



MRSA: INITIAL EXPERIENCES WITH MANDATORY NOTIFICATION No. 22, 2007

The occurrence of methicillin-resistant *Staphylococcus aureus* (MRSA) has increased in recent years, EPI-NEWS 47/05. Consequently, the Danish National Board of Health has prepared a national guideline on MRSA prophylaxis in hospitals and in primary health care. On this background, notification of MRSA cases was made mandatory for laboratories and clinicians as from 1 November 2006, EPI-NEWS 44/06. The mandatory notification includes all cases where MRSA is initially diagnosed after 1 November 2006 and cases where an MRSA subtype, not previously found in the person, is detected. Clinical infections as well as asymptomatic carrier cases are subject to notification. Notification should be submitted to The Medical Officer of Health and SSI. The Danish Board of Health's new form no. 5001 should be used for notification. The procedure is initiated by the Department of Clinical Microbiology who send the form to the physician together with a personal MRSA card, which the patient is encouraged to show at future contact with the health care system.

Notified cases

From 1 November 2006 to 1 April 2007, a total of 193 notifications were received. In all of these cases an MRSA isolate was sent to the SSI, and the treating clinician had filled in the clinical section of the notification. About fifty laboratory confirmed cases have not yet been notified and for a number of notifications, the corresponding isolate has not yet been sent to the SSI.

The median time span from sampling date to reception of the notification form from the treating clinician was 18 days. The median age was 41 years (range 0 to 95), and 86 (45%) were males. The geographic distribution based on municipality of residence is for the first time presented by region and part of country, [Table 1](#).

Reason for sampling was clinical infection in 106 (55%) cases, screening for asymptomatic carriers in 78 (40%), and other or unknown indication in 8 (4%) cases.

Among the cases of clinical infection, MRSA was more frequently detected from ulcers (60 cases), succeeded by skin (26), the nose (10), the pharynx (7), urine (2), blood (2) and from a number of other locations (25).

Among carriers, MRSA was more frequently isolated from the nose (51 cases) succeeded by the pharynx

Table 1. Notified MRSA cases by region and number (%) with clinical infection

<i>Region and part of country</i>	Total	Clin. inf.	(%)
Capital			
Cph. City	32	21	(66)
Cph. surr.	25	13	(52)
North Zealand	13	9	(69)
Bornholm	0	-	-
Zealand			
West and			
South Zealand	22	16	(73)
East Zealand	2	0	-
North Jutland	15	8	(53)
Central Jutland			
West Jutland	5	4	(80)
East Jutland	17	8	(47)
South			
Funen	13	9	(69)
South Jutland	48	18	(38)
Total	192	106	(55)

(45), skin (13), ulcers (8), urine (2) and other locations (5).

Underlying illness was stated in 84 cases, the primary disposing factor was ulcers (41 cases), chronic skin disease (16) and foreign objects including drains, urinary and intravenous catheters (12).

Epidemiological classification

The cases were classified according to the notifying physician's specification of presumed mode of transmission, place of diagnosis, risk situation (according to The Danish Board of Health's guideline), the notifying clinician's specification of the presumed mode of infection, and microbiological subtyping. Cases with several equally valid data were coded as Not classified, [Table 2](#).

Table 2. Epidemiological classification of notified MRSA cases and number (%) with clinical infection

Classification	Total	Clin. inf.	(%)
Acquired abroad	29	18	(62)
Acquired in hospital	11	6	(55)
Associated with hospital/ nursing home outbr.	11	6	(55)
Possibly assoc. with hospital/ nursing home outbr.	30	20	(67)
Household inf.	59	23	(39)
Occupational inf.	6	1	(17)
No known MRSA exposure	27	20	(74)
Not classified	16	12	(75)
Total	178	106	(56)

Household infection was the most frequent group accounting for 59

(31%) cases. Cases associated with hospitals and institutions comprised an almost equally number with 52 (27%) cases. Eleven of these were detected during admission to a hospital with no sign that the infection had been acquired prior to admission. Eleven formed part of a known outbreak at a hospital, nursing home or other institution; however, MRSA was detected outside the institutions in question. A total of 30 cases were classified as possibly associated with hospitals, nursing homes, etc., as MRSA was found outside the institutions while it was known that the patient had been admitted to hospital or stayed at a nursing home, etc., < 12 months. Finally, 6 (3%) were probable cases of occupational infection and in 29 (15%) cases the likely place of infection was abroad.

Commentary

This summary demonstrates that mandatory notification may improve the basis for implementation of prophylactic measures and analyses of MRSA development concerning sampling indication, manifestations, transmission modes, etc. A combined laboratory and clinical notification system is efficient and it was gratifying to see a substantial number of correctly completed forms. A future activity will be the facilitation of electronic notification for laboratories and clinicians, an initiative which will hopefully improve notification timeliness and coverage.

A preliminary report based on the isolates sent to the SSI shows that during 2006 a total of 727 MRSA cases occurred, which marks a decrease of 16% compared with 2005 (864 cases). The decrease is primarily attributable to a protracted outbreak in the former Vejle County. The active effort seen in Vejle has led to a substantial number of cases being detected by screening and has given South Jutland the lowest proportion of clinical infections nationwide, [Table 1](#).

MRSA epidemiology is currently characterized by spreading outside hospitals, and the clinical manifestations are primarily skin and soft tissue infections. The 2006 MRSA decrease shows that MRSA may be controlled and that the recommendations of the guideline from the Danish National Board of Health seem to be effective.

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Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2007 figures are preliminary)

Table 1	Week 21 2007	Cum. 2007 ¹⁾	Cum. 2006 ¹⁾
AIDS	1	26	17
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	4	5
Diphtheria	0	0	0
Food-borne diseases	10	184	142
of these, infected abroad	1	34	37
Gonorrhoea	7	144	188
Haemorrhagic fever	0	0	0
Hepatitis A	2	13	7
of these, infected abroad	1	6	1
Hepatitis B (acute)	1	10	10
Hepatitis B (chronic)	4	105	181
Hepatitis C (acute)	0	2	5
Hepatitis C (chronic)	5	111	280
HIV	2	113	84
Legionella pneumonia	2	32	29
of these, infected abroad	0	4	6
Leprosy	0	0	0
Leptospirosis	0	6	5
Measles	0	2	20
Meningococcal disease	0	23	38
of these, group B	0	12	20
of these, group C	0	6	6
of these, unspec. + other	0	5	12
Mumps	0	4	8
Neuroborreliosis	0	26	14
Ornithosis	0	1	7
Pertussis (children < 2 years)	1	30	24
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	1	1
Listeria monocytogenes	0	5	4
Streptococcus pneumoniae	0	37	48
Other aethiology	0	4	2
Unknown aethiology	0	6	11
Under registration	11	35	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	1	22	22
of these, infected abroad	0	12	20
Syphilis	4	39	27
Tetanus	0	0	0
Tuberculosis	8	154	145
Typhoid/paratyphoid fever	0	5	13
of these, infected abroad	0	5	13
Typhus exanthematicus	0	2	0
VTEC/HUS	3	62	48
of these, infected abroad	0	22	11

¹⁾ Cumulative number 2007 and in corresponding period 2006

Selected laboratory diagnosed infections

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

Table 2	Week 21 2007	Cum. 2007 ²⁾	Cum. 2006 ²⁾
Bordetella pertussis (all ages)	3	58	103
Gonococci	5	138	176
of these, females	0	19	33
of these, males	5	119	143
Listeria monocytogenes	1	21	11
Mycoplasma pneumoniae			
Resp. specimens ³⁾	3	229	219
Serum specimens ⁴⁾	4	262	197
Streptococci ⁵⁾			
Group A streptococci	3	60	82
Group B streptococci	4	41	39
Group C streptococci	1	9	9
Group G streptococci	4	50	53
S. pneumoniae	30	558	549
Table 3	Week 19 2007	Cum. 2007 ²⁾	Cum. 2006 ²⁾
Pathogenic int. bacteria ⁶⁾			
Campylobacter	33	822	590
S. Enteritidis	8	130	110
S. Typhimurium	3	102	94
Other zoon. salmonella	13	220	163
Yersinia enterocolitica	10	114	53
Verocytotoxin- producing E. coli	1	63	44
Enteropathogenic E. coli	6	51	71
Enterotoxigenic E. coli	3	60	70

²⁾ Cumulative number 2007 and in corresponding period 2006

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

Patients with laboratory diagnosed RS and rotavirus

2nd half-year 2006 compared with 2nd half-year 2005

	RS virus		Rotavirus	
	2006	2005	2006	2005
July	0	0	5	5
August	0	2	5	13
September	1	3	4	3
October	7	14	7	7
November	9	40	7	8
December	43	96	6	11
Total	60	155	34	47

Numbers reported from the following departments of clinical microbiology: Herning Region Hospital, Hvidovre Hospital, Slagelse Hospital, Viborg Region Hospital, Aalborg Hospital South, Aarhus Hospital, Department of Virology, SSI