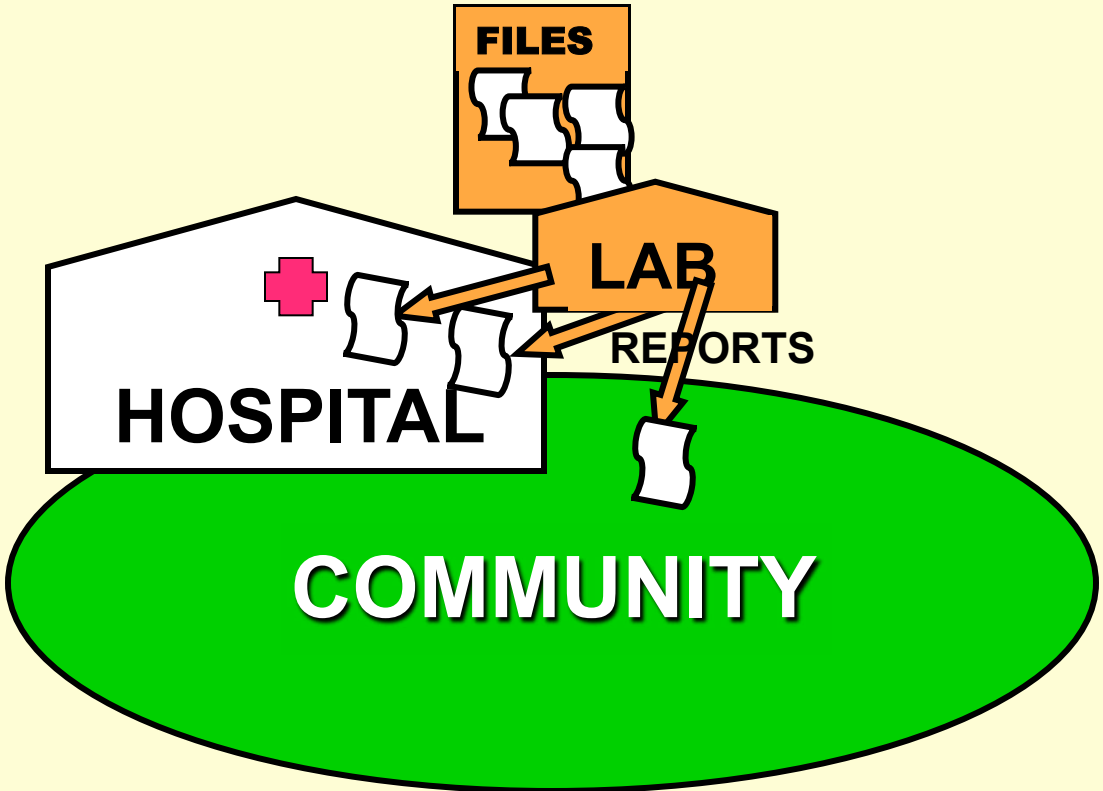
# Surveillance of The World's Infecting Microbes

# And

# Their Resistance to Antimicrobial Agents

Thomas F. O'Brien, M.D.
World Health Organization Collaborating Center
for Surveillance of Antimicrobial Resistance
Brigham and Women's Hospital and
Harvard Medical School, Boston MA, USA


FILES
LAB
REPORTS
HOSPITAL
COMMUNITY

## MICROBIOLOGY LABORATORY FILES

- Sample widely hospital, community bacteria
- All we can know of bacterial trends, distribution
- Only lab needing analysis across patients

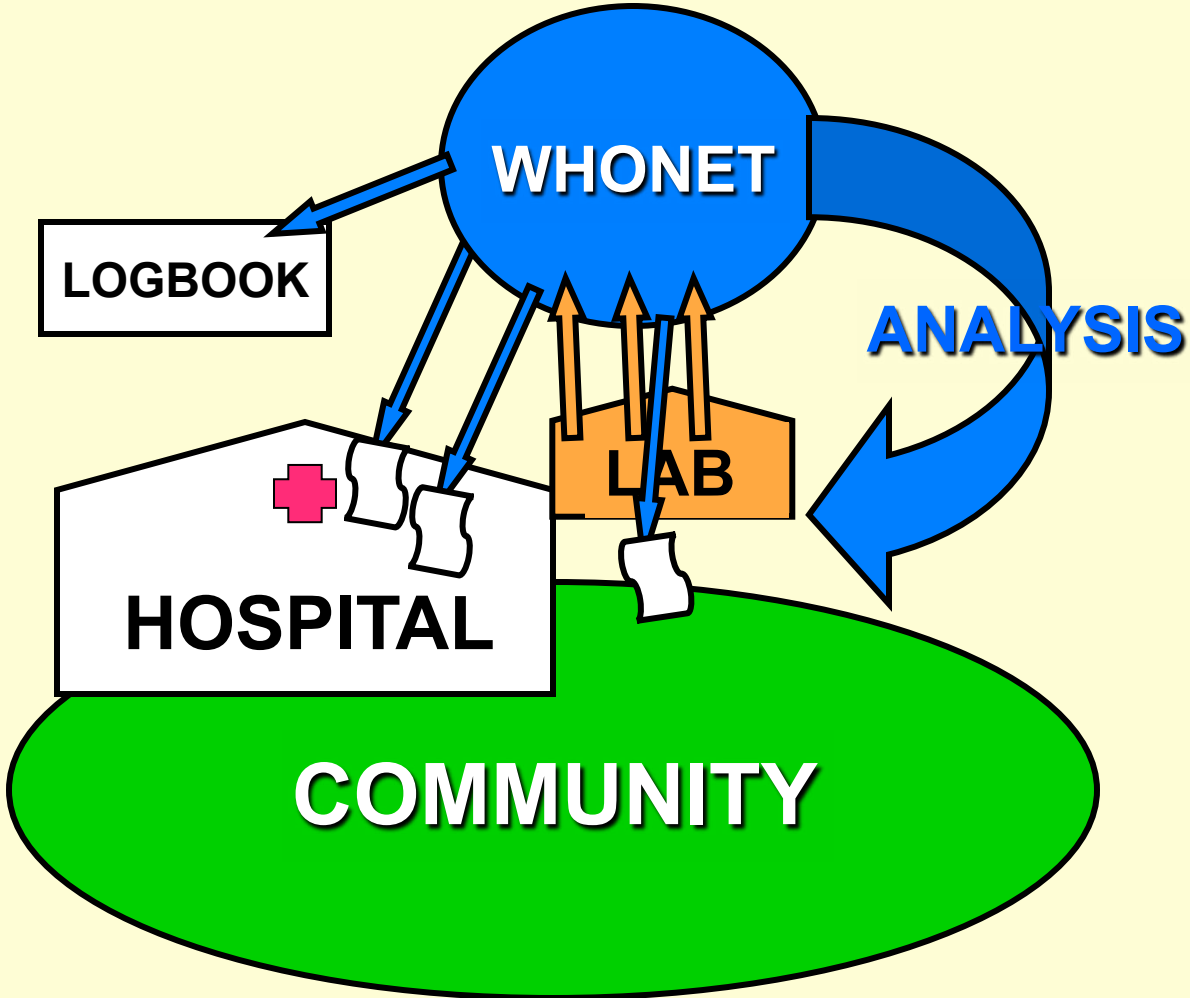
**BUT CAN NOT ANALYZE PAPER FILES**

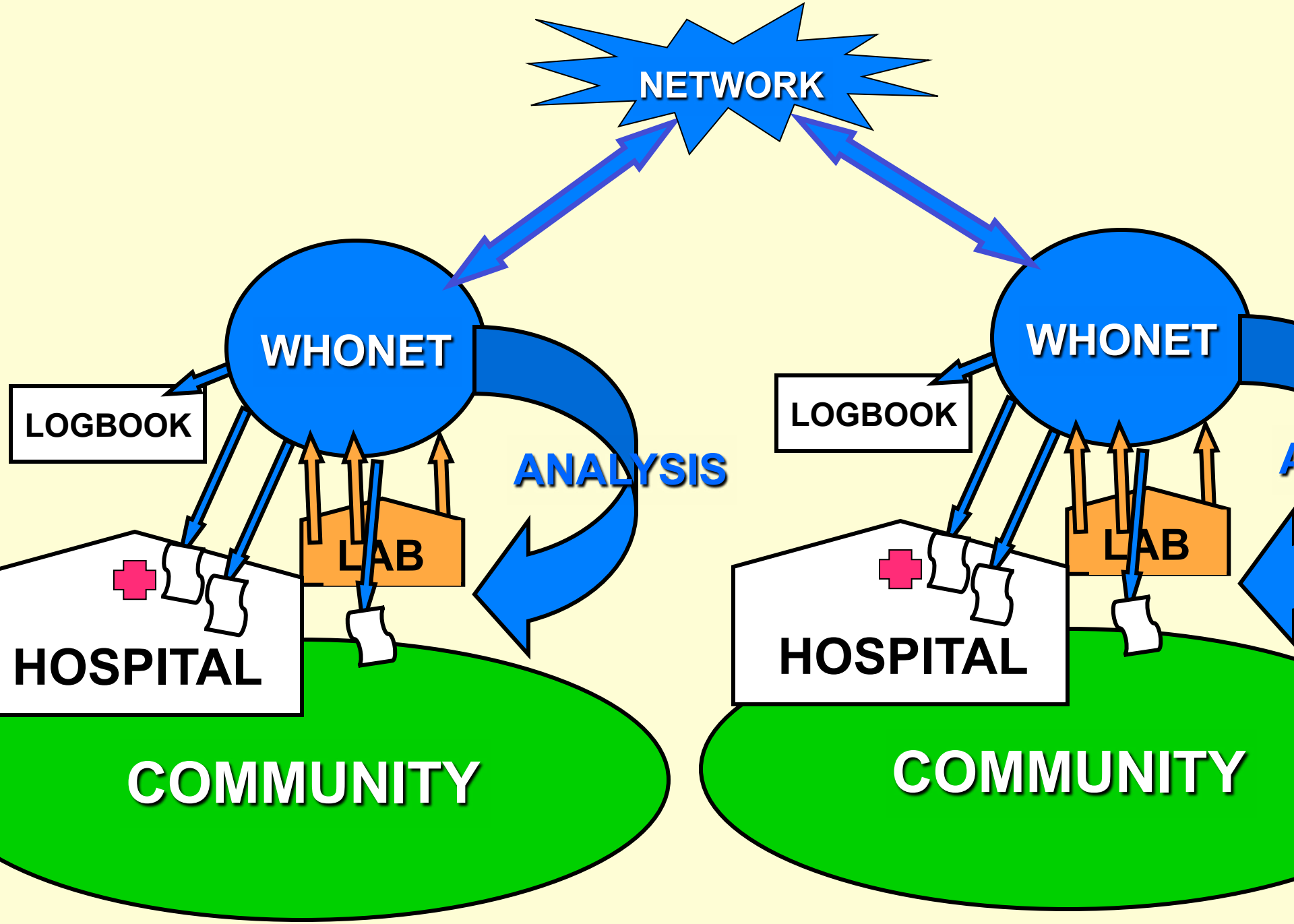
Enter results into the WHONET database

WHONET makes the reports

WHONET retrieves results and can make a logbook

WHONET DOES ANALYSES



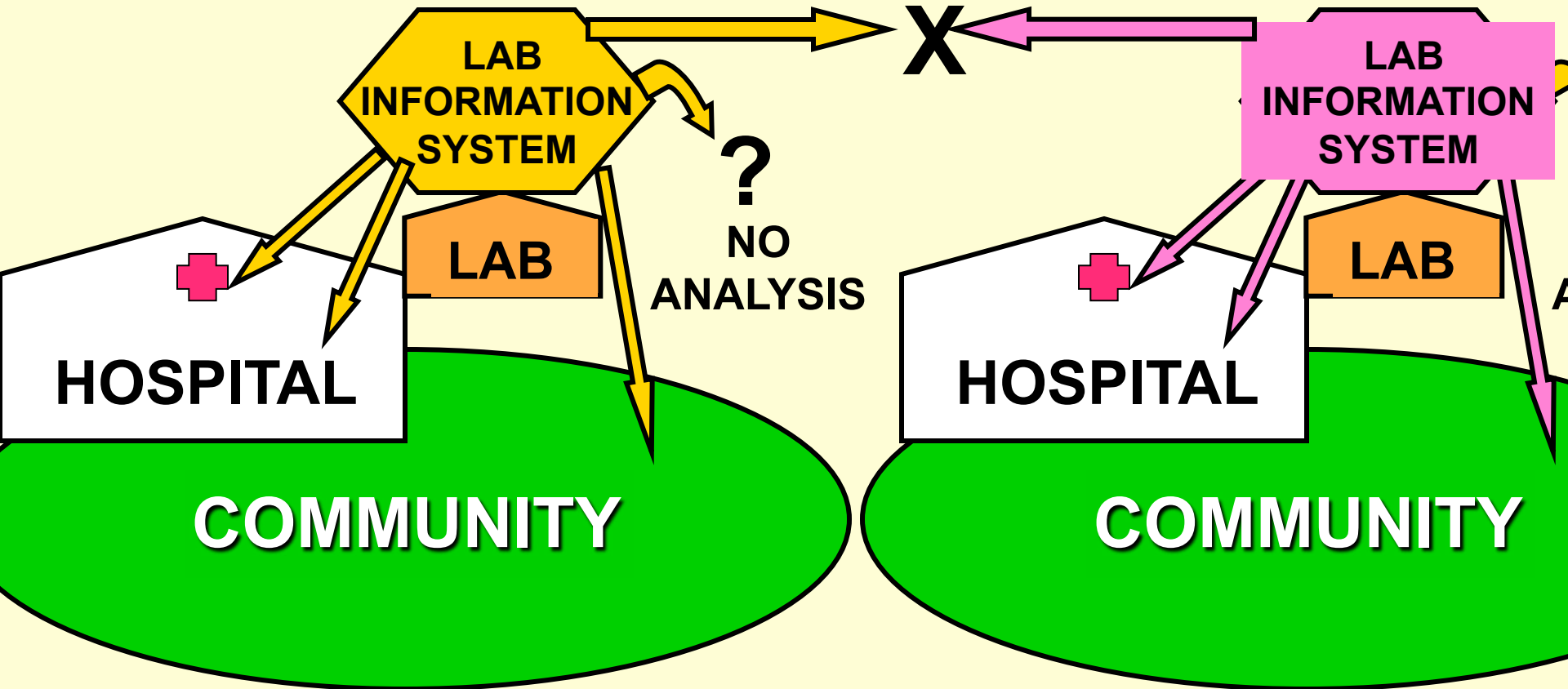

NETWORK
WHONET
LOGBOOK
ANALYSIS
LAB
HOSPITAL
COMMUNITY
WHONET
LOGBOOK
LAB
HOSPITAL
COMMUNITY

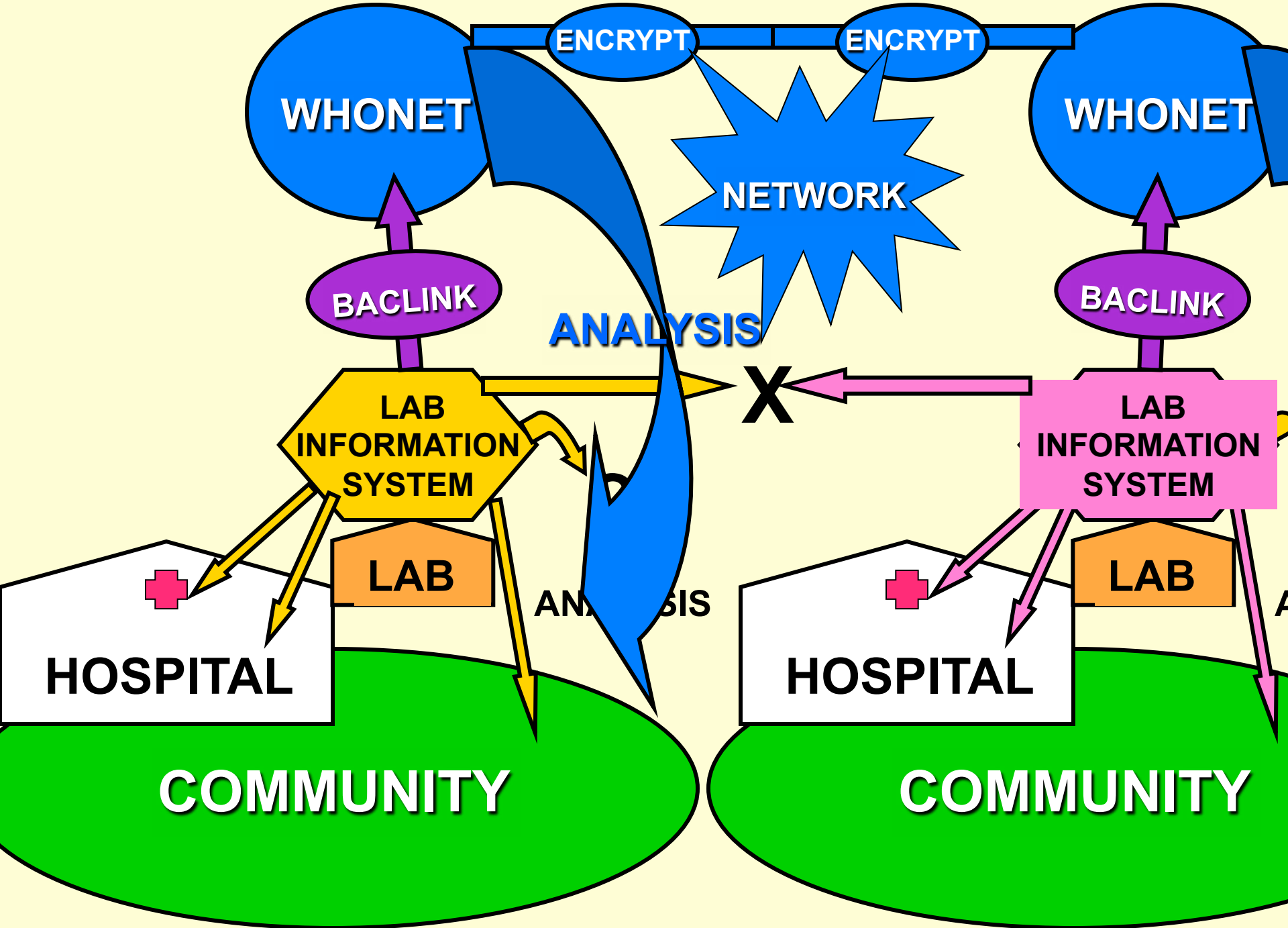
Many laboratories now have Lab Information Systems (LIS)

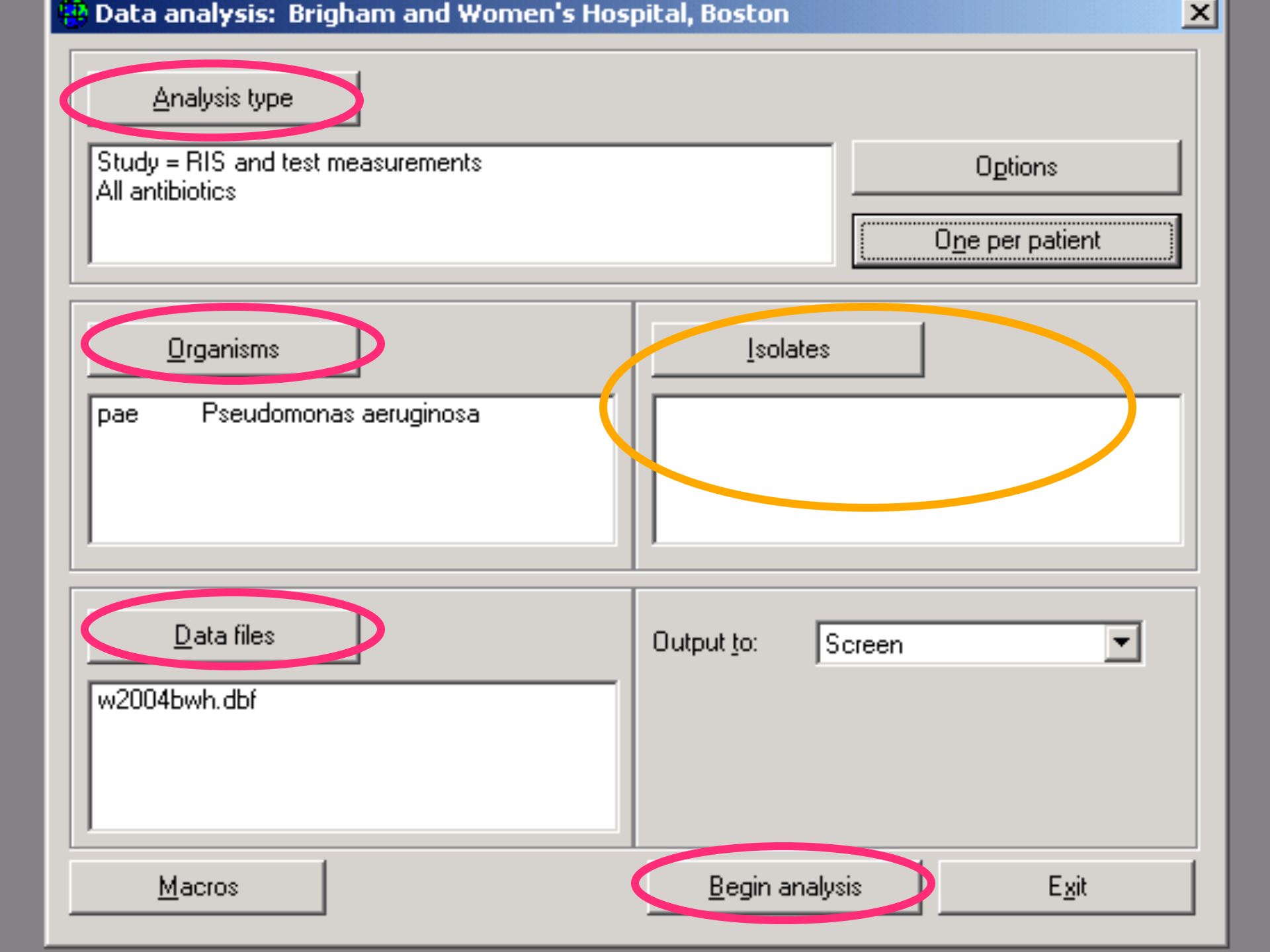
An LIS transmits and retrieves reports electronically

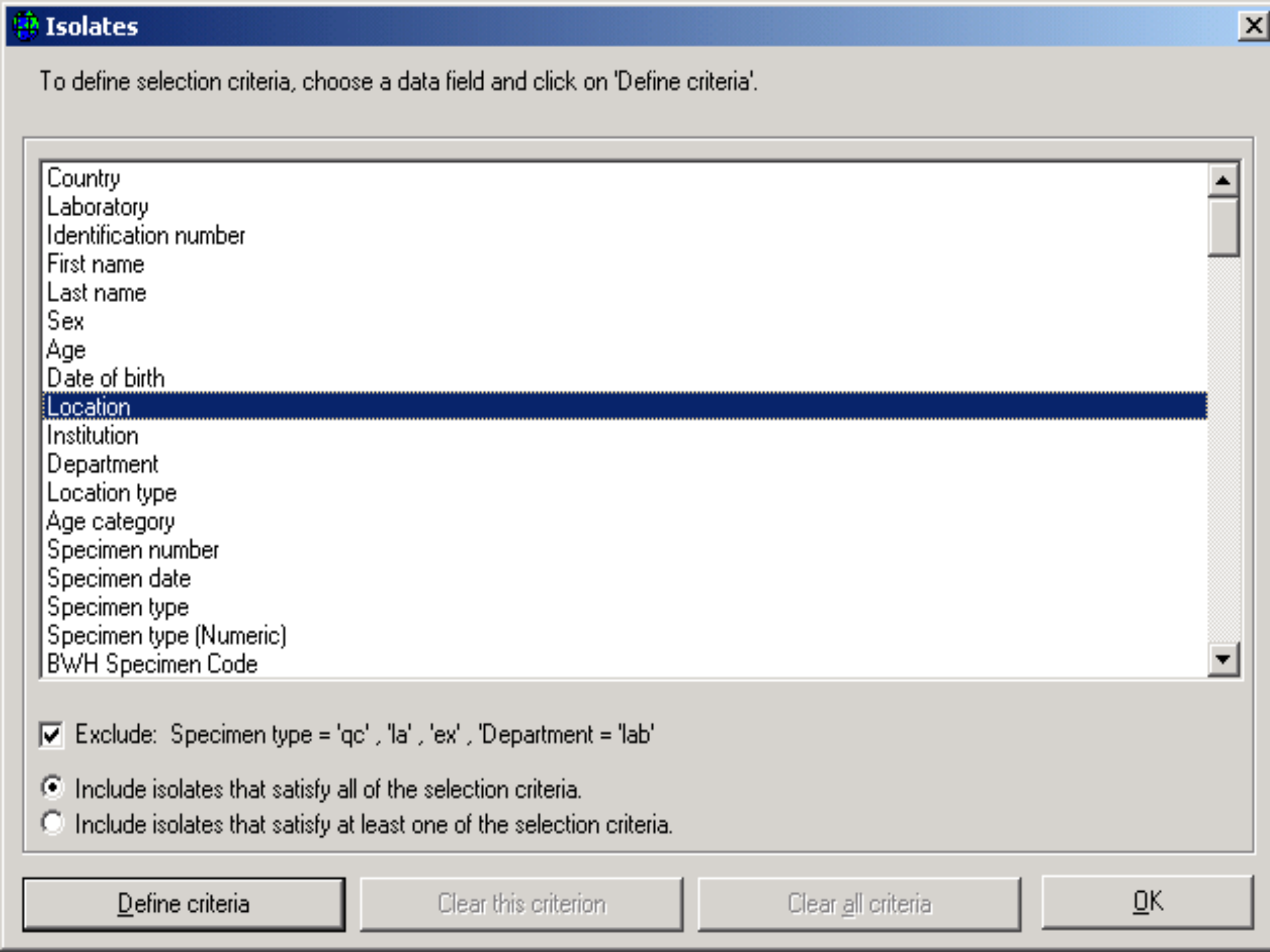
Most LISs can not analyze

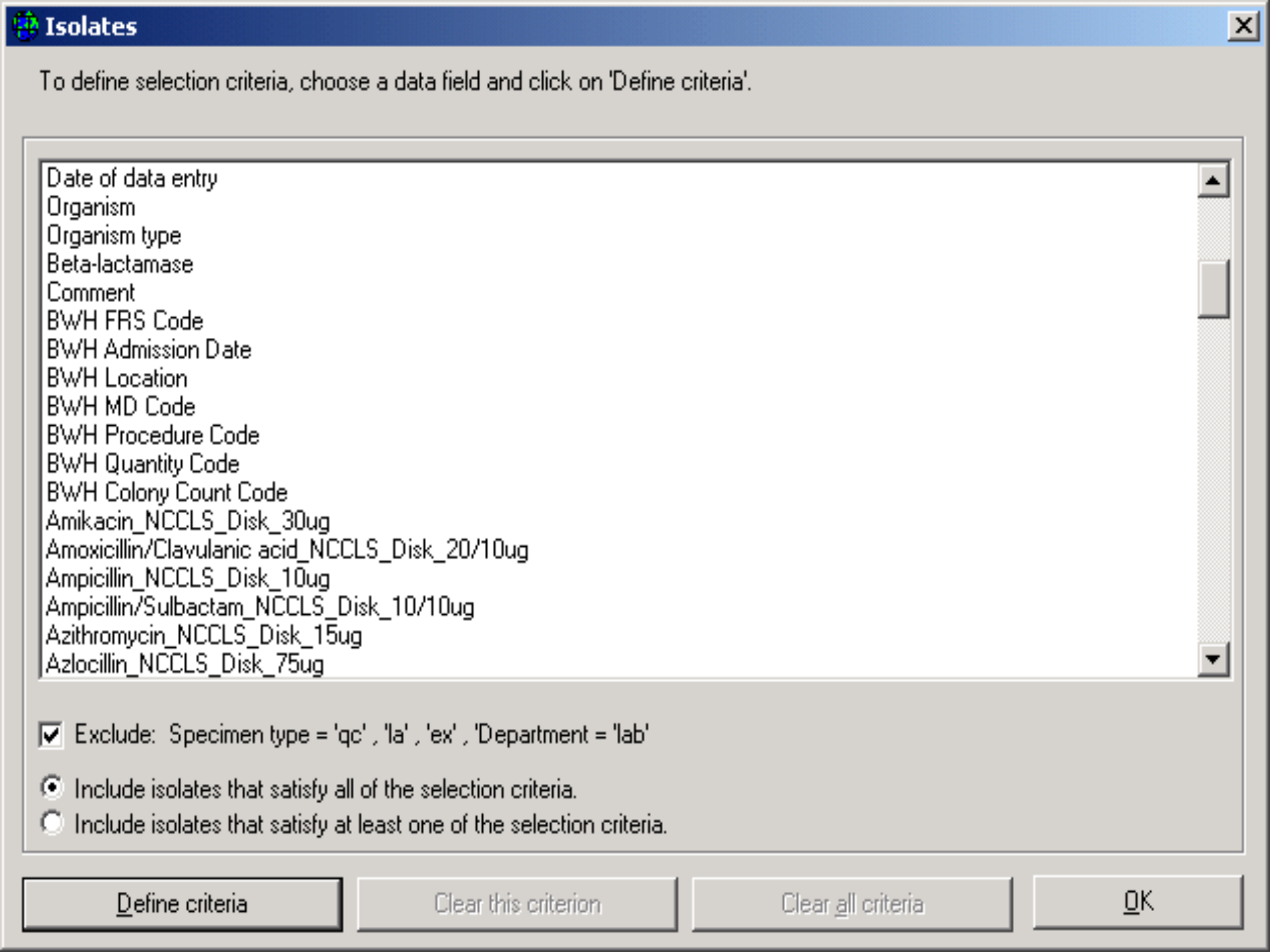
Most LISs are incompatible with one another




ENCRYPT
ENCRYPT
WHONET
WHONET
NETWORK
BACLINK
BACLINK
ANALYSIS
X
LAB INFORMATION SYSTEM
LAB INFORMATION SYSTEM
LAB
LAB
HOSPITAL
HOSPITAL
COMMUNITY
COMMUNITY


Data analysis: Brigham and Women's Hospital, Boston
Analysis type
Study = RIS and test measurements
All antibiotics
Options
One per patient
Organisms
pae Pseudomonas aeruginosa
Isolates
Data files
w2004bwh.dbf
Output to:
Screen
Macros
Begin analysis
Exit


Isolates
To define selection criteria, choose a data field and click on 'Define criteria'.
Country
Laboratory
Identification number
First name
Last name
Sex
Age
Date of birth
Location
Institution
Department
Location type
Age category
Specimen number
Specimen date
Specimen type
Specimen type (Numeric)
BWH Specimen Code
Exclude: Specimen type = 'qc' , 'la' , 'ex' , 'Department = 'lab'
Include isolates that satisfy all of the selection criteria.
Include isolates that satisfy at least one of the selection criteria.
Define criteria
Clear this criterion
Clear all criteria
OK


Isolates
To define selection criteria, choose a data field and click on 'Define criteria'.
Date of data entry
Organism
Organism type
Beta-lactamase
Comment
BWH FRS Code
BWH Admission Date
BWH Location
BWH MD Code
BWH Procedure Code
BWH Quantity Code
BWH Colony Count Code
Amikacin_NCCLS_Disk_30ug
Amoxicillin/Clavulanic acid_NCCLS_Disk_20/10ug
Ampicillin_NCCLS_Disk_10ug
Ampicillin/Sulbactam_NCCLS_Disk_10/10ug
Azithromycin_NCCLS_Disk_15ug
Azlocillin_NCCLS_Disk_75ug
Exclude: Specimen type = 'qc' , 'la' , 'ex' , 'Department = 'lab'
Include isolates that satisfy all of the selection criteria.
Include isolates that satisfy at least one of the selection criteria.
Define criteria
Clear this criterion
Clear all criteria
OK

Analysis Results

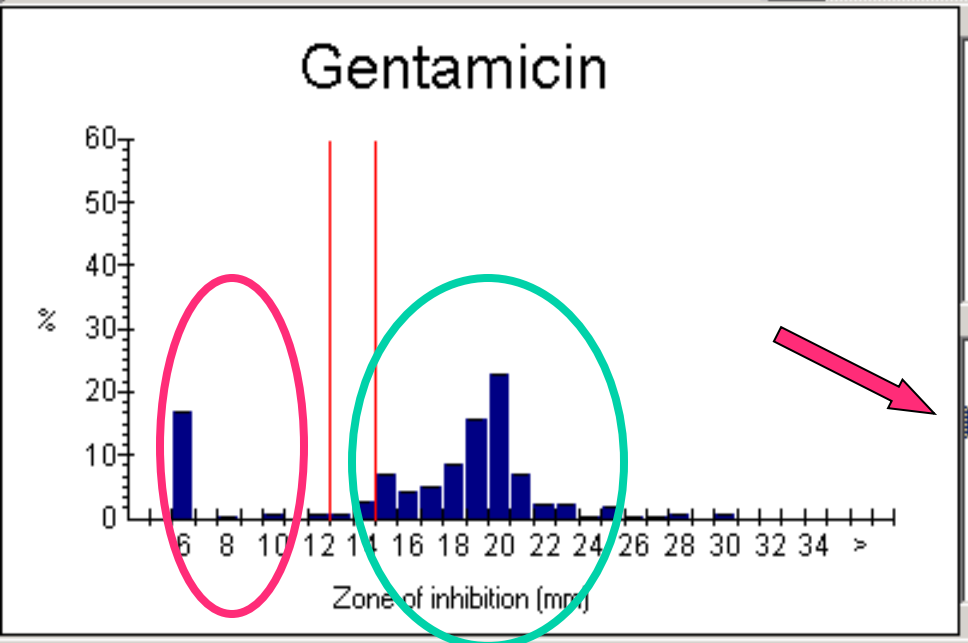
File Edit Data

Copy table | Copy graph | Print table | Print graph | Continue

Organism = Pseudomonas aeruginosa (n=356 Isolates)

Show hidden columns

| Code | Antibiotic name | Breakpoints | Number | %R | %I | %S | %? | %R 95% |
|---|---|---|---|---|---|---|---|---|
| AMK_ND30 | Amikacin | 15 - 16 | 336 | 3 | 4.5 | 92.5 | | |
| ATM_ND30 | Aztreonam | 16 - 21 | 336 | 13.1 | 18.5 | 68.5 | | 9 |
| FEP_ND30 | Cefepime | 15 - 17 | 2 | 0 | 0 | 100 | | 0 |
| CTX_ND30 | Cefotaxime | 15 - 22 | 336 | 33.3 | 58.6 | 8 | | 28 |
| CAZ_ND30 | Ceftazidime | 15 - 17 | 336 | 5.7 | 3 | 91.4 | | |
| CIP_ND5 | Ciprofloxacin | 16 - 20 | 336 | 31.2 | 6.8 | 61.9 | | 26 |
| COL_ND10 | Colistin | | 336 | 0 | 0 | 0 | 100 | |
| GEN_ND10 | Gentamicin | 13 - 14 | 336 | 18.2 | 3.3 | 78.6 | | 14 |
| IPM_ND10 | Imipenem | 14 - 15 | 336 | 20.2 | 3 | 76.8 | | 16 |
| LVX_ND5 | Levofloxacin | 14 - 16 | 336 | 37.2 | 3.9 | 58.9 | | 32 |
| MEZ_ND75 | Mezlocillin | S >= 16 | 336 | 25.3 | 0 | 74.7 | | 20 |
| PIP_ND100 | Piperacillin | S >= 18 | 336 | 10.1 | 0 | 89.9 | | 7 |
| TOB_ND10 | Tobramycin | 13 - 14 | 336 | 15.5 | 0.6 | 83.9 | | 11 |
| AMP_NM | Ampicillin | S<=8 R>=32 | 1 | 100 | 0 | 0 | | 5 |

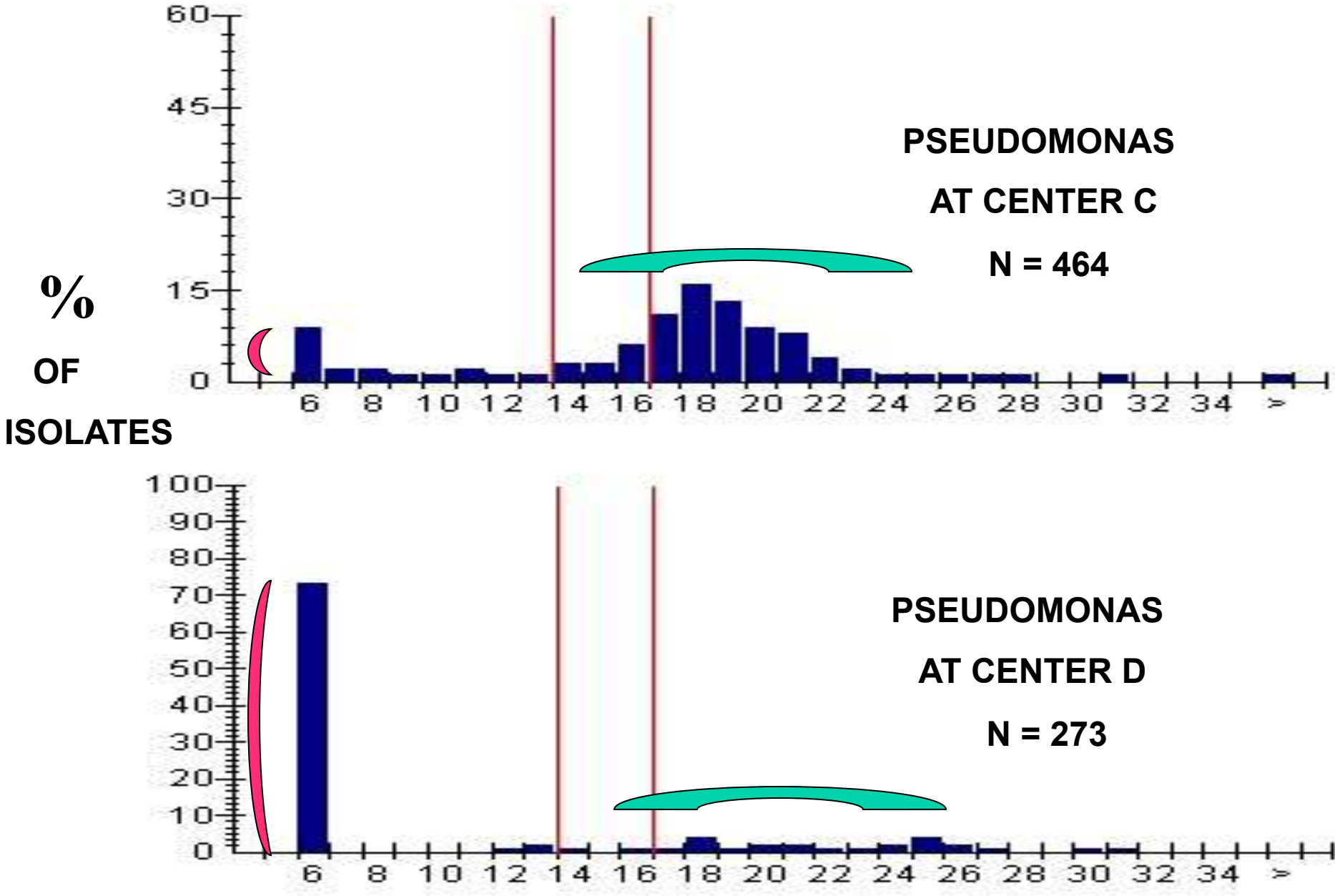


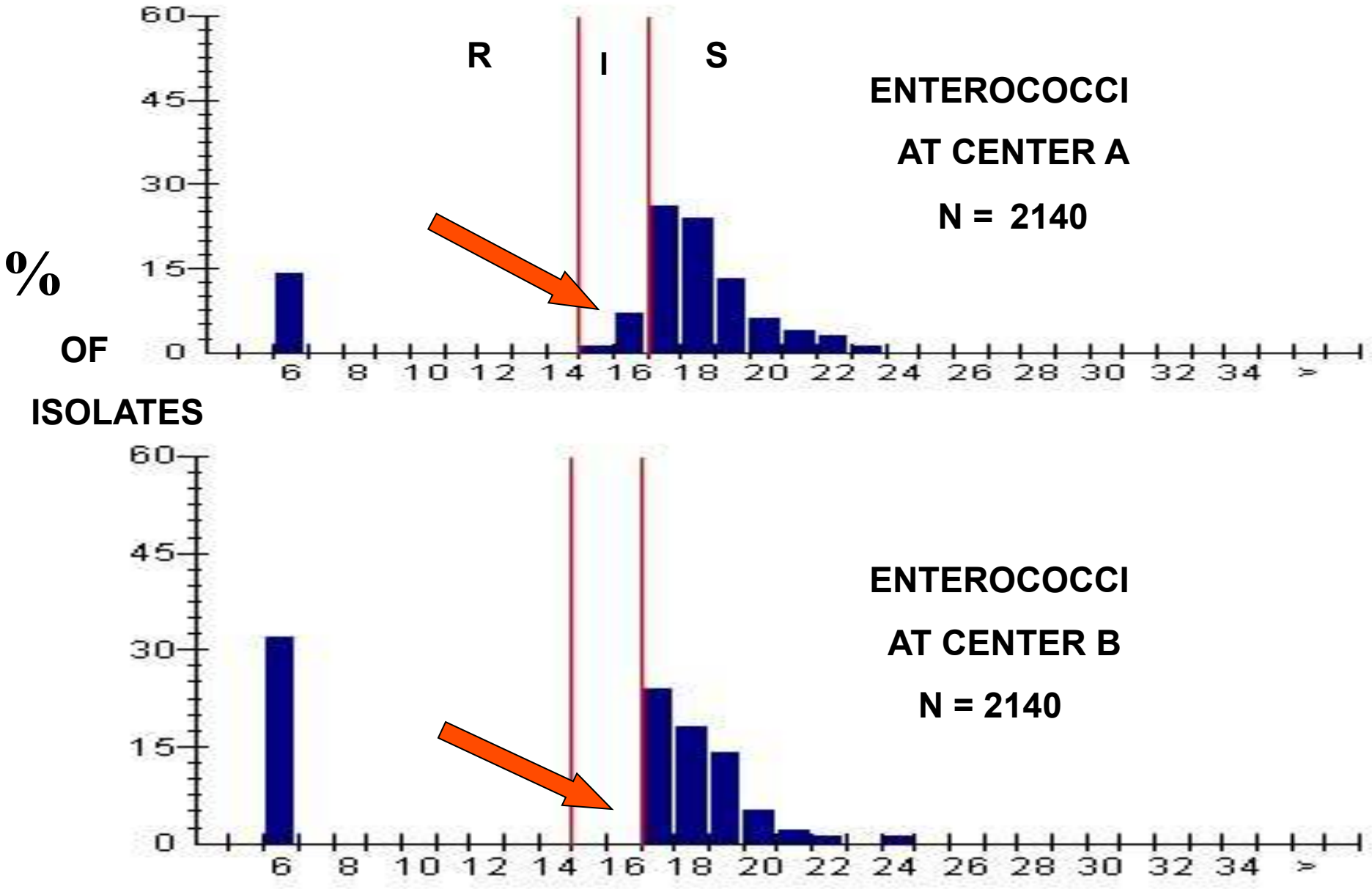

RIS

Resistant
Intermediate
Susceptible
Unknown
Number tested

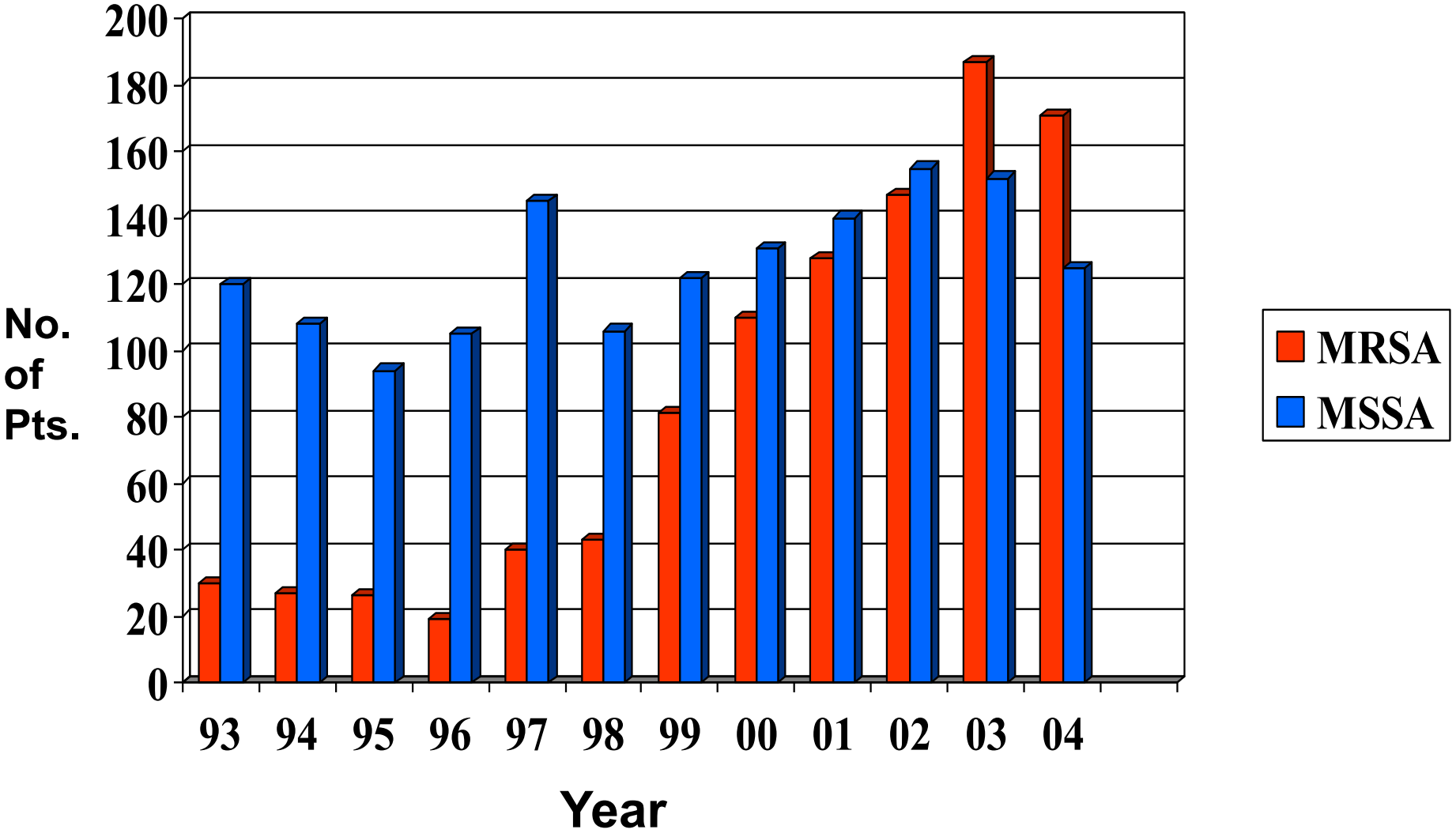
Test measurements

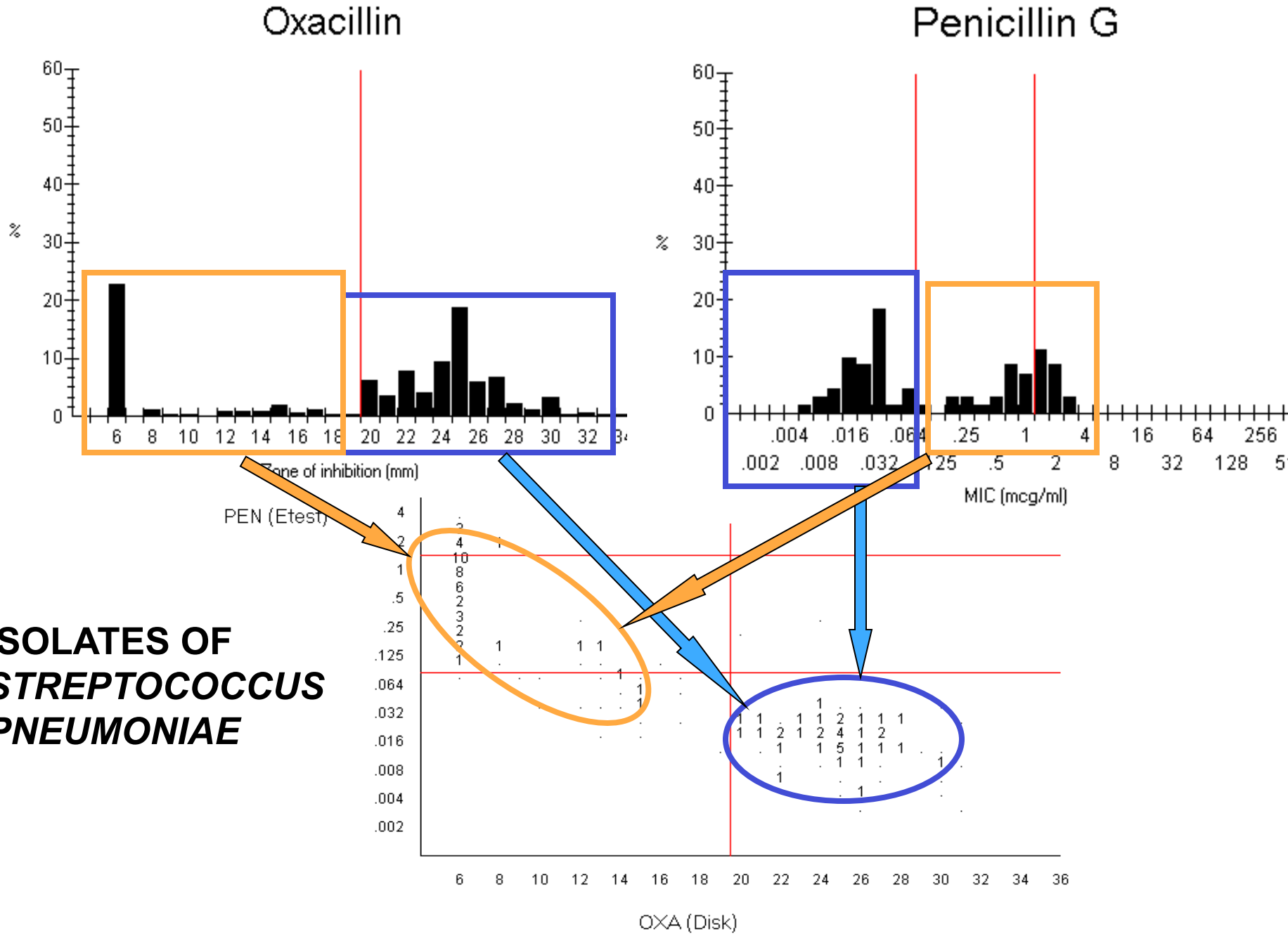
Ciprofloxacin
Colistin
Gentamicin
Imipenem
Levofloxacin
Mezlocillin
Piperacillin
Tobramycin


%
OF
ISOLATES
60
45
30
15
0
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 >
PSEUDOMONAS
AT CENTER C
N = 464
100
90
80
70
60
50
40
30
20
10
0
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 >
PSEUDOMONAS
AT CENTER D
N = 273
DIAMETERS (MM) OF ZONES OF INHIBITION AROUND CARBENICILLIN DISK

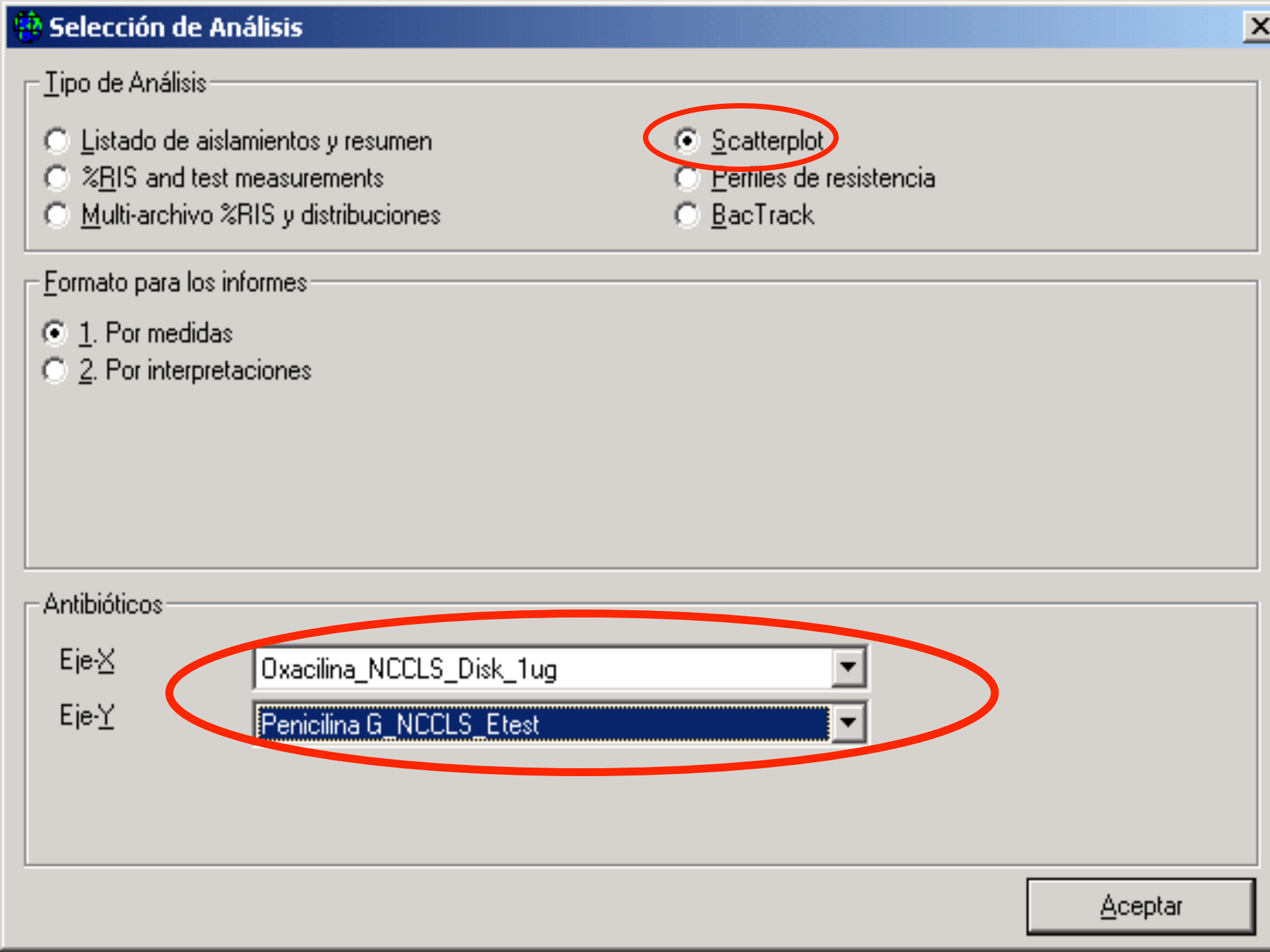

R
I
S
ENTEROCOCCI
AT CENTER A
N = 2140
%
OF
ISOLATES
ENTEROCOCCI
AT CENTER B
N = 2140
60
45
30
15
0
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 >
DIAMETERS (MM) OF VANCOMYCIN ZONES OF INHIBITION

# Patients/Year with Staphylococcal Bacteremia at one Center

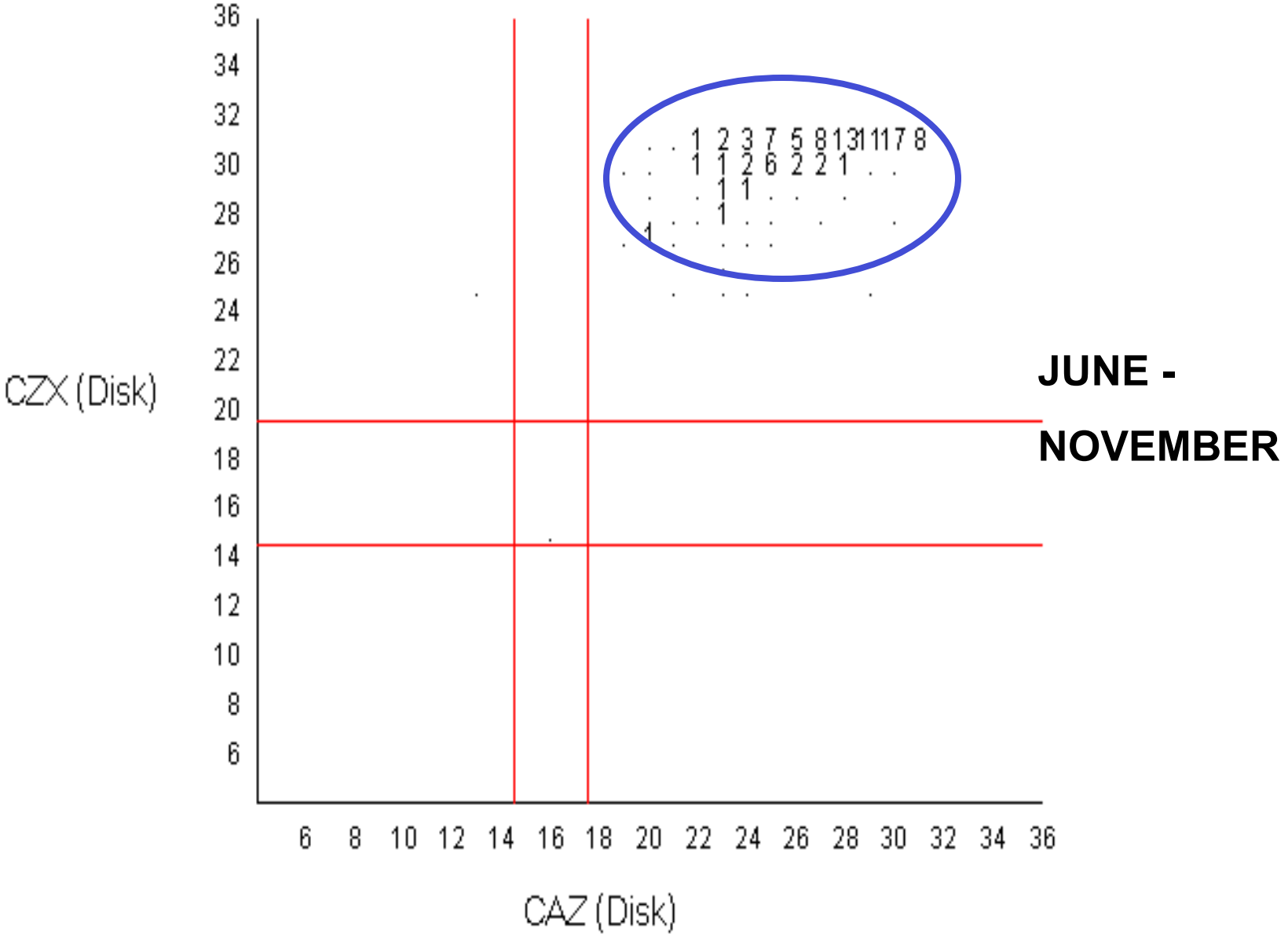





**ISOLATES OF *STREPTOCOCCUS PNEUMONIAE***

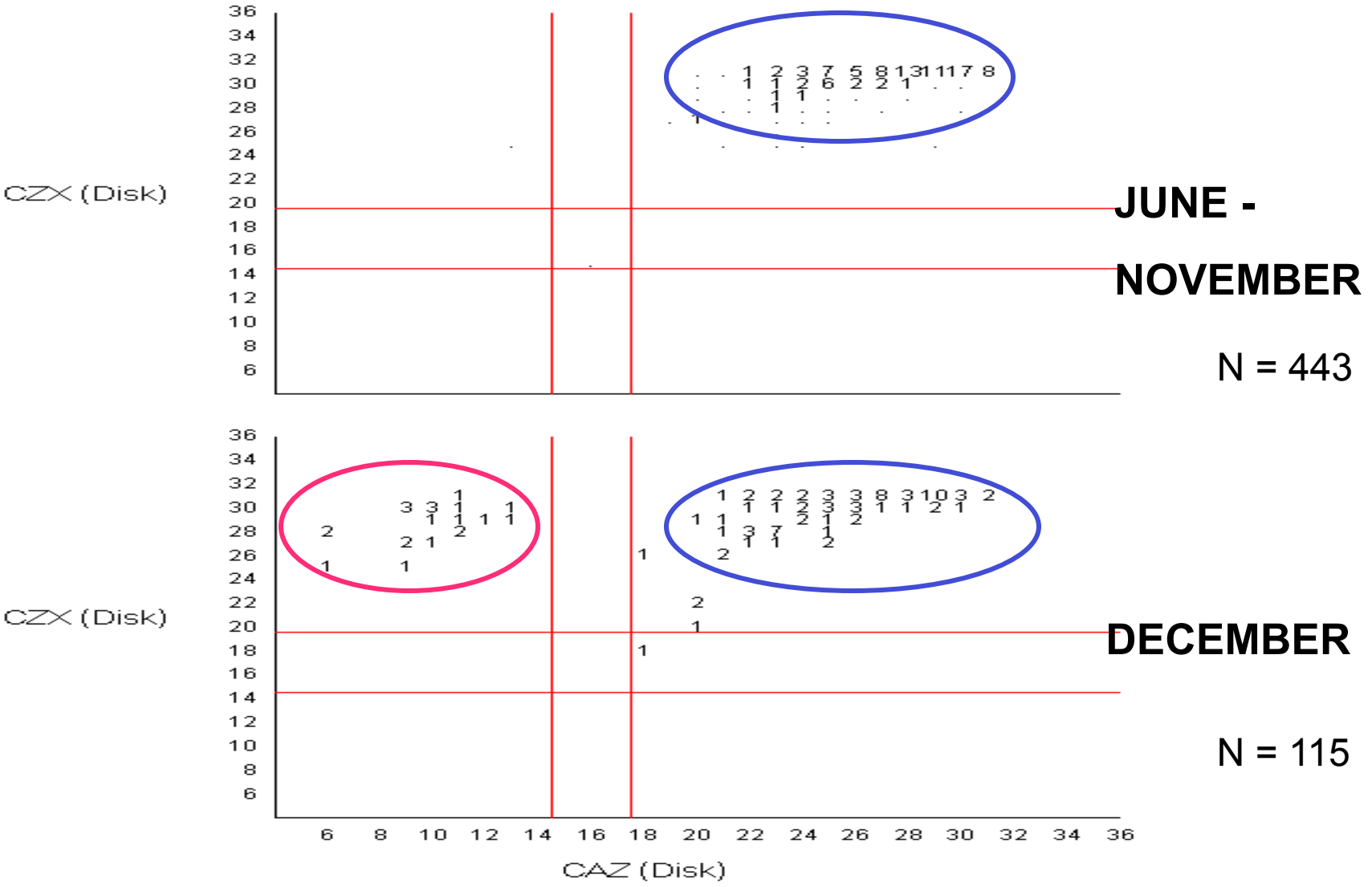

Selección de Análisis
Tipo de Análisis
Listado de aislamientos y resumen
%RIS and test measurements
Multi-archivo %RIS y distribuciones
Scatterplot
Perfiles de resistencia
BacTrack
Formato para los informes
1. Por medidas
2. Por interpretaciones
Antibióticos
Eje-X
Oxacilina_NCCLS_Disk_1ug
Eje-Y
Penicilina G_NCCLS_Etest
Aceptar

# ISOLATES OF *KLEBSIELLA PNEUMONIAE*



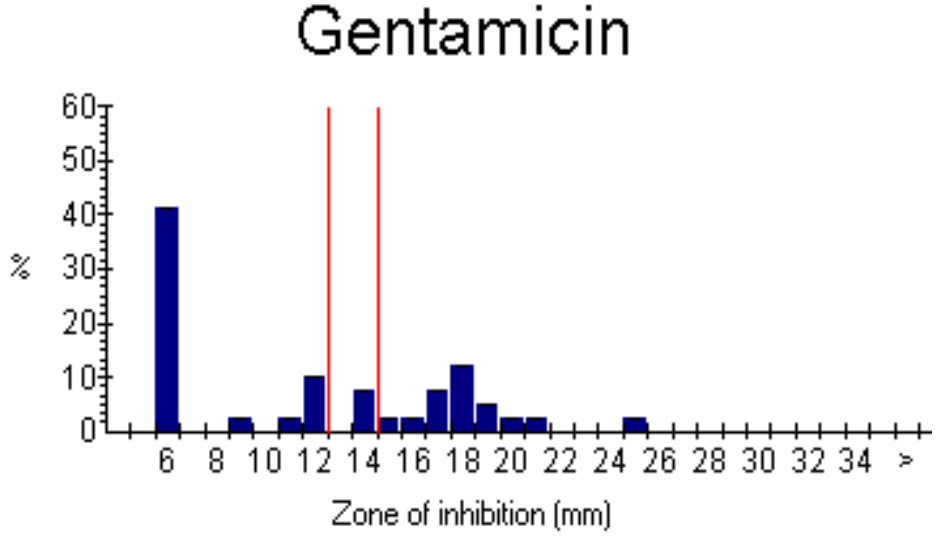

**DIAMETERS (MM) OF ZONES OF INHIBITION AROUND CEFTAZIDIME (CAZ) AND CEFTIZOXIME (CZX) DISKS. NUMBERS = PERCENT OF ISOLATES**

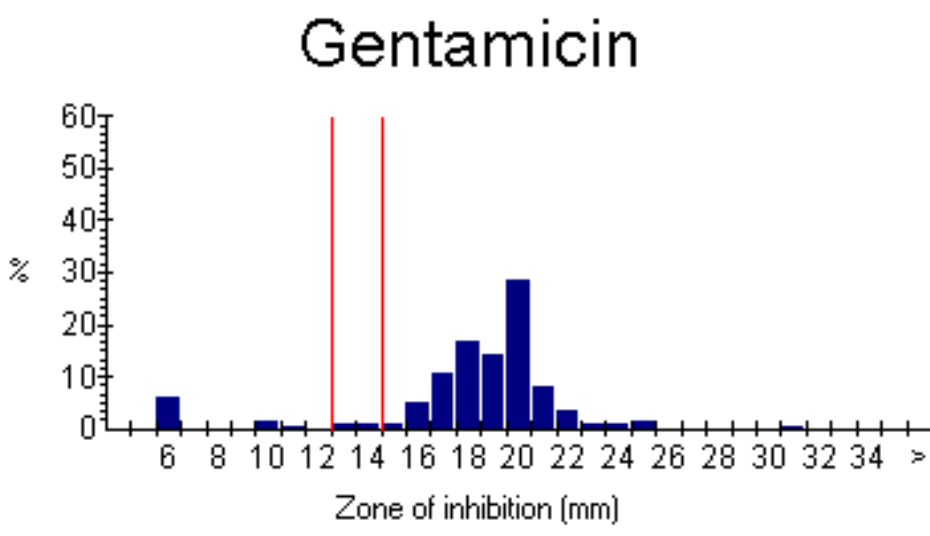
# ISOLATES OF *KLEBSIELLA PNEUMONIAE*

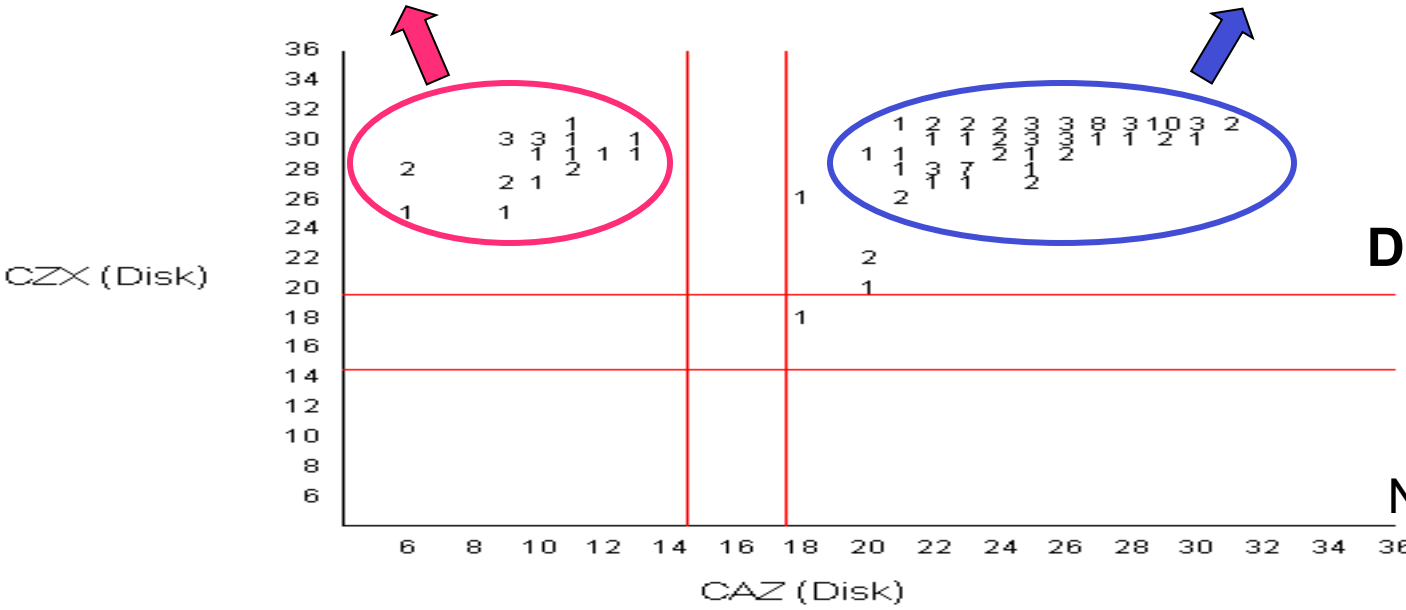



**DIAMETERS (MM) OF ZONES OF INHIBITION AROUND CEFTAZIDIME (CAZ) AND CEFTIZOXIME (CZX) DISKS. NUMBERS = PERCENT OF ISOLATES**

# ISOLATES OF *KLEBSIELLA PNEUMONIAE*



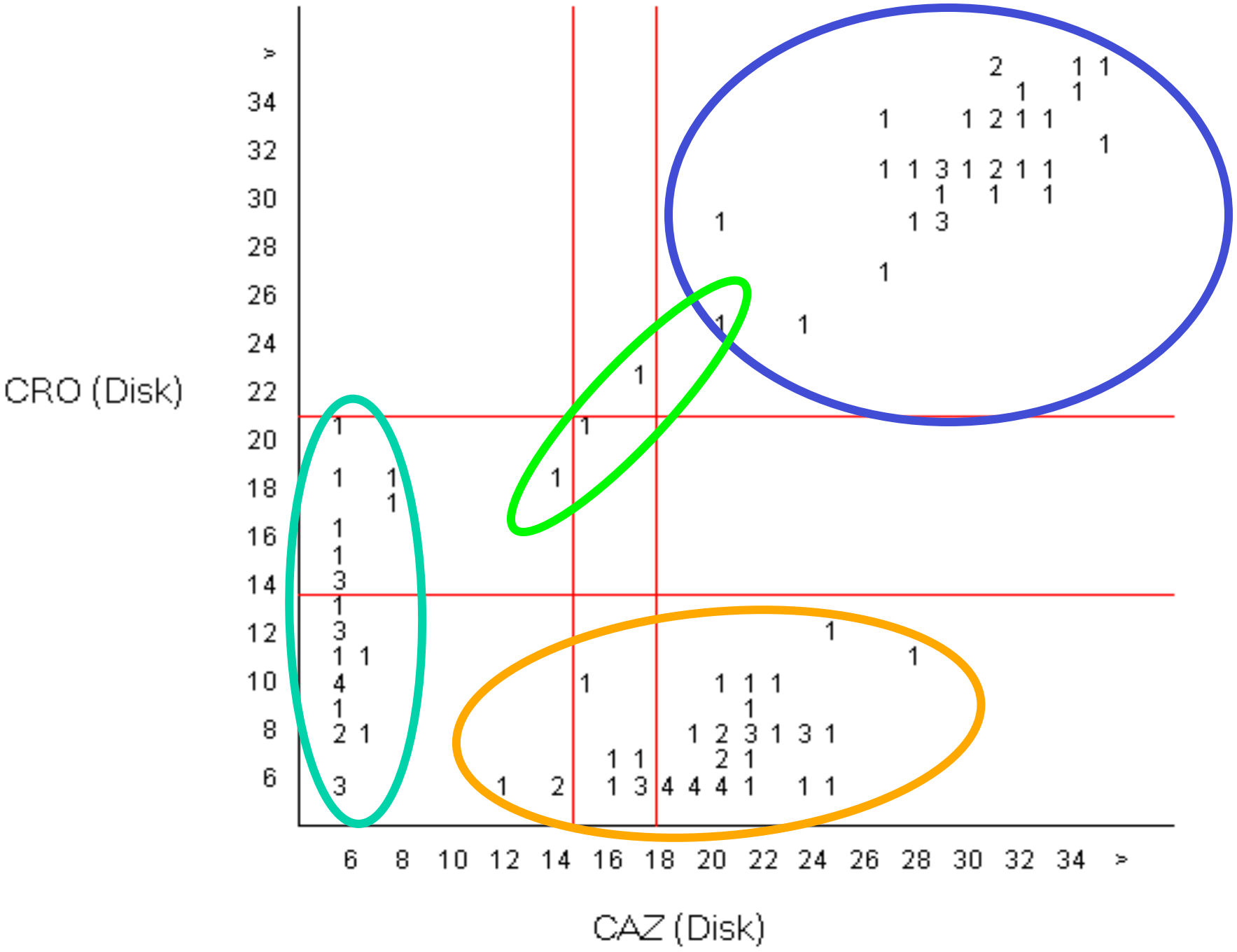



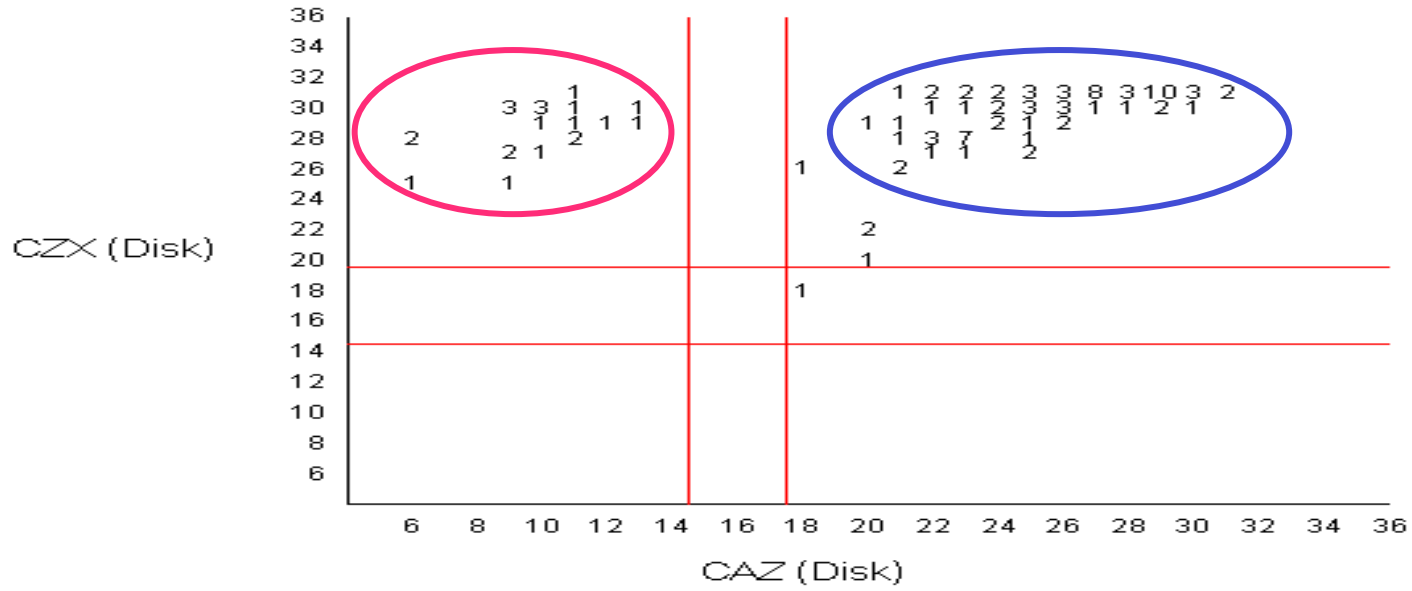



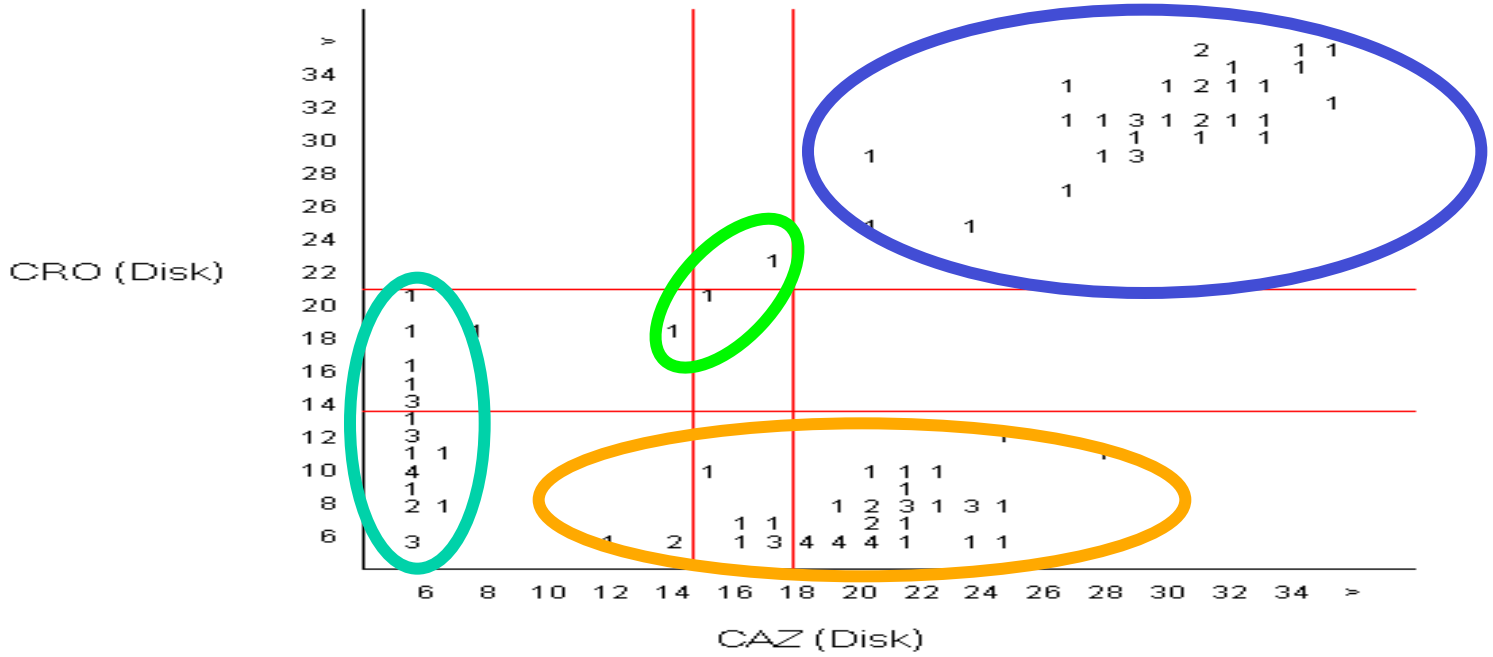

**DECEMBER**

N = 115

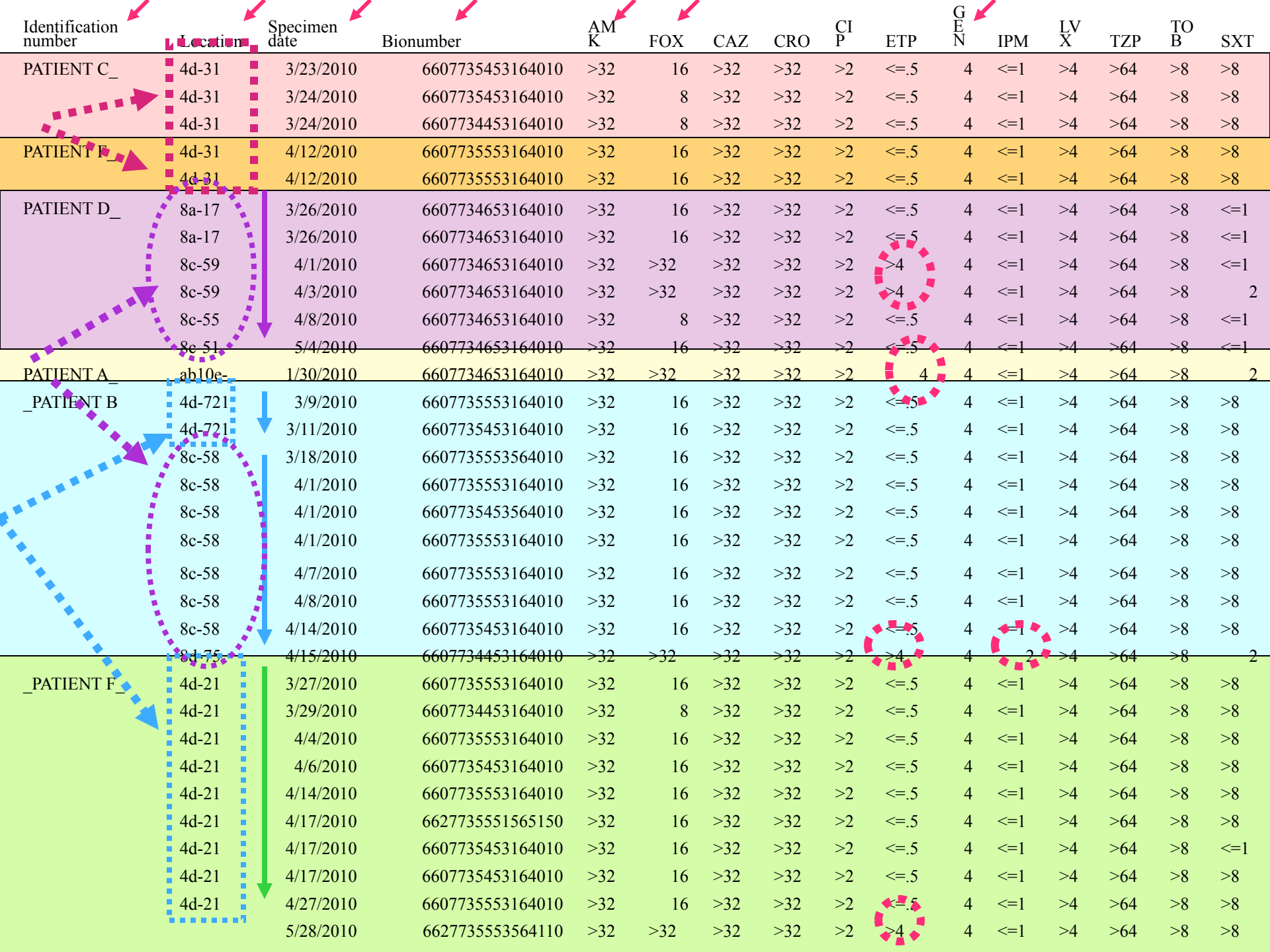
**DIAMETERS (MM) OF ZONES OF INHIBITION AROUND CEFTAZIDIME (CAZ) AND CEFTIZOXIME (CZX) DISKS. NUMBERS = PERCENT OF ISOLATES**


CRO (Disk)
CAZ (Disk)
>
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 >
2 1 1
1 1
1 1 2 1 1
1
1 1 3 1 2 1 1
1 1 1
1 1 3
1
1
1
1
1
1
1
1
1
1
1
1
1
1
1
1
3
1
3
1 1
4
1
2 1
3
1
1
1
1
1
1
1
1
1
1 2 3 1 3 1
2 1
1 1
1 2 3 4 4 4 1 1 1


CZX (Disk)
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36
CAZ (Disk)


CRO (Disk)
>
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 >
CAZ (Disk)

| Identification number | Location | Specimen date | Bionumber | AMK | FOX | CAZ | CRO | CIP | ETP | GEN | IPM | LVX | TZP | TOB | SXT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PATIENT C_ | 4d-31 | 3/23/2010 | 6607735453164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-31 | 3/24/2010 | 6607735453164010 | >32 | 8 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-31 | 3/24/2010 | 6607734453164010 | >32 | 8 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| PATIENT E_ | 4d-31 | 4/12/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-31 | 4/12/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| PATIENT D_ | 8a-17 | 3/26/2010 | 6607734653164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | <=1 |
| | 8a-17 | 3/26/2010 | 6607734653164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | <=1 |
| | 8c-59 | 4/1/2010 | 6607734653164010 | >32 | >32 | >32 | >32 | >2 | >4 | 4 | <=1 | >4 | >64 | >8 | <=1 |
| | 8c-59 | 4/3/2010 | 6607734653164010 | >32 | >32 | >32 | >32 | >2 | >4 | 4 | <=1 | >4 | >64 | >8 | 2 |
| | 8c-55 | 4/8/2010 | 6607734653164010 | >32 | 8 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | <=1 |
| | 8c-51 | 5/4/2010 | 6607734653164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | <=1 |
| PATIENT A_ | ab10e- | 1/30/2010 | 6607734653164010 | >32 | >32 | >32 | >32 | >2 | 4 | 4 | <=1 | >4 | >64 | >8 | 2 |
| _PATIENT B | 4d-721 | 3/9/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-721 | 3/11/2010 | 6607735453164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 3/18/2010 | 6607735553564010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 4/1/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 4/1/2010 | 6607735453564010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 4/1/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 4/7/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 4/8/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8c-58 | 4/14/2010 | 6607735453164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 8d-75 | 4/15/2010 | 6607734453164010 | >32 | >32 | >32 | >32 | >2 | >4 | 4 | 2 | >4 | >64 | >8 | 2 |
| _PATIENT F_ | 4d-21 | 3/27/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 3/29/2010 | 6607734453164010 | >32 | 8 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 4/4/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 4/6/2010 | 6607735453164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 4/14/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 4/17/2010 | 6627735551565150 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 4/17/2010 | 6607735453164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | <=1 |
| | 4d-21 | 4/17/2010 | 6607735453164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | 4d-21 | 4/27/2010 | 6607735553164010 | >32 | 16 | >32 | >32 | >2 | <=.5 | 4 | <=1 | >4 | >64 | >8 | >8 |
| | | 5/28/2010 | 6627735553564110 | >32 | >32 | >32 | >32 | >2 | >4 | 4 | <=1 | >4 | >64 | >8 | >8 |



SUSCEPTIBILIDAD A VANCOMICINA DE LAS MUESTRAS DE ENTEROCOCCUS SP.

| | Drug | Breakpt. | No. | %R | %I | %S | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| s | VAN | 15 - 16 | 101 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | 2 | 6 | 16 | 17 | 23 | 12 | 5 | 4 | 6 | 4 | 3 | 1 | 1 | . | 1 | . | . | . |
| r | VAN | 15 - 16 | 7 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 43 | . | 43 | 14 | . | . | . | . | . | . | . | . | . | . | . |
| e | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . |
| r | VAN | 15 - 16 | 10 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | 10 | 40 | . | 20 | 20 | 10 | . | . | . | . | . | . | . | . | . | . |
| f | VAN | 15 - 16 | 3 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | 33 | . | . | 33 | . | . | 33 | . | . | . | . | . | . | . | . | . | . |
| t | VAN | 15 - 16 | 6 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 17 | . | 33 | 17 | 17 | . | 17 | . | . | . | . | . | . |
| p | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . |
| p | VAN | 15 - 16 | 7 | 0 | 14 | 86 | . | . | . | . | . | . | . | . | . | 14 | . | . | 29 | 29 | 14 | 14 | . | . | . | . | . | . | . | . | . | . | . | . | . |
| i | VAN | 15 - 16 | 7 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | 14 | . | . | 29 | 29 | . | 14 | 14 | . | . | . | . | . | . | . | . | . |
| q | VAN | 15 - 16 | 15 | 7 | 0 | 93 | 7 | . | . | . | . | . | . | . | . | . | . | . | . | 7 | 13 | 13 | 7 | 7 | 13 | 7 | 7 | . | 7 | . | 7 | . | 7 | . | . |
| r | VAN | 15 - 16 | 36 | 3 | 0 | 97 | . | . | . | . | . | . | 3 | . | . | . | . | . | . | 3 | 8 | 14 | 31 | 8 | 28 | . | 3 | . | 3 | . | . | . | . | . | . |
| m | VAN | 15 - 16 | 6 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | 50 | . | 17 | . | 17 | . | 17 | . | . | . | . | . | . | . | . | . | . |
| c | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| n | VAN | 15 - 16 | 5 | 20 | 0 | 80 | 20 | . | . | . | . | . | . | . | . | . | . | 20 | . | . | . | 20 | . | 40 | . | . | . | . | . | . | . | . | . | . | . |
| u | VAN | 15 - 16 | 6 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | 17 | . | 33 | 17 | 17 | . | 17 | . | . | . | . | . | . | . | . | . |
| t | VAN | 15 - 16 | 6 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 17 | 17 | . | 17 | . | 17 | 33 | . | . | . | . | . | . | . | . |
| a | VAN | 15 - 16 | 7 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | 14 | 14 | 14 | 29 | 29 | . | . | . | . | . | . | . | . | . | . | . | . |
| s | VAN | 15 - 16 | 5 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | 20 | . | 40 | . | 20 | . | . | . | . | . | 20 | . | . | . | . | . | . |
| w | VAN | 15 - 16 | 4 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | 25 | 50 | . | 25 | . | . | . | . | . | . | . | . | . | . | . | . |
| p | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . |
| w | VAN | 15 - 16 | 3 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 33 | . | 33 | 33 | . | . | . | . | . | . | . | . | . |
| b | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| i | VAN | 15 - 16 | 112 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | 2 | 15 | 19 | 29 | 16 | 11 | 4 | 3 | 3 | . | . | . | . | . | . | . | . | . |
| r | VAN | 15 - 16 | 19 | 11 | 21 | 68 | . | . | . | . | . | . | 5 | . | 5 | 11 | 11 | 21 | 5 | 16 | 11 | 11 | . | . | . | 5 | . | . | . | . | . | . | . | . | . |
| r | VAN | 15 - 16 | 12 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | 17 | . | . | 33 | . | 17 | . | 25 | . | 8 | . | . | . | . | . | . | . | . |
| r | VAN | 15 - 16 | 19 | 21 | 26 | 53 | . | . | . | . | . | . | 5 | 5 | 11 | 16 | 11 | 5 | 21 | 16 | 5 | . | 5 | . | . | . | . | . | . | . | . | . | . | . | . |
| r | VAN | 15 - 16 | 3 | 0 | 33 | 67 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| m | VAN | 15 - 16 | 37 | 5 | 14 | 81 | . | . | . | . | . | . | . | 5 | . | 8 | 5 | 46 | 19 | . | 8 | . | 3 | 3 | . | 3 | . | . | . | . | . | . | . | . | . |
| | VAN | 15 - 16 | 2 | 0 | 50 | 50 | . | . | . | . | . | . | . | . | . | . | 50 | . | 50 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| t | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . |
| o | VAN | 15 - 16 | 43 | 2 | 7 | 91 | . | . | . | 2 | . | . | . | . | . | . | 7 | 16 | 28 | 5 | 16 | 7 | 5 | 5 | 2 | 2 | 2 | 2 | . | . | . | . | . | . | . |
| m | VAN | 15 - 16 | 7 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | 43 | 14 | 14 | 29 | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| n | VAN | 15 - 16 | 8 | 63 | 13 | 25 | 25 | . | . | . | . | . | 13 | 13 | 13 | 13 | . | . | 25 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| r | VAN | 15 - 16 | 10 | 30 | 10 | 60 | . | . | . | . | . | . | 10 | . | 20 | 10 | . | 10 | 10 | 20 | 20 | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . | . | . |
| | VAN | 15 - 16 | 1 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 100 | . | . | . | . | . | . | . | . | . | . |
| u | VAN | 15 - 16 | 10 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | 10 | 10 | . | . | 30 | 10 | . | 30 | . | . | . | 10 | . | . | . | . | . | . |
| c | VAN | 15 - 16 | 64 | 5 | 8 | 88 | 3 | . | . | . | . | 2 | . | . | . | 2 | 6 | 9 | 23 | 5 | 31 | 8 | 6 | 2 | 2 | 2 | . | . | . | . | . | . | . | . | . |
| f | VAN | 15 - 16 | 5 | 0 | 0 | 100 | . | . | . | . | . | . | . | . | . | . | . | 40 | 40 | . | 20 | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| l | VAN | 15 - 16 | 6 | 0 | 50 | 50 | . | . | . | . | . | . | . | . | . | . | 50 | 17 | 33 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| 2 | VAN | 15 - 16 | 41 | 7 | 10 | 83 | 5 | . | . | . | . | 2 | . | . | . | 2 | 7 | 15 | 24 | 5 | 27 | 7 | 2 | . | . | 2 | . | . | . | . | . | . | . | . | . |

# WHONET NEW :

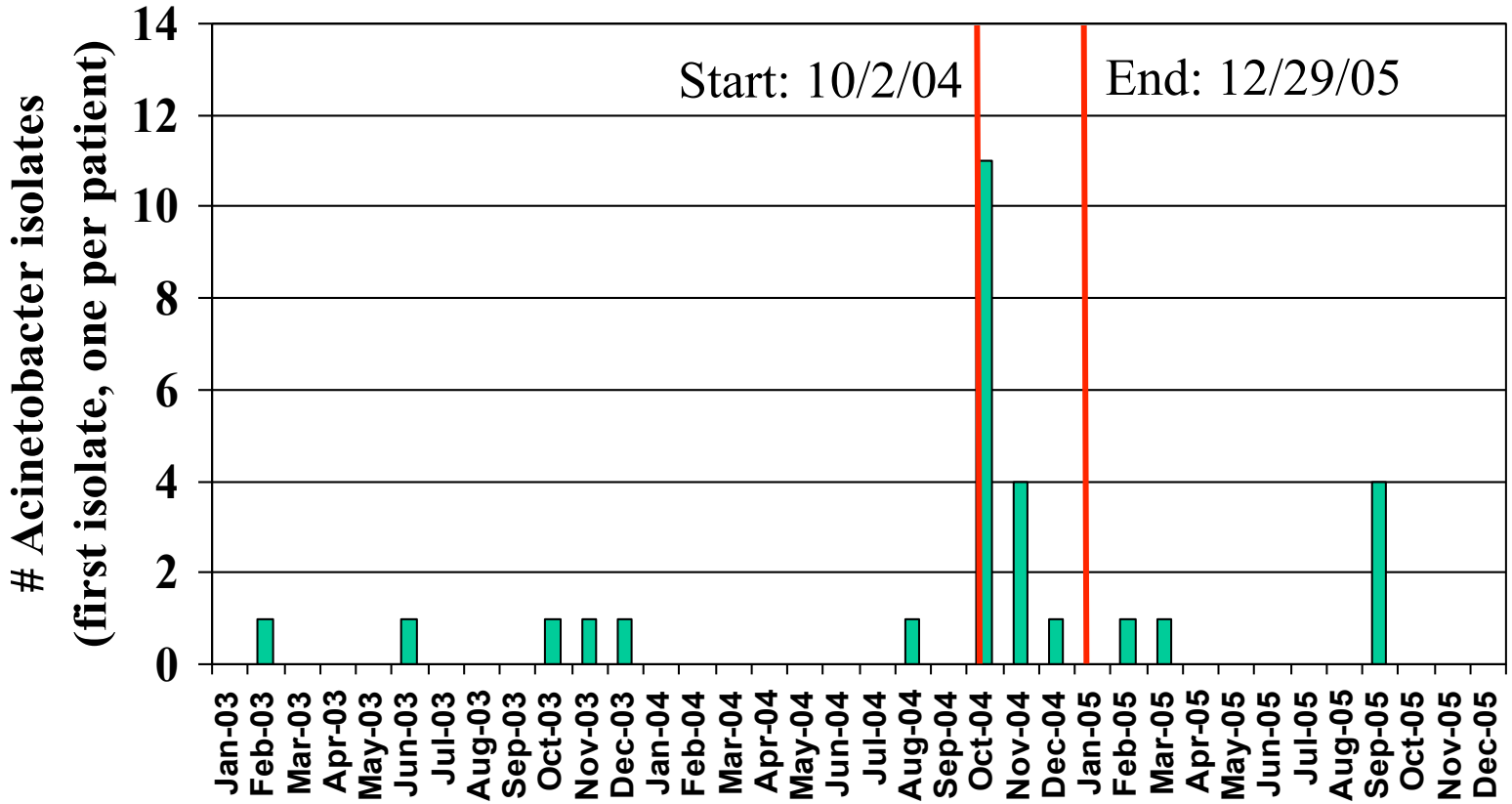
SaTScan is statistical software for detecting spatial and temporal clusters in public health databases

SaTScan has been integrated into the tools and charts of WHONET

The following show WHONET-SaTScan analyses detecting clusters in existing databases

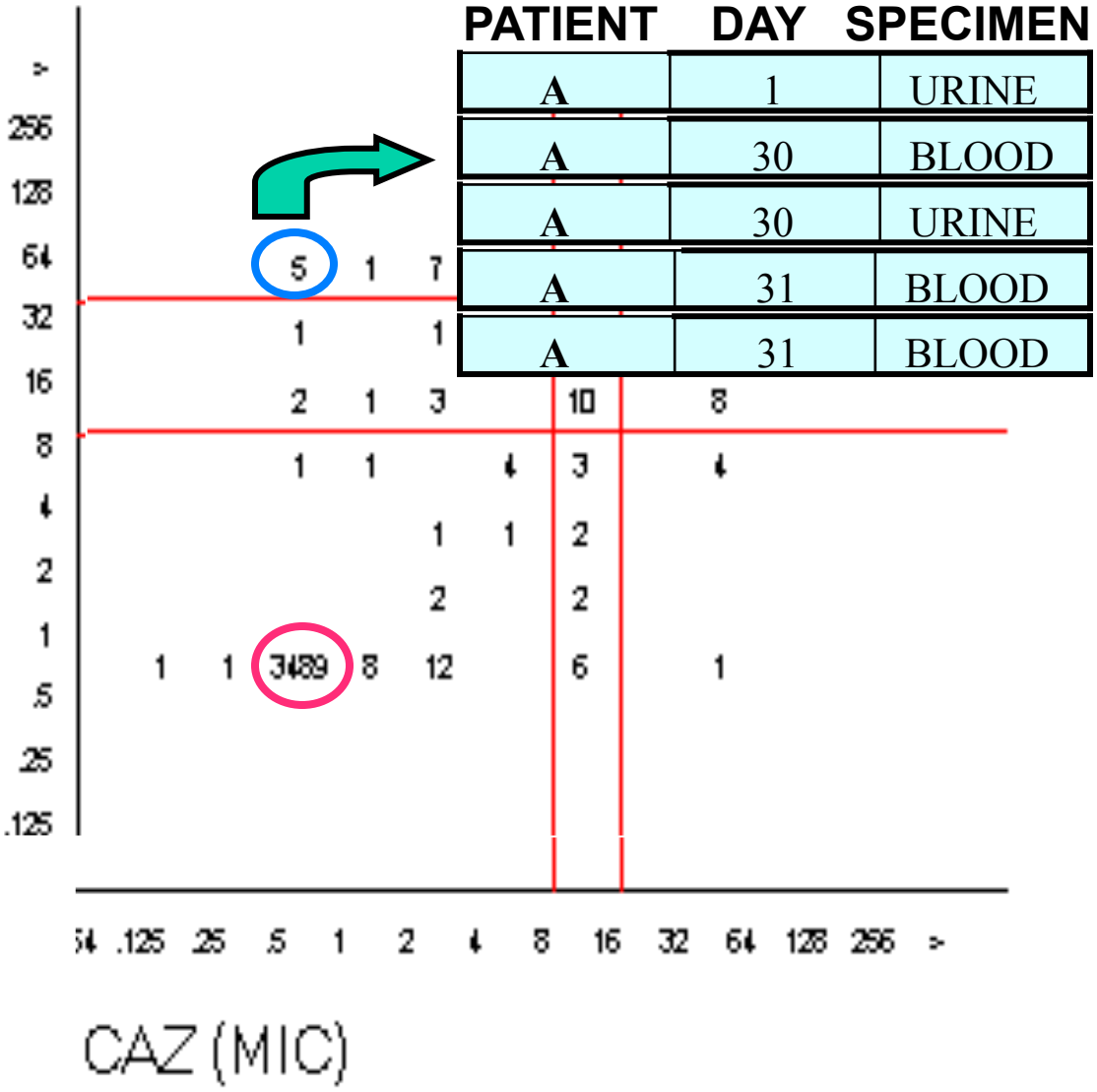
WHONET-SaTScan can also run prospectively to automate detection of and alerting to new clusters going forward in real-time.

# *A. baumannii*, 2003-2005
# Resistance profile =ACFGLNT




ACFLNGT = Non-susceptible to 7 antimicrobials
A=Ampicillin, C=Cefotaxime, F=Ceftazidime, L=Levofloxacin,
N=Nitrofurantoin, G=Gentamicin, T=Trim/Sulfa

ISOLATES OF *ESCHERICHIA COLI*



# WHONET supports:

1. Antimicrobial selection and policy
2. Infection control
3. Local, national, global surveillance
4. Laboratory capacity building (CQI)
5. Signal/event detection (BacTrak)

whonet.org

The worlds microbiology laboratories

should upload their results each day

into programs that detect

events, trends and epidemics

in communities, hospitals, countries and the world