. From existing information, it appears that levels of exposure are considerably less than the guideline levels of the International Commission on Non-Ionizing Radiation (ICNIRP) and recommended by the Health Protection Agency for use in the UK. Nevertheless, the Agency considers that WiFi exposure assessment is an area that requires further work.

The findings from the investigation will be published on the Agency's website and submitted for publication in the peer-reviewed scientific literature. The results of the study, and of other studies on radio signals and health, will be used as the basis for a wider health risk review.

Bacteraemia

Acinetobacter spp bacteraemia in England, Wales, and Northern Ireland: 2002 to 2006

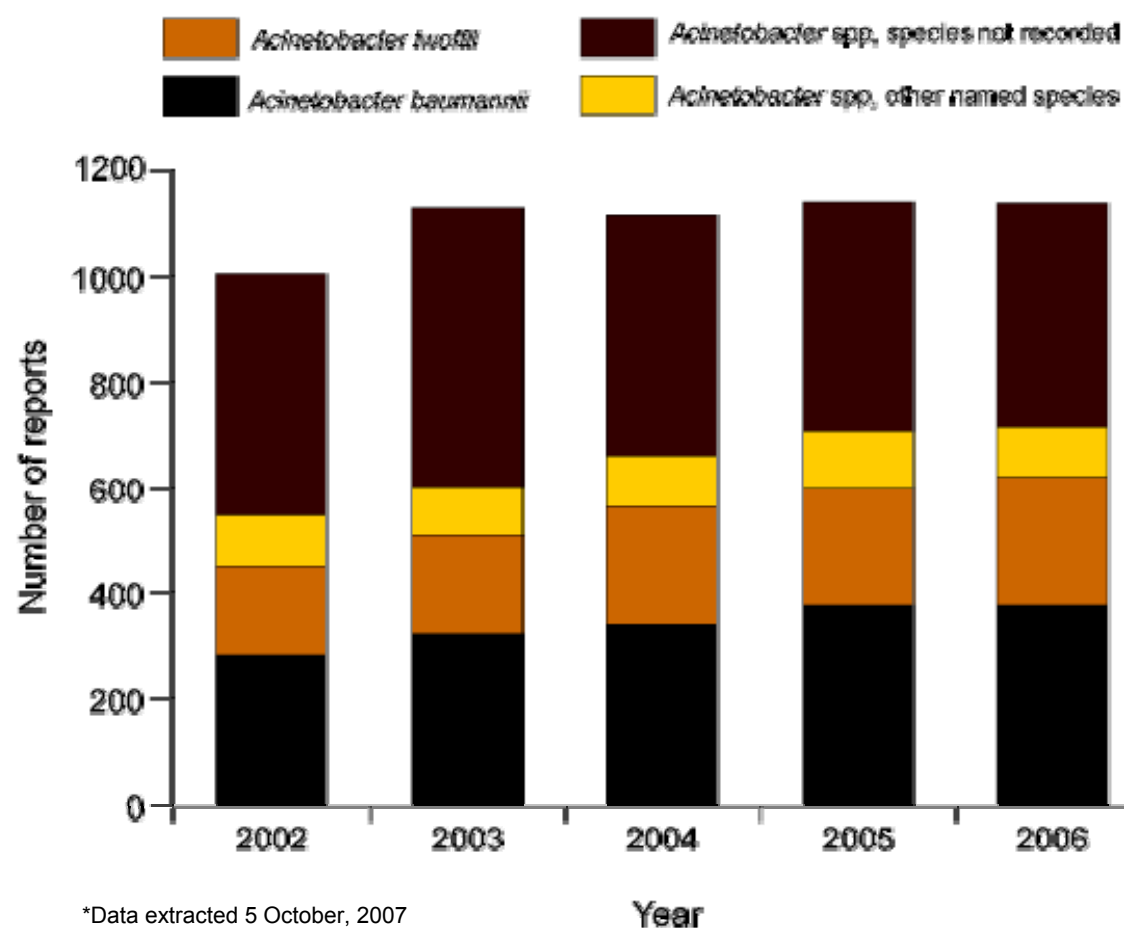
There has been a 13% increase in the total reports of *Acinetobacter* spp. bacteraemia reported via the voluntary surveillance scheme in 2006 (1139 reports), compared to 2002 (1006 reports) [table 1 figure 1]. In comparison with 2005, there was a slight decrease (0.2%) in the number of reports for *Acinetobacter* spp. bacteraemia in 2006. The percentage of laboratories identifying *Acinetobacter* isolates to species level increased from 77% in 2002 to 82% in 2006 while the percentage reporting drug susceptibility data increased from 76% in 2002 to 87% in 2005. Reports for 2006 are provisional as of 5 October, 2007 and may increase slightly due to late reporting.

Table 1 *Acinetobacter* spp bacteraemia reports: 2002 to 2006*

	2002	2003	2004	2005	2006
<i>Acinetobacter baumannii</i>	282	323	340	377	377
<i>Acinetobacter lwoffii</i>	168	186	224	224	245
<i>Acinetobacter calcoaceticus</i>	35	37	34	24	36
<i>Acinetobacter junii</i>	23	25	26	43	33
<i>Acinetobacter haemolyticus</i>	17	24	20	26	20
<i>Acinetobacter</i> spp, other named species	22	8	18	15	6
<i>Acinetobacter</i> spp, species not recorded	459	527	455	432	422
<i>Acinetobacter</i> spp total	1006	1130	1117	1141	1139

*Data extracted 5 October, 2007

Figure 1 *Acinetobacter* spp bacteraemia reports: 2002 to 2006*



- The percentage of *Acinetobacter* isolates identified to species level increased from 54% in 2002 to 63% in 2006.
- In 2006, the majority of *Acinetobacter* isolates identified to species level were attributed to *A. baumannii*, accounting for 53% of these reports (compared with 52% reported in 2002).
- For *A. baumannii*, the only statistically significant changes in susceptibility (measured by chi-square test for trend) observed from 2002 to 2006 were increased resistances to cefotaxime (68% to 85%) and ceftazidime (48% to 67%). For the carbapenems, too few reports have been received for imipenem to verify significant trends; but for meropenem, significant increased resistance has been observed among isolates reported from 2004. There were no statistically significant trends from 2002 to 2006 for gentamicin (27% resistant in 2006), amikacin (25%), tobramycin (26%), or ciprofloxacin (37%).
- For *A. Iwoffii*, there were no statistically significant changes in resistance rates between 2002 and 2006 for gentamicin (5% resistant in 2006), amikacin (1%), tobramycin (10%), ciprofloxacin (6%), imipenem (4%), meropenem (4%), cefotaxime (23%), or ceftazidime (12%).
- In 2006, *A. Iwoffii* was more frequently reported among children (<15 years of age) than *A. baumannii*, while *A. baumannii* was more prevalent among those aged 15 years and over.

The analyses presented are based on data extracted from the Health Protection Agency's voluntary surveillance database on 5 October 2007 for the period from 2002 to 2006. The data presented here differ in some instances from data in earlier publications due to the addition of late reports to the database. We would like to thank our colleagues in microbiology laboratories across England, Wales, and Northern Ireland for their ongoing contributions.

Healthcare Associated Infections

Voluntary surveillance of candidaemia in England, Wales, and Northern Ireland : 2006

There were 1873 reports of *Candida* spp isolated from blood specimens in England, Wales, and Northern Ireland in 2006 (see table 1). This is a 7% increase in the number of candidaemia reports made to the HPA since 2005 (1747 reports), consistent with the increasing trend observed since 1990 [1]. A more pronounced increase (14%) was noted between 2004 and 2005. The overall reported rate of candidaemia reached 3.38 per 100,000 population (95% CI: 3.23-3.53) in 2006 (see table 2). As reporting is voluntary, these increases may be due in part to improved ascertainment.

Table 1 Laboratory reports of candidaemia by region: England, Wales, and Northern Ireland 2006

Country/region	Number of reports (%)
North East	94 (5)
Yorkshire & Humber	218 (12)
East Midlands	110 (6)
East of England	172 (9)
London	296 (16)
South East	176 (9)
South West	134 (7)
West Midlands	194 (10)
North West	300 (16)
England (total)	1694 (90)
Wales	77 (4)
Northern Ireland	102 (5)
England, Wales and Northern Ireland	1873 (100)

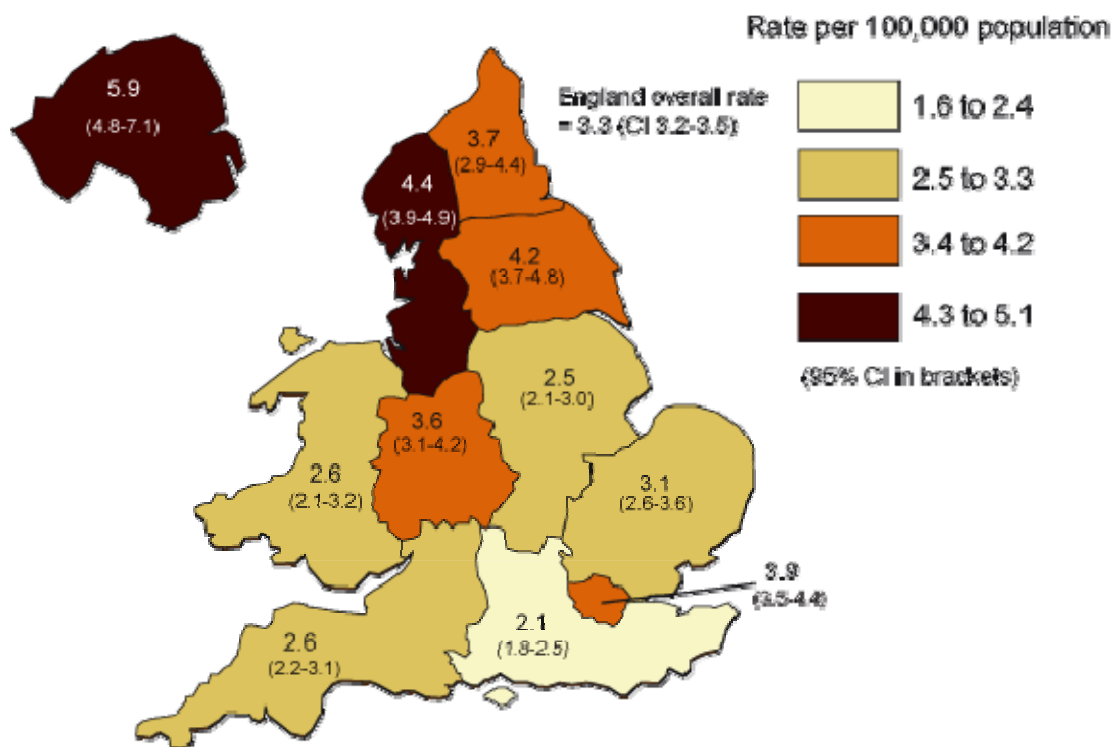
Table 2 Region-specific rates* of candidaemia reports; England, Wales, and Northern Ireland

Country/ Region	Rate (per 100,000)			
	2003	2004	2005	2006
North West	2.59	3.59	4.10	4.38
North East	2.80	4.32	3.60	3.68
Yorkshire & Humber	2.62	2.96	3.40	4.24
West Midlands	3.20	3.62	3.75	3.61
East Midlands	2.47	2.52	2.74	2.52
East of England	2.62	2.70	3.01	3.07
South West	2.34	2.50	2.92	2.62
South East	1.97	1.62	1.56	2.14
London	2.71	2.23	3.55	3.94
England (overall)	2.55	2.75	3.12	3.34
Wales	1.77	2.61	2.97	2.60
Northern Ireland	4.35	4.97	4.99	5.86
England, Wales and Northern Ireland	2.57	2.81	3.17	3.38

*rates calculated using 2006 mid-year resident population estimates based on 2001 census, Source: ONS Population Estimates Unit.

Considerable variations in rates of candidaemia reports were noted between countries in 2006 (figure 1), with reported rates in Northern Ireland being markedly higher at 5.86/100,000 than for England (3.34) or Wales (2.60). Within the English regions, rates of reports showed some variation, ranging from 2.14 in the South East to 4.38 in the North West. Rates of reports increased in all geographical areas since 2002 (see table 2), with the most pronounced increases seen in the North West, from 2.59 in 2002 to 4.38 in 2006.

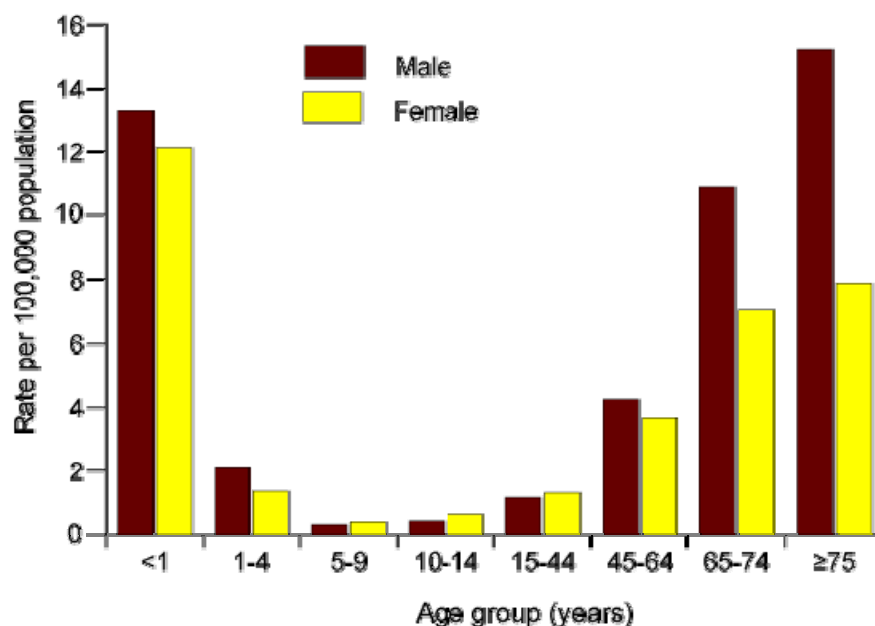
Figure 1 Region-specific rates* of candidaemia reports; England, Wales, and Northern Ireland: 2006



*rates calculated using 2006 mid-year resident population estimates based on 2001 census, Source: ONS Population Estimates Unit.

Candidaemia rates were higher in males than females in most age groups (figure 2), particularly pronounced in the elderly (aged 75 and older) where the rate of reports in males (15.20/100,000) was nearly double that in females (7.89). Rates in male and female infants (under 1 year) were similar to each other at 13.29 and 12.11/100,000 respectively.

Figure 2 Age-specific rates* of candidaemia per 100,000 population, England, Wales, and Northern Ireland: 2006



*rates calculated using 2006 mid-year resident population estimates based on 2001 census, Source: ONS Population Estimates Unit.

The proportion of reports in which *Candida* bloodstream infection was recorded without full species information continued to decrease, from 9.9% in 2005 to 8.9% in 2006. Of the remainder, *Candida albicans* was the most frequently reported species in 2006, accounting for 54% of candidaemia reports, with the other common species including *C. glabrata* (18%) and *C. parapsilosis* (11%) (table 3).

Table 3 Number of laboratory reports (percentage of total) of candidaemia by species; England, Wales, and Northern Ireland

Species	2003		2004		2005		2006	
	no.	(%)	no.	(%)	no.	(%)	no.	(%)
<i>Candida albicans</i>	762	(55)	824	(54)	959	(55)	1005	(54)
<i>Candida famata</i>	7	(1)	2	(0)	3	(0)	12	(1)
<i>Candida glabrata</i>	229	(16)	244	(16)	306	(18)	328	(18)
<i>Candida guilliermondii</i>	13	(1)	10	(1)	12	(1)	23	(1)
<i>Candida kefyr</i>	1	(0)	1	(0)	4	(0)	3	(0)
<i>Candida krusei</i>	25	(2)	28	(2)	24	(1)	23	(1)
<i>Candida lusitanae</i>	10	(1)	10	(1)	13	(1)	18	(1)
<i>Candida parapsilosis</i>	151	(11)	177	(12)	182	(10)	209	(11)
<i>Candida tropicalis</i>	41	(3)	52	(3)	70	(4)	58	(3)
<i>Candida pelliculosa</i>	0	(0)	0	(0)	1	(0)	0	(0)
<i>Candida</i> spp: species not recorded	147	(11)	171	(11)	155	(9)	166	(9)
<i>Candida</i> spp: other named	12	(1)	19	(1)	18	(1)	28	(1)
Total	1398	(100)	1538	(100)	1747	(100)	1873	(100)

Reporting to species level is important for monitoring changes in the epidemiology of these infections, with different species being associated with infections in different patient groups and with differing levels of antifungal susceptibility [2]. For assistance with identification, laboratories can submit isolates to the Mycology Reference Laboratory in Bristol, <<http://www.hpa.org.uk/srmd/mycology/index.htm>>.

The analyses presented are based on data extracted from LabBase2* on the 07 September 2007 for the period from 2003 to 2006. Rates were calculated using 2006 mid-year resident population estimates based on 2001 census (Source: ONS Population Estimates Unit). Further data tables can be viewed in the full text online version: <http://www.hpa.org.uk/infections/topics_az/fungal_infections/epi_data.htm>.

References

1. Lamagni TL, Evans BG, Shigematsu M, Johnson EM. Emerging trends in the epidemiology of invasive mycoses in England and Wales (1990-1999). *Epidemiol Infect* 2001; **126**: 397-414.
2. Hobson RP. The global epidemiology of invasive *Candida* infections – is the tide turning? *J Hosp Infect* 2003; **55**: 159-68

Footnote

LabBase2 is the database that collects laboratory reports of all microorganisms isolated at nearly 400 NHS and other laboratories throughout England and Wales. The database is managed and accessed at the Centre for Infections.