

# What is an antibiogram?

## Information for clinicians

An antibiogram is a summary of antimicrobial susceptibility patterns for selected microorganisms such as bacteria and fungi. Typically presented in tabular form, it shows the percentage of isolates of a particular organism that are susceptible to specific antimicrobial agents.

## Components of an antibiogram

Most antibiograms report the time period over which data were collected and analysed, the facility where the data were collected, methodology, the organisms included, the number of isolates analysed, the antimicrobial agents' tests and the percentage of isolates susceptible to each agent.

A section of an example antibiogram is presented below.

**Table 1** Example from an antibiogram

| Organism                     | No. isolates | Amikacin |      | Amoxicillin |     | Cefazolin |     | Cefepime |     | Ciprofloxacin |     |
|------------------------------|--------------|----------|------|-------------|-----|-----------|-----|----------|-----|---------------|-----|
|                              |              | %S       | n    | %S          | n   | %S        | n   | %S       | n   | %S            | n   |
| <i>Escherichia coli</i>      | 407          | 99       | 329* | 43          | 407 | 77        | 407 | 93       | 406 | 86            | 407 |
| <i>Klebsiella pneumoniae</i> | 147          | 100      | 119* | -           | -   | 84        | 147 | 95       | 147 | 93            | 147 |

|    |                                                                           |   |                                                                                  |
|----|---------------------------------------------------------------------------|---|----------------------------------------------------------------------------------|
|    | >80% of isolates susceptible                                              |   | >80% of isolates susceptible (where sample size <95% of total isolates tested)   |
|    | 61-80% of isolates susceptible                                            |   | 61-80% of isolates susceptible (where sample size <95% of total isolates tested) |
|    | <=60% of isolates susceptible                                             |   | <=60% of isolates susceptible (where sample size <95% of total isolates tested)  |
| -  | Intrinsic resistance is present with this organism-antibiotic combination | * | Sample size <95% of the total isolates tested                                    |
| %S | Percentage of isolates sensitive to this particular antibiotic            | n | Number of isolates tested with this antibiotic                                   |

%S = percentage of isolates susceptible to the antibiotic; n = number of isolates tested for susceptibility

1. *Klebsiella spp.* are intrinsically resistance to amoxicillin.
2. The data presented in this antibiogram is illustrative only and does not reflect real or current antimicrobial susceptibility patterns. It is intended solely as an example to demonstrate the format and interpretation of an antibiogram.

## How are antibiograms developed?

Antibiograms are generated using antimicrobial susceptibility data routinely collected by microbiology laboratories, with the dataset specific to each hospital. This process involves recording the susceptibility and resistance patterns of an organism in the laboratory's system. Over time, this data is combined to produce an antibiogram for specific organisms.

To ensure that the data is accurate, only the first result for each patient each reporting period is included, regardless of the specimen source (e.g. urine, non-urine or blood). This approach avoids counting the same organism multiple times. Antibiograms are generally based on clinical isolates obtained for the diagnosis of infection, rather than routine surveillance or screening samples.

Standards for analysis and presentation of antibiograms are provided in the Clinical and Laboratory Standards Institute M39 guideline and the [Specification for a Hospital Cumulative Antibiogram](#). Hospitals should produce antibiograms at least once a year, or as often as practical, depending on the availability of data.

## Resources

- [Specification for a Hospital Cumulative Antibiogram](#)
- [Antimicrobial Stewardship \(AMS\) resources and links](#)
- [Australian Passive AMR Surveillance \(APAS\)](#)
- [How to use an antibiogram](#)

### For more information

Please visit: [safetyandquality.gov.au/AMS](https://safetyandquality.gov.au/AMS)

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