

EUROPEAN ANTIMICROBIAL RESISTANCE SURVEILLANCE SYSTEM (EARSS)



Quarter 2, 2001

September, 2001

Quarter 2 analysis

In Quarter 2 (Q2), 2001, twenty laboratories participated in the *Staphylococcus aureus* arm of the study and twenty-one laboratories participated in the *Streptococcus pneumoniae* component. In addition to reporting data to the National Disease Surveillance Centre (NDSC), participating laboratories referred methicillin-resistant *S. aureus* (MRSA) isolates to the Department of Clinical Microbiology, St. James's Hospital (SJH) and both penicillin-susceptible *S. pneumoniae* (PSSP) and penicillin-nonsusceptible *S. pneumoniae* (PRSP/PNSP) isolates to the Department of Clinical Microbiology, Beaumont/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.

Staphylococcus aureus

Part 1: Data from Participating Laboratories

A total of 178 episodes of *S. aureus* bacteraemia were reported. Isolates from 74 patients (41.6%) with *S. aureus* bacteraemia were resistant to methicillin. Four laboratories did not report any episode of *S. aureus* bacteraemia during the quarter.

In comparison, there were 121 isolates in Q2, 2000 yielding 43% MRSA. The MRSA rate for the year 2000 was 38.8%.

All isolates were susceptible to vancomycin. Susceptibility test results were available for ciprofloxacin on 133 isolates, for erythromycin on 121 isolates and for gentamicin on 146 isolates. Ciprofloxacin, erythromycin and gentamicin resistance rates were 41% (n=54), 50% (n=61) and 17% (n=25) respectively.

Part 2: Data from Referral Laboratory

Seventy MRSA isolates from 70 patients were referred to SJH for further evaluation. Antibigram results are shown in table 1.

Minimum inhibitory concentration (MIC) results (determined by E-test) were available on all 70 isolates. The majority of isolates (76%, 53/70) exhibited oxacillin MIC values of >256 mg/L. All isolates exhibited vancomycin MIC values of <4 mg/L.

Streptococcus pneumoniae

Part 1: Data from Participating Laboratories

Seventy-eight *S. pneumoniae* isolates were reported. Isolates from ten patients (12.8%) with *S. pneumoniae* bacteraemia/meningitis were non-susceptible to penicillin. Two laboratories did not report any episodes of *S. pneumoniae*

bacteraemia/meningitis in this quarter.

In comparison, there were 47 isolates in Q2, 2000 yielding 10.6% PRSP. The PRSP rate for the year 2000 was 12.7%.

Table 1. Antibigram results of MRSA isolates (n=70) referred to SJH during Q2, 2001.

Antibiotic	S	%	I	%	R	%
Chloramphenicol	68	97	0	0	2	3
Ciprofloxacin	1	1	0	0	69	99
Erythromycin	8	11	0	0	62	89
Fusidic Acid	59	84	6	9	5	7
Gentamicin	48	69	0	0	22	31
Lincomycin	54	77	0	0	16	23
Mupirocin	50	71	16	23	4	6
Rifampicin	64	91	0	0	6	9
Tetracycline	69	99	0	0	1	1
Trimethoprim	60	86	1	1	9	13
Vancomycin	70	100	0	0	0	0

S-Susceptible, I-Intermediate, R-Resistant

Part 2: Data from Referral Laboratory

Sixty-six isolates were referred to Beaumont/RCSI, one penicillin E-test result was received from the laboratory and no information was available on 11 isolates. One PNSP isolates exhibited high-level penicillin resistance (MIC \geq 2mg/L) and PNSP isolates exhibited low-level penicillin resistance (0.1 \leq MIC<2mg/L). Sixty-six *S. pneumoniae* isolates exhibited ciprofloxacin MIC values of \leq 2mg/L (interpreted as intermediate according to the latest BSAC criteria). No "susceptible" category for ciprofloxacin against *S. pneumoniae* exists in BSAC guidelines. All *S. pneumoniae* isolates tested against cefotaxime had MIC values of \leq 1mg/L (i.e. susceptible by BSAC criteria).

Table 2. Susceptibility category based on MIC data on *S. pneumoniae* isolates (n=67) referred to RCSI or laboratories during Q2, 2001.

	MIC (mg/L)		
	S	I	R
Penicillin	\leq 0.06	0.12-1.0	\geq 2
	57	9	1
Cefotaxime	\leq 1		\geq 2
	66		0
Ciprofloxacin		\leq 2	\geq 4
		66	0

National Data Manager

On behalf of the EARSS Steering Committee and all participants, we would like to take this opportunity to thank Dominic Whyte for his enormous contribution to the success of the EARSS project in Ireland over the past two years and wish him well in his new position as surveillance scientist in the Mid-Western Health Board.

The new data manager is Stephen Murchan (E-mail: stephen.murchan@ndsc.ie).

WHONET5/BacLink and workshop

WHONET has now been installed in 13 of the 21 EARSS centres in Ireland. Eight laboratories routinely use the software to report their EARSS data to NDSC by the transfer of WHONET files (electronically via e-mail or by post). Two laboratories send structured files downloaded from the LIMS to NDSC for translation to a WHONET-compatible file using BacLink. Such file downloads provide the most complete data. Eleven laboratories use paper forms as the primary means of submitting their data.

WHONET can also be used locally to store and analyse antibiotic resistance data and thus inform infection control teams in the hospital. We will be happy to arrange installation for other laboratories wanting to avail of the software.

Dr John Stelling, the developer of WHONET/BacLink, will be in Dublin in later this year to demonstrate the latest version of the software. A representative from each laboratory participating in EARSS is invited to attend a 2-day workshop from November 19-20. The workshop will cover data entry and analysis using WHONET and the use of BacLink to translate LIMS downloads into WHONET format for analysis. Participants are invited to bring a structured text LIMS download file (excel, access, .txt, .dbf) from their laboratory for specific advice.

Data encryption using PGP

The secure electronic transmission of healthcare data to the National Disease Surveillance Centre (NDSC) is regarded as a top priority for data communications to and from NDSC and our partners in disease surveillance.

You may be aware that NDSC is attempting to assess the feasibility of using PGP - Pretty Good Privacy (<http://www.pgpi.com>) for encrypting messages and attached EARSS files from participants using WHONET 5, or who send database information to NDSC.

According to Ralf Senderek, when using PGP you generally pursue the following objectives:

- you intend to establish **confidentiality of communication** with other people, in a way that prevents other people from reading the message in plain text except of the intended addressee,
- you intend to guarantee the **reliability of the source of information** (authenticity), in a way that prevents someone to masquerade as the author of a message actually having been created by somebody else (protection of intellectual property),
- you intend to guarantee the **integrity of a message**, in a way that a composed message cannot be changed accidentally or deliberately.

NDSC is now ready to proceed with piloting this application in three centres using unnamed data. Only database (access or excel or text) files being sent TO NDSC are covered by this encryption. Assuming this proves a satisfactory means of transmitting data to NDSC, to all concerned, we would be happy to advise on developing the system to reciprocate such communication, in conjunction with your IMS/IT personnel. To enable this pilot to proceed, NDSC have compiled a CD with simple instructions and the PGP software. The software is freeware - an application that is freely available for non-commercial use. The CD also contains a key that allows encryption of both e-mails and attachments to NDSC.

A report on the pilot will be prepared for all EARSS participants.

EARSS Laboratory Questionnaire

NDSC would like to thank laboratories for their continued assistance in completing the questionnaire updating the denominator data originally collected in 1997. This data will allow analysis of Irish antimicrobial resistance data in the appropriate context.

Quality Assurance and New pathogens

Dr Olive Murphy has written to all participants about the overall Irish QA results from last year and a brief questionnaire concerning the proposal to expand EARSS in Ireland to include the new pathogens, *Escherichia coli*, *Enterococcus faecalis* and *Enterococcus faecium*.

Irish EARSS laboratories are not participating in this years QA exercise as only the new pathogens are being examined.

Website development

The NDSC website is currently being updated and a new webpage devoted to EARSS in Ireland will soon be on-line. The EARSS page will contain downloadable forms, quarterly and annual reports and other useful EARSS resources. These documents are mostly in portable document format (PDF).

Prepared by Stephen Murchan, Dominic Whyte and the EARSS Steering Committee (Dr Robert Cunney, Dr Lynda Fenelon, Prof Hilary Humphreys, Prof Conor Keane, Dr Olive Murphy, Dr Darina O Flanagan and Dr Angela Rossney).
Participant Laboratories: Adelaide, Meath and National Children's Hospital, Tallaght; Beaumont Hospital, Dublin; Bon Secours Hospital, Cork; Bon Secours Hospital, Glasnevin; Cavan General Hospital; Cherry Orchard Hospital, Dublin; Cork University Hospital; Letterkenny General Hospital; Limerick Regional Hospital; Mater Misericordiae Hospital, Dublin; Mercy Hospital, Cork; Mullingar General Hospital; Our Lady's Hospital for Sick Children, Crumlin; Sligo General Hospital; St Columcille's Hospital, Loughlinstown; St James's Hospital, Dublin; St Vincent's Hospital, Dublin; Tralee General Hospital; Rotunda/Temple St