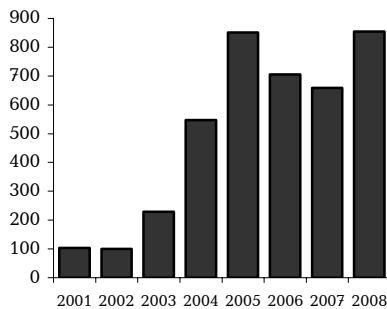




Due to a pronounced increase in the number of methicillin-resistant *Staphylococcus aureus* (MRSA) cases in 2003-2005, Figure 1, MRSA became clinically notifiable as from Nov. 2006, EPI-NEWS 44/06. Currently, the Danish Board of Health prepared a national guideline on the prevention of MRSA at hospitals and in primary health care.

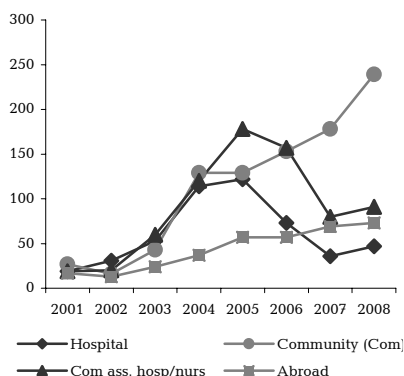
Figure 1. Total number of MRSA cases, 2001-2008



Notified cases

In 2008, a total of 854 new MRSA cases in 847 persons were notified. It was necessary to send a reminder for approx. 10% of the notifications, and in several cases, a second reminder by phone was also required. A total of 7 persons were notified with two types of MRSA. This represents an increase relative to the two previous years. Community-acquired infections are the primary contributor to the increase, Figure 2.

Figure 2. Clinical MRSA infections, 2001-2008



The median age was 38 years (range: 0-98) and 426 (50%) were males. In 450 (53%) cases, the indication for sampling was clinical infection, 309 (36%) were asymptomatic carriers detected by screening, and in 95 (11%) cases "other" or no indication was stated. Among the clinical infection cases, MRSA was most frequently detected from skin and ulcers (342 cases).

MRSA 2008

A total of 17 bacteraemia cases were detected (1.3% *S. aureus* bacteraemia), including seven in not previously notified cases. Disposing factors were stated in 306 cases, the primary factors were ulcers (143 cases), chronic skin disease (57) and foreign objects, including drains, urinary and intravenous catheters (50).

Outbreaks

In all, 144 of the notified cases were related to outbreaks, including three with relation to the neonatal departments at Glostrup (55), Hillerød (25) and Hvidovre (13), EPI-NEWS 48/08.

Epidemiological classification

On the basis of epidemiological and microbiological information, the cases have been classified by their presumed mode of infection, Table 1.

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

Classification	Total	Clin. inf. (%)	
		Number	Percentage
Acquired abroad	137	73	(53)
Acquired in hospital	141	47	(33)
Known exposure at hosp/nursing home	17	9	(53)
Contact to hosp/nursing home (1 year)	98	77	(79)
Inf. risk community	172	34	(20)
Acq. hosp/nurs.home	26	5	(19)
No known MRSA exposure	245	198	(81)
Not classified	18	7	(39)
Total	854	450	(56)

The majority of infections were acquired in Denmark, while infection abroad was stated in 137 (16%) cases.

Among the cases with community-based exposure (166 cases), household infection and infection from close contacts comprised 63% and suspicion of infection through contact to animals 28%, of which nearly all (96%) were associated to swine.

Typing and resistance

The 854 isolates were from 128 spa types, belonging to 18 families (CC-groups/clonal complexes). The two major CC-groups were CC8 and CC5; in both groups several spa types were identified, 18 and 24, respectively. However, few spa types were dominant and thus t008 and t024 comprised 51% and 26% of CC8 and t002 63% of CC5. CC8 and CC5

comprised 43% of imported cases and 57% of hospital-associated cases.

Occurrence of resistance in the MRSA isolates is shown in Table 2.

Table 2. Resistant isolates and share in % among 852 new MRSA isolates, 2008

Antibiotic	No.	(%)
Erythromycin	333	39
Clindamycin	265	31
Tetracycline	205	24
Fucidic acid	200	23
Rifampicin	11	1
Norfloxacin	271	32
Streptomycin	137	16
Kanamycin	262	31
Mupirocin	16	2

Commentary

The increase in MRSA cases in 2008 was caused by a rise in community-acquired infections and outbreaks at three neonatal departments. Furthermore, 2008 saw an increase in the number of CC398 cases, which was associated with contact to production animals, primarily swine. A considerable share of the CC398 cases were detected in relation to a screening of the participants at a swine production fair, but, additionally, the remaining number of CC398 infections increased from six in 2007 to 16 in 2008. Clinical MRSA infections acquired at hospital increased from 28 cases in 2007 to 47 in 2008. Notifications confirm that MRSA is at present primarily found in primary health care.

Typing revealed a very heterogeneous picture, which may indicate the presence of considerable MRSA import to Denmark. Resistance was closely associated with spa type, but cannot be predicted; all cases should therefore be tested for resistance. In view of the increasing number of cases, particularly in primary health care, but also in hospitals and nursing homes, it is essential to maintain the measures described in the guideline published by the Danish Board of Health, www.sst.dk. The introduction of specific measures to limit the spread of MRSA associated with swine is currently being considered.

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Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2009 figures are preliminary)

Table 1	Week 33 2009	Cum. 2009 ¹⁾	Cum. 2008 ¹⁾
AIDS	1	27	21
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	1
Creutzfeldt-Jakob	0	8	3
Diphtheria	0	0	0
Food-borne diseases	16	335	465
of these, infected abroad	0	53	75
Gonorrhoea	12	341	231
Haemorrhagic fever	0	0	0
Hepatitis A	0	15	25
of these, infected abroad	0	8	11
Hepatitis B (acute)	0	20	13
Hepatitis B (chronic)	4	115	123
Hepatitis C (acute)	0	13	6
Hepatitis C (chronic)	2	187	243
HIV	0	149	148
Legionella pneumonia	0	81	76
of these, infected abroad	0	18	25
Leprosy	0	0	0
Leptospirosis	0	0	2
Measles	0	9	9
Meningococcal disease	0	45	40
of these, group B	0	24	17
of these, group C	0	15	12
of these, unspec. + other	0	6	11
Mumps	0	9	20
Neuroborreliosis	0	8	28
Ornithosis	0	5	2
Pertussis (children < 2 years)	0	68	67
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	5	2
Listeria monocytogenes	0	3	1
Streptococcus pneumoniae	0	55	65
Other aethiology	0	9	15
Unknown aethiology	0	10	15
Under registration	0	19	-
Rabies	0	0	0
Rubella (congenital)	0	0	1
Rubella (during pregnancy)	0	0	0
Shigellosis	0	53	47
of these, infected abroad	0	41	39
Syphilis	8	168	69
Tetanus	0	0	1
Tuberculosis	0	226	256
Typhoid/paratyphoid fever	0	13	22
of these, infected abroad	0	10	17
Typhus exanthematicus	0	0	0
VTEC/HUS	0	64	89
of these, infected abroad	0	13	30

¹⁾ Cumulative number 2009 and in corresponding period 2008

Selected laboratory diagnosed infections

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

Table 2	Week 33 2009	Cum. 2009 ²⁾	Cum. 2008 ²⁾
Bordetella pertussis (all ages)	9	142	117
Gonococci	0	277	229
of these, females	0	77	47
of these, males	0	200	182
Listeria monocytogenes	0	50	33
Mycoplasma pneumoniae			
Resp. specimens ³⁾	1	42	48
Serum specimens ⁴⁾	2	72	59
Streptococci ⁵⁾			
Group A streptococci	1	104	108
Group B streptococci	2	75	80
Group C streptococci	1	25	11
Group G streptococci	1	104	91
S. pneumoniae	1	741	650
Table 3	Week 31 2009	Cum. 2009 ²⁾	Cum. 2008 ²⁾
MRSA	12	407	358
Pathogenic int. bacteria ⁶⁾			
Campylobacter	67	1643	1692
S. Enteritidis	23	343	236
S. Typhimurium	17	554	1082
Other zoon. salmonella	11	391	583
Yersinia enterocolitica	3	144	188
Verocytotoxin-producing E. coli	8	71	82
Enteropathogenic E. coli	12	116	75
Enterotoxigenic E. coli	7	156	201

²⁾ Cumulative number 2009 and in corresponding period 2008

³⁾ Resp. specimens with positive PCR

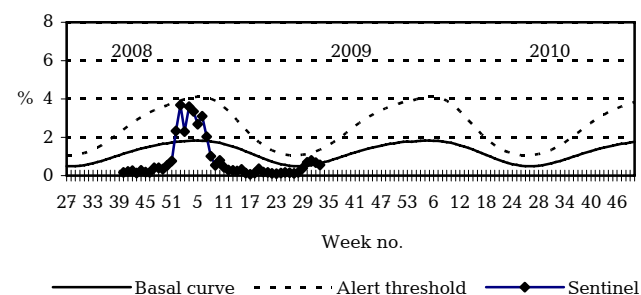
⁴⁾ Serum specimens with pos. complement fixation test

⁵⁾ Isolated in blood or spinal fluid

⁶⁾ See also www.germ.dk

Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2008/2009/2010



Sentinel: Influenza consultations (as percentage of total consultations)
 Basal curve: Expected frequency of consultations under non-epidemic conditions
 Alert threshold: Possible incipient epidemic

19 August 2009