

EUROPEAN ANTIMICROBIAL RESISTANCE SURVEILLANCE SYSTEM (EARSS)



Quarter 1,

May, 2000

Introduction:

In Quarter 1 (Q1), 2000, fifteen laboratories participated in the *S. aureus* arm of the study and sixteen laboratories participated in the *S. pneumoniae* component. In addition to reporting data to the National Disease Surveillance Centre (NDSC), participating laboratories referred methicillin-resistant *Staphylococcus aureus* (MRSA) isolates to the Department of Clinical Microbiology, St James's Hospital (SJH) and both penicillin-susceptible *S. pneumoniae* (PSSP) and penicillin-resistant *S. pneumoniae* (PRSP) isolates to the Department of Clinical Microbiology, Beaumont/RCSI (RCSI).

For the purpose of this analysis, Part 1 describes results of data returned from participating laboratories and Part 2 describes results from isolates sent to referral laboratories. The full list of laboratories currently participating is printed overleaf. It is important to continue the systematic collection of resistance data on these two important causes of illness.

Staphylococcus aureus

Part 1: Data from Participating Laboratories

A total of 195 episodes of *S. aureus* bacteraemia were reported. Isolates from 75 patients (38.5%) with *S. aureus* bacteraemia were resistant to methicillin. Two laboratories did not report any episode of *S. aureus* bacteraemia during the quarter. {Data for Q1, 1999: n=119 (MRSA, 37%); MRSA rate for year 1999, 39%}.

All isolates were susceptible to vancomycin. Susceptibility test results were available for 180 gentamicin and 150 erythromycin isolates. Gentamicin and erythromycin resistance rates were 20% (n=36) and 38.7% (n=58), respectively.

Part 2: Data from Referral Laboratory

Sixty-seven MRSA isolates were referred to SJH for further evaluation. Antibigram results (shown in table 1) were available on 67 isolates.

Minimum inhibitory concentration (MIC) results (determined by E-test™) were available on 67 isolates. The majority of isolates (85%, 57/67) exhibited oxacillin MIC values of ≥ 256 mg/L. All isolates exhibited vancomycin MIC values of < 4 mg/L.

Table 1. Antibigram results of MRSA isolates (n=67) referred to SJH during Q1, 2000.

ANTIBIOTIC	SUSCEPTIBLE	%	INTERMEDIATE	%	RESISTANT	%
CHLORAMPHENICOL	67	100	0	0	0	0
CIPROFLOXACIN	0	0	0	0	67	100
ERYTHROMYCIN	5	7.5	0	0	62	92.5
FUSIDIC ACID	60	89.6	3	4.5	4	6
GENTAMICIN	34	50.7	0	0	33	49.3
LINCOMYCIN	30	44.8	0	0	37	55.2
MUPIROICIN	36	53.7	31	46.2	0	0
RIFAMPICIN	66	98.5	0	0	1	1.5
TETRACYCLINE	66	98.5	0	0	1	1.5
TRIMETHOPRIM	60	89.6	0	0	7	10.4
VANCOMYCIN	67	100	0	0	0	0

Streptococcus pneumoniae

Part 1: Data from Participating Laboratories

Sixty-six *S. pneumoniae* isolates (63 from blood and three from CSF) were reported. Isolates from six patients (9.1%) with *S. pneumoniae* bacteraemia/meningitis were "resistant" to penicillin. Five laboratories did not report any episodes of *S. pneumoniae* bacteraemia/meningitis in this quarter. {Data for Q1, 1999, n=59, (PRSP, 23.7%); PRSP rate for year 1999, 18%}.

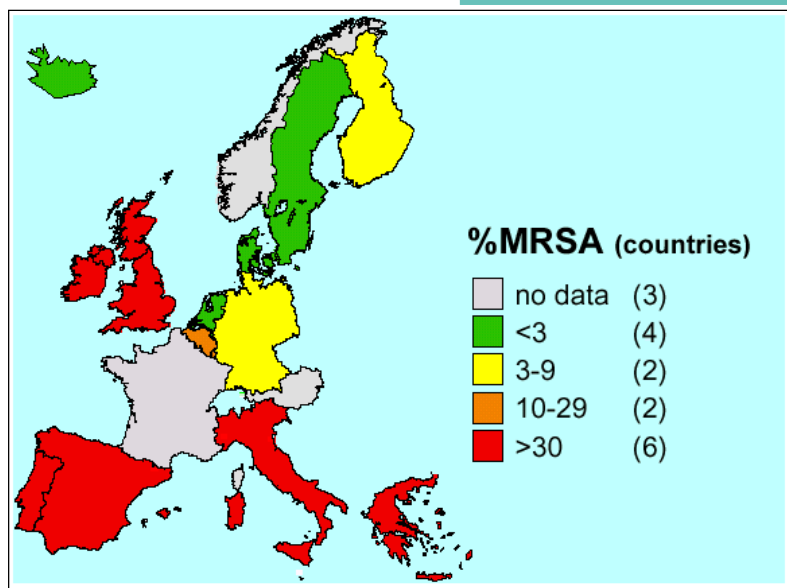
Part 2: Data from Referral Laboratory

British Society for Antimicrobial Chemotherapy (BSAC) breakpoints were used to interpret susceptibility category, as specified in the previous report. These values were published in March 2000 and are now the same as EARSS criteria. All PRSP exhibited low-level penicillin resistance (MIC < 2 mg/L). Breakpoints for ciprofloxacin and cefotaxime do differ between EARSS and BSAC. Based on the new BSAC data, all *S. pneumoniae* exhibiting MIC ≤ 2 mg/L for ciprofloxacin are regarded as intermediate.

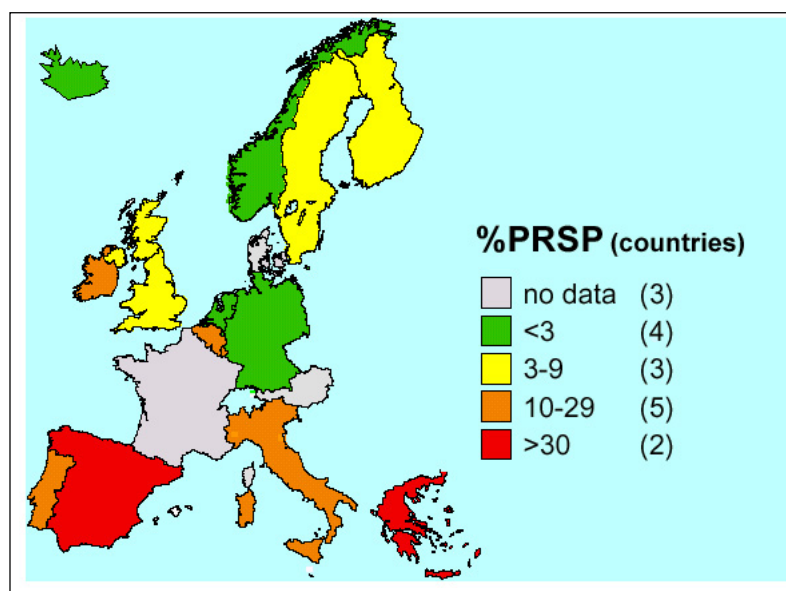
Table 2. MIC data on *S. pneumoniae* isolates (n=57) referred to RCSI during Q1, 2000.

ANTIBIOTIC	MIC mg/L		
	SUSCEPTIBLE	INTERMEDIATE	RESISTANT
OXACILLIN	52	7	0
CEFOTAXIME	57	0	0
CIPROFLOXACIN	0	57	0

European Results 1999:



COUNTRY	S. AUREUS ISOLATES	MRSA ISOLATES	% MRSA
DENMARK	502	0	0
ICELAND	41	0	0
NETHERLANDS	1178	10	1
SWEDEN	1175	14	1
FINLAND	250	9	4
GERMANY	660	57	9
LUXEMBOURG	40	5	13
BELGIUM	305	67	22
UNITED KINGDOM	651	219	34
SPAIN	348	127	36
IRELAND	514	202	39
ITALY	687	279	41
PORTUGAL	190	94	49
GREECE	137	72	53



COUNTRY	S. PNEUMONIAE ISOLATES	PRSP ISOLATES	% PRSP
NORWAY	871	3	0.3
NETHERLANDS	644	14	2
GERMANY	213	4	2
ICELAND	55	1	2
SWEDEN	745	21	3
FINLAND	213	8	4
UK	240	19	8
BELGIUM	958	136	14
ITALY	108	15	14
PORTUGAL	66	9	14
LUXEMBOURG	11	2	18
IRELAND	160	31	19
SPAIN	1240	418	34
GREECE	56	33	59

Special Announcement: IMPORTANT

The EARSS Management Team in RIVM will shortly (August/September 2000) undertake a Quality Assurance (QA) initiative for participants in all countries. Approximately 450 laboratories will be sent strains, prepared by NEQAS, for this exercise. NDSC will be responsible for distribution of strains in Ireland. Participants will be provided with a EARSS-NEQAS QA protocol and they will be asked to store these strains and test them repeatedly. NEQAS will collect ALL results within three weeks. NEQAS will analyse data and report data to participating laboratories. All results will be shared with the EARSS Management Team. The Team will provide national representatives with the results of their country. In Ireland, Dr Ed Smyth, Consultant Microbiologist and NEQAS co-ordinator will assist in this task.

The maps and tables presented above are the most up to date information available from the EARSS Management Team in RIVM, The Netherlands. It includes data from the UK, not presented in the recent EARSS newsletter from RIVM. The RIVM newsletter does contain data on the sample size and confidence intervals.

As can be seen, high levels of resistance in *S.aureus* and *S.pneumoniae* are not confined to one country in Europe. The results underline the importance of systematic and on-going surveillance of antimicrobial resistance in Europe.

Participant Laboratories:

Adelaide, Meath and National Childrens Hospital, Tallaght;
Cherry Orchard Hospital, Dublin;
Mullingar General Hospital;
Tralee General Hospital;

Beaumont Hospital, Dublin;
Limerick Regional Hospital;
Sligo General Hospital;
Rotunda/Temple St Hospital, Dublin;

Bon Secours Hospital, Cork;
Mater Misericordiae Hospital, Dublin;
St James's Hospital, Dublin;
University College Hospital, Galway;

Bon Secours Hospital, Glasnevin;
Mercy Hospital, Cork;
St Vincents Hospital, Dublin;
Waterford Regional Hospital.