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Step-by-step Approach for Developing Hospital Antibiotic Guidelines

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Step-by-step Approach for Developing Hospital Antibiotic Guidelines

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Key Elements Of Hospital Antimicrobial Guidelines

Developing Antimicrobial Guidelines

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Step-by-step Approach for Developing Hospital Antibiotic Guidelines



1. Antibiotic policy.
2. Surveillance of antimicrobial resistance.
3. Cumulative antibiogram.
4. Development of standard treatment guidelines.
5. Strategies for promoting rational antibiotic prescribing.
6. A model STANDARD and TEMPLATE for treatment guideline for CAP as example.
7. Antimicrobial stewardship book/website/app

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1- Establish a multidisciplinary antibiotic team to draft policy

- The group developing the antibiotic policy should be a multidisciplinary group with 6–10 members. At least one member should have the skills to conduct literature reviews and other guidelines.



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2- Review available for antibiotic policies and evidences

- The advantage of adapting from national policy is that the clinical, managerial and technical skills as well as time and financial resources needed for the task are adequately available.



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3- Draft antibiotic policy based upon available evidence

- The policy should be based on a systematic review of scientific evidence which would minimize the risk of bias. The literature should be identified according to the inclusion criteria of common Infectious Diseases.



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4- Attributes of antibiotic policy

- The policy should be simple, clear, clinically relevant, flexible and applicable to day-to-day practice and available in user-friendly format such as a pocket guide, web-based form, etc.



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5- Identification of gaps and research priorities


- The Policy Group should identify evidence that is lacking and areas for further research. For example, if empiric therapy results in clinical failure, then review of cumulative antibiogram data may be needed to change the policy accordingly.



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Example



- For example, an elderly male patient with cystitis seen in emergency room does not respond to empiric ciprofloxacin treatment though previously the same was successful.
- Culture is performed and result shows *E. coli* resistant to ciprofloxacin. 
- Then the research question would be – what percentage of urine isolates from emergency room patient are susceptible to ciprofloxacin?

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Monitoring and review of policy



- The Policy Group should identify sample outcome measures that would form basis for auditing both the process and outcome of the policy. For example ciprofloxacin is recommended for treatment of typhoid fever, only if MIC of ciprofloxacin is $\leq 0.25\mu\text{g/ml}$.



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Monitoring and review of policy



- Auditing should include whether recommendation is followed?
- Has ciprofloxacin MIC determined for every *Salmonella typhi*?
- Audit should also monitor and evaluate the quality of antimicrobial prescriptions for right duration and dosage.



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Monitoring and review of policy



- Guidelines should be reviewed by **experienced peers** who are not the members of the policy development group, but are experts in the relevant field.
- Guidelines is not static. It is a living document. It should be **reviewed at periodic intervals, updated** according to current antibiogram, clinical practice and local resistance..



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Surveillance of antimicrobial resistance



- **Surveillance is defined as** “the ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know”.



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Surveillance of antimicrobial resistance



- Antimicrobial surveillance data will help to formulate, monitor and identify the prevailing and emerging problem, which can be contained by effective strategy.



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Surveillance of antimicrobial resistance



- **Use standards:** Laboratories should use standards for reporting quantitative resistance data (e.g. minimal inhibitory concentrations) that will detect decreased susceptibility.



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Surveillance of antimicrobial resistance



• Generate reliable numerator

It is crucial to avoid including duplicate results since a patient may have either consecutive cultures obtained from the same body site or cultures from different body sites yielding the same organism (e.g., urine and blood culture).



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Surveillance of antimicrobial resistance



Express resistance as incidence rate

- It is important to express antimicrobial resistance rates as incidence rates within a defined human population instead of using the number of isolates tested as denominators.



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Surveillance of antimicrobial resistance



Participate in external quality assessment schemes

- The **validity and reliability** of surveillance data is deemed acceptable only when the clinical laboratories providing data for the surveillance program should have routinely participated (external quality assessment) programmes.



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Cumulative antibiogram

- The surveillance for antimicrobial resistance/antibiotic consumption and preparation of an “enhanced” or cumulative antibiogram at the local level helps in clinical decision-making, design infection control interventions, and antimicrobial-resistance containment strategies.



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Attributes of cumulative antibiogram

The attributes of a reliable cumulative antibiogram include:

- Analyses/presentation of data regularly, at least annually.
- Inclusion of only final, verified results.
- Inclusion of only species with at least ≥ 30 isolates tested (under certain circumstances, when you don't have >30 isolates, then combine two consecutive years' isolates into the calculation).
- Inclusion of diagnostic (not surveillance) isolates.

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Attributes of cumulative antibiogram

- Information only on drugs routinely tested.
- Inclusion of the first isolate per patient in the period analyzed, irrespective of the body site from which the specimen was obtained or the antimicrobial susceptibility pattern.
- Calculation of the percentage susceptibility because clinicians generally avoid prescribing antimicrobials if a test result indicates intermediate susceptibility. Isolates with intermediate susceptibility should not be included in the calculation of the percentage of isolates that are susceptible.

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Overview of Cumulative Antibigram

Cumulative Antibigram

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Cumulative Hospital Antibigrams As A Quality Indicator

- Laboratories are often surveyed about their testing practices, but analysis of antibiograms may be a useful tool to measure whether laboratories are incorporating changes and updates in their testing methods.
- Analysis of antibiograms may provide useful information when deciding where to focus educational efforts.

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Cumulative Hospital Antibigrams As A Quality Indicator

- Increased compliance with standards and guidelines, should result in decreased errors on antibiograms, provide more reliable data to clinicians to guide antibiotic choice.
- Programmes that provide and explain the antimicrobial susceptibility standards and guidelines encourage compliance.

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Development Of Standard Treatment Guidelines



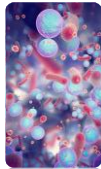
- Effective standard treatment guidelines (STG) improve patient care while enhancing cost savings.
- The STG also reflect data on resistance, recognizing that local patterns of resistance often differ across geographical regions.
- The use of the STG can be an effective means of changing behaviour; hence the STG should be readily adaptable for local implementation.

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Prerequisites of STG



- Should be based on local antibiograms. Should be syndrome/disease based.
- Should specify type of clinical setting
Outpatient clinics, Inpatient units, ICU setting.
- Should specify rationale of guidelines.
- Provide evidence-based strength of recommendations.
- Should involve treating physicians to review the guidelines.



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Recommendations in STGs



- Recommendation on switch from **Intravenous-To- Oral Therapy** can be made when the patient is haemodynamically stable
- In case the individual is from a geographical region that has a high rate (>25%) of resistant organisms reported or where high-level minimal inhibitory concentration (MIC) is observed then, **the use of alternative agents is mandatory.**



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Thank You

All Should be Antibiotic Stewards

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