# WHONET

Antibiotic list and panel

WHO Collaborating Centre for Surveillance of Antimicrobial Resistance

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Part 1. Selecting your antibiotics

The only part of laboratory configuration which is required is indicating which antimicrobials you are testing in your laboratory. To do this, click on "Antibiotics" to get the following screen. You will see a long list of antibiotics to your left – this is the WHONET list. On the right is the list of antibiotic tests used in your laboratory. At the beginning this list is empty.
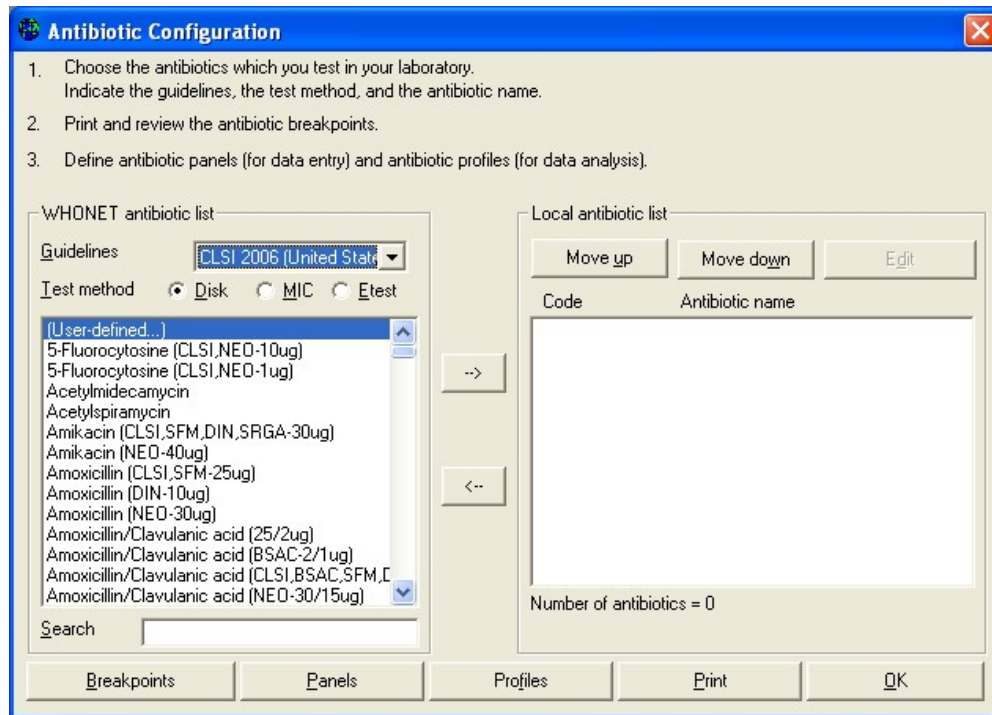
To indicate the tests that you are using, you should indicate three things: 1. the reference guidelines (for example CLSI, SFM, DIN, *etc.*); 2. the test method (disk, MIC, or Etest); and 3. the name of the antibiotic and, for disk diffusion testing, the disk potency.

In this tutorial, indicate that the method is CLSI, and you will choose a few drugs tested by disk diffusion and a few tested by Etest. To select an antibiotic, double-click on the antibiotic to move it to the right side of the screen *or* single-click on the antibiotic and hit the "–>" button.

Find the following antibiotics, and move them to the right side of the screen.

    Disk diffusion, ampicillin 10ug
    Disk diffusion, cefoxitin 30ug
    Disk diffusion, ceftriaxone 30ug
    Disk diffusion, ciprofloxacin 5ug
    Disk diffusion, erythromycin 15ug
    Disk diffusion, gentamicin 10ug
    Disk diffusion, imipenem, 10ug
    Disk diffusion, penicillin G 10units

Disk diffusion, trimethoprim/sulfamethoxazole 1.25ug/23.75ug
Disk diffusion, vancomycin, 30ug

WHONET assigns a code to each antibiotic test, for example AMP_ND10 indicates a test of ampicillin ("AMP") by CLSI ("N", formerly NCCLS) methods by disk diffusion ("D") with a 10ug disk ("10").

Now enter a few drugs tested by Etest. Click on the option labeled "Etest" and select the following drugs. Since the disk potency is not relevant for Etests, it does not matter which "ceftriaxone" you select from the WHONET list.

Etest, ceftiaxone
Etest, penicillin G
Etest, vancomycin

The corresponding test code for the ceftriaxone Etest done by CLSI (formerly NCCLS) methods would be CRO_NE. After making these selections, you should have the following.
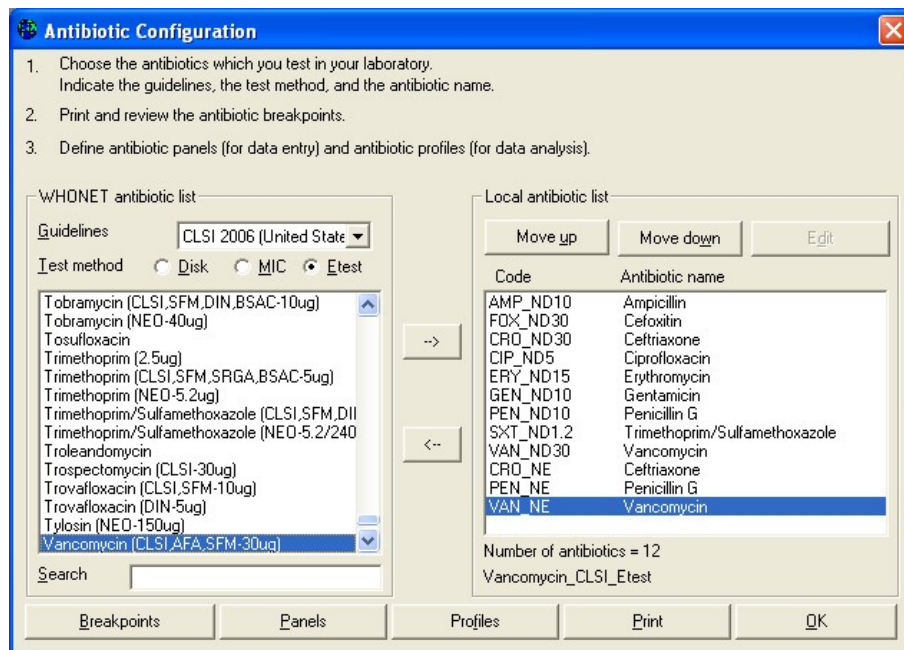
Figure 3. Antibiotic configuration screen. Select from the list of antibiotics shown to the left of the screen. The antibiotic tests used in your laboratory appear to the right of the screen.

If you would like to change the sequence of antibiotics, you can use the "Move up" and "Move down" options. Or you can use the left arrow button "<–" to remove a drug from the list.

After you complete the above steps, it is possible for you to proceed directly with data entry if you would like. There are, however, a number of additional features described in Parts 3 through 6 which may be useful.

Part 2. Configuring your antibiotics

The following steps are not required, but may be useful to you.

Antibiotic breakpoints: When you select antibiotic tests, WHONET automatically sets up the correct official breakpoints according to the reference body that you indicate. In most cases, there will be no need for you to change these yourself. However, if there are no official breakpoints for the antibiotic that you selected *or* if you disagree with the breakpoints used by WHONET, then you may wish to make some manual modifications.

> <u>Note</u>: Accurate breakpoints are essential if you are entering quantitative test measurements into WHONET (for example, disk diffusion zone diameters or MIC/Etest values). On the other hand, if you will only be entering test interpretations ("resistant", "intermediate", or "susceptible"), then WHONET does not use the breakpoint values. WHONET does not require the use of test measurements, but for good quality microbiological testing and the most valuable analyses, it is strongly recommended.

> In this tutorial, we will not change any of the default breakpoints, but to see the values suggested by WHONET, click on "Breakpoints".
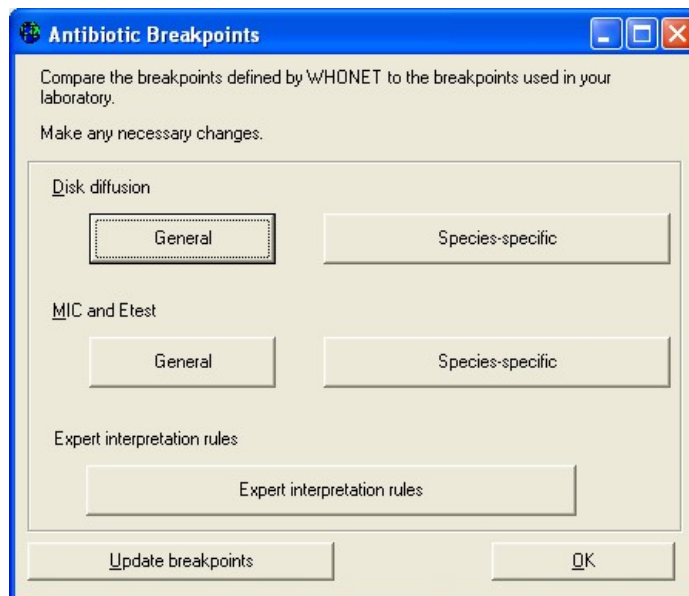
Figure 4. Antibiotic breakpoint configuration.

> You can then view any of the disk diffusion or MIC/Etest breakpoints. WHONET distinguishes between "General" breakpoints used for most bacterial species and

"Species-specific" breakpoints for species in which the recommended breakpoint is different. After reviewing the breakpoints, select "OK", "OK" to return to the antibiotic configuration screen.
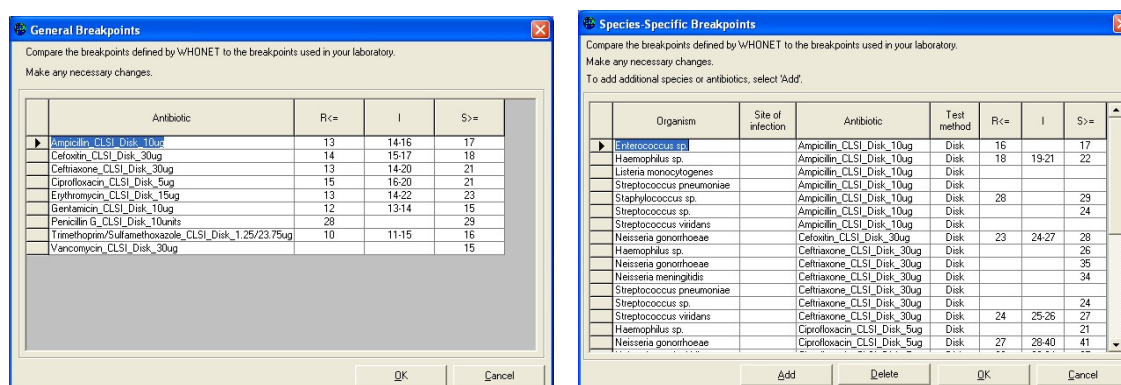

Figure 5. General and species-specific antibiotic breakpoints

Antibiotic panels: If you will enter results manually into WHONET, it would be useful to the data entry person if you indicate which antibiotics are tested for which organism groups. For example for *S. aureus,* the software should request results from drugs used in Gram-positive infections, while for *E. coli* in urine samples, a different set of antimicrobials would be appropriate.

From the Antibiotic configuration screen, click on "Panels". You will see all of the antibiotics that you have selected in the rows, and a list of various organism groupings in the columns. Place a check mark to indicate which drugs are *usually* tested for each organism.

For this tutorial, put check marks for the following organisms and antibiotics.

"Staphylococcus": cefoxitin, erythromycin, penicillin, trimethoprim/ sulfamethoxazole, and vancomycin
"S. pneumoniae": erythromycin, trimethoprim/ sulfamethoxazole, vancomycin, penicillin-Etest, and ceftiaxone-Etest
 "Gram-negative". ampicillin, ceftriaxone, ciprofloxacin, gentamicin, imipenem, and trimethoprim/sulfamethoxazole

If there is a drug that you test infrequently, for example imipenem for *E. coli* isolates, there is no need to include it in the panel. The user will be able to enter results for either "panel" antibiotics or "all antibiotics" at the time of data entry.

Figure 6. Antibiotic panel configuration. Indicate which antibiotics you test for each organism group.

Antibiotic resistance profiles: This feature is used in the data analysis option called "Resistance profiles". In this analysis bacteria are classified according to their multi-resistance phenotype. This is a very valuable analysis for infection control staff when searching for outbreaks of multi-resistant organisms in the hospital setting. Use and interpretation of this feature is described in the tutorial Data Analysis 2.

In this part of laboratory configuration, you can indicate which drugs should be used to construct the resistant profile.

Figure 7. Antibiotic resistance profile configuration. Indicate the drugs to be used in the study of multi-resistance patterns.