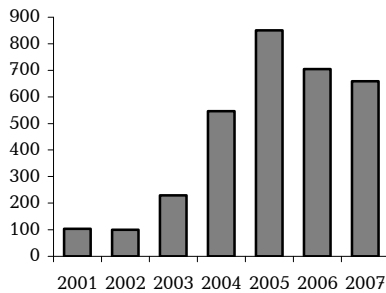




The occurrence of methicillin-resistant *Staphylococcus aureus* (MRSA) increased considerably in 2002-2005, [Figure 1](#).

Figure 1. Total number of MRSA cases, 2001-2007



The Danish National Board of Health has thus published a new national guideline to prevent MRSA in hospitals as well as in primary health care. In addition, MRSA became mandatory reportable 1 November 2006, [EPI-NEWS 44/06](#).

Notified cases

In 2007, a total of 659 new MRSA cases in 650 persons were notified. In nine of these cases, the persons were infected with two different MRSA types (new types are notified separately following SSI contact). The median age was 43 years (range 0-96), 337 of whom were females. In 370 (56%) cases, the indication for sampling was clinical infection, 235 (36%) were asymptomatic carriers detected by screening, and in 54 cases another or no indication was stated.

Skin and tissue infections were the most common infection (266 of 370 cases). Eight cases of bacteremia (corresponding to 0.6% of all staphylococcal bacteremia cases) were detected.

Disposing factors were stated in 241 cases. The primary factor was ulcers (105 cases), chronic skin disease (42) and foreign objects including drains, urinary and intravenous catheters (35).

Epidemiological classification

The cases were classified epidemiologically based on: place of diagnosis, risk situation within the last 12 months as specified in the national MRSA guideline, the notifying clinician's specification of the presumed mode of infection, and microbiological subtyping, [Table 1](#).

MRSA cases acquired abroad comprised 114 cases (17%). Fifty-two cases (8%) were health care associated (HA). Of these, more than half had clinical infection.

MRSA 2007

Table 1. Epidemiological classification of notified MRSA cases and number (%) with clinical infection

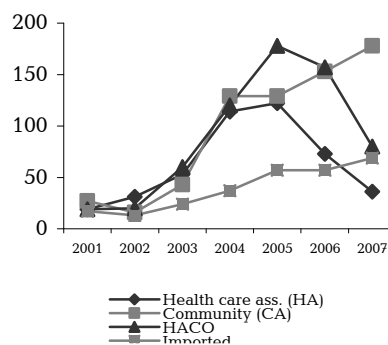
Classification	To- Clin.		Total (%)
	tal	inf.	
Acquired abroad	114	70	(61)
Hospital acquired	52	28	(54)
Health care associated-community onset:			
Known MRSA exp.	31	11	(35)
Unkn. MRSA exp.	94	66	(70)
Occup. hosp./nurs.	27	12	(44)
Community-associated:			
Known MRSA exp.	142	43	(30)
Unkn. MRSA exp.	194	137	(71)
Not classified:	5	3	(60)
Total	659	370	(56)

A total of 125 cases (19%) were found in primary health care. However, the person had been in contact with hospitals or nursing homes in the previous 12 months (health care associated community onset, HACO).

A total of 27 cases were detected in health professionals, mainly nurses and nurse assistants. Among cases with known exposure outside of the health care system (142 persons), household infection and close contacts comprised 96%.

In six persons, occupational activities directly or indirectly related to swine caused the infection (type CC398). The number of MRSA infections at hospitals and nursing homes has dropped considerably compared with 2006, while the number of community associated (CA) infections and cases acquired abroad continues to increase, [Figure 2](#).

Figure 2. Trend in MRSA infections, 2001-2007



Typing and resistance

Spa (*staphylococcus protein a*) typing yielded 110 different spa types. Susceptibility testing showed a close association between spa types and resistance patterns. Three isolates

were mupirocin-resistant, two of which were highly resistant. MRSA from persons not pertaining to hospital or nursing home risk groups were resistant to either erythromycin, clindamycin, tetracycline and/or fusidic acid in 25-33% of the cases.

Lacking clinical notification

In 60 cases it was necessary to contact the treating physician directly after sending a reminder in order to obtain a clinical notification. This is unsatisfactory, particularly so as the notification form is sent to the treating physician in each case.

Commentary

In 2007, the MRSA incidence continued a decreasing trend compared with the 2005 peak of 851 cases. The decrease was especially seen in health care associated cases (HA and HACO), [Figure 2](#). This is an extremely positive finding that is probably related to the implementation of new MRSA guidelines. Conversely, a continued increase was seen in the number of CA cases and in cases acquired abroad. Typing results showed considerable diversity indicating repeated MRSA introduction into Denmark.

The mandatory notification system confirm that MRSA today primarily is found in the community, as opposed to previously, when MRSA was almost exclusively found in the hospital setting. This trend has also been described abroad. It is due to a change in the resistance gene, which has facilitated transfer of the gene to community based *S. aureus*. This infection pressure warrants a continuation of the efforts against MRSA, not only in hospitals but also in primary health care as described in the guideline, [EPI-NEWS 44/06](#).

MRSA findings in persons who have occupational contact with swine still comprise a limited number of detected infections. The existence of a zoonotic reservoir causes concern, but its development is being monitored closely.

(R. Skov, M. Sørup, A.R. Larsen AAS, L. Finne, K. Mølbak, Dept. of Epidemiology)

ZOSTAVAX®, see reverse.

SUMMER HOLIDAYS

Unless special circumstances arise, EPI-NEWS will not appear in weeks 27-32.

(Department of Epidemiology)

Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2008 figures are preliminary)

Table 1	Week 25 2008	Cum. 2008 ¹⁾	Cum. 2007 ¹⁾
AIDS	2	16	28
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	3	5
Diphtheria	0	0	0
Food-borne diseases	25	219	242
of these, infected abroad	1	38	40
Gonorrhoea	37	187	175
Haemorrhagic fever	0	0	0
Hepatitis A	3	24	14
of these, infected abroad	0	7	6
Hepatitis B (acute)	0	7	13
Hepatitis B (chronic)	0	72	138
Hepatitis C (acute)	0	4	2
Hepatitis C (chronic)	0	143	165
HIV	0	103	132
Legionella pneumonia	1	50	43
of these, infected abroad	0	17	10
Leprosy	0	0	0
Leptospirosis	1	3	6
Measles	0	6	1
Meningococcal disease	2	32	44
of these, group B	0	14	22
of these, group C	2	8	15
of these, unspec. + other	0	10	7
Mumps	0	21	3
Neuroborreliosis	1	23	32
Ornithosis	0	1	5
Pertussis (children < 2 years)	3	51	32
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	2	1
Listeria monocytogenes	0	1	6
Streptococcus pneumoniae	1	48	69
Other aethiology	0	15	9
Unknown aethiology	0	14	10
Under registration	0	13	-
Rabies	0	0	0
Rubella (congenital)	0	1	0
Rubella (during pregnancy)	0	0	0
Shigellosis	0	33	28
of these, infected abroad	0	27	18
Syphilis	4	40	49
Tetanus	0	0	0
Tuberculosis	10	205	191
Typhoid/paratyphoid fever	0	14	6
of these, infected abroad	0	12	6
Typhus exanthematicus	0	0	2
VTEC/HUS	2	61	72
of these, infected abroad	1	20	23

¹⁾ Cumulative number 2008 and in corresponding period 2007

Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

Table 2	Week 25 2008	Cum. 2008 ²⁾	Cum. 2007 ²⁾
Bordetella pertussis (all ages)	4	78	77
Gonococci	7	172	169
of these, females	3	34	22
of these, males	4	138	147
Listeria monocytogenes	2	21	23
Mycoplasma pneumoniae			
Resp. specimens ³⁾	0	45	237
Serum specimens ⁴⁾	0	55	281
Streptococci ⁵⁾			
Group A streptococci	0	87	68
Group B streptococci	1	58	49
Group C streptococci	0	7	10
Group G streptococci	6	63	60
S. pneumoniae	6	584	624
Table 3	Week 23 2008	Cum. 2008 ²⁾	Cum. 2007 ²⁾
MRSA	37	273	-
Pathogenic int. bacteria ⁶⁾			
Campylobacter	106	881	1177
S. Enteritidis	2	114	165
S. Typhimurium	59	499	121
Other zoon. salmonella	23	381	297
Yersinia enterocolitica	12	158	128
Verocytotoxin- producing E. coli	3	54	65
Enteropathogenic E. coli	6	43	64
Enterotoxigenic E. coli	5	127	83

²⁾ Cumulative number 2008 and in corresponding period 2007

³⁾ Resp. specimens with positive PCR

⁴⁾ Serum specimens with pos. complement fixation test

⁵⁾ Isolated in blood or spinal fluid

⁶⁾ See also www.germ.dk

Zostavax™, herpes zoster vaccine:

As we have received a considerable number of inquiries concerning Zostavax™, we hereby provide brief information on the subject. The vaccine is indicated for herpes zoster (shingles) prophylaxis and herpes zoster-associated post-herpetic neuralgia. Zostavax™ was approved by the European authorities in 2006, but has still to be marketed in Denmark. Consequently, in cases where physicians want to use the vaccine in accordance with the indication, i.e. in patients aged 50 years or above, a request should be sent to the Danish Medicines Agency. The Danish health authorities have not committed to any guidelines or recommendations concerning the use of the vaccine as the vaccine currently has not been marketed in Denmark. The vaccine is in very limited supply in Europe, including Denmark, and will probably not be marketed until the autumn of 2009.