The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS)

From data collection to antimicrobial stewardship

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Agenda

Point Prevalence Surveys – a brief introduction

What is Antimicrobial Stewardship?

From data collection to quality improvement

A few examples from around the world

The WHO AWaRe classification
Why measure antimicrobial use?

Lord Kelvin
Physician (1824-1907)

“If you can’t measure it, you can’t improve it”
Why measure antimicrobial use?

- Describe current prescribing practices
- Monitor trends over time
- Compare (different wards, hospitals)
- Motivate health care providers
- Design targeted interventions
- Evaluate impact of interventions
A snapshot of antimicrobial use in the ward/hospital

→ count all **admitted patients** at 8 am on the day of the PPS

→ count all **patients on antimicrobials** at 8 am on the day of the PPS

→ collect detailed data for the patients on antimicrobials
<table>
<thead>
<tr>
<th>Ward Name/code</th>
<th>Activity (M, S, IC)</th>
<th>Patient Identifier</th>
<th>Survey Number</th>
<th>Patient Age</th>
<th>Current Weight</th>
<th>Neovate only</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward B</td>
<td>IC</td>
<td>987654</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F</td>
</tr>
</tbody>
</table>

**Treatment based on biomarker data or WBC**
- Yes: 0
- No: X

**Antimicrobial Name**
- 1. ceftazidime
- 2. ceftriaxone

**Start date of the antimicrobial**
- 23/02/2021

**Single Unit Dose**
- Unit (g, mg, IU, MU): 2 g

**Doses/ day**
- Route (P, O, R, I): 3 P

**Diagnosis**
- Pneu

**Type of indication**
- HA(V)-VAP

**Reason in Notes (Yes or No)**
- Yes

**Guideline Compliance (Y, N, NA, NJ)**
- NA

**Is a stop/review date documented? (Yes/No)**
- Yes

**Treatment**
- T

The following resistance data is to be filled in only if the treatment choice is based on microbiology data (Treatment=T) available on the day of the PPS.
Information obtained from Global-PPS

- Prevalence of antimicrobial use
- Classes of antimicrobials being used: broad spectrum or narrow spectrum?
- Indications for antimicrobials: community- or hospital-acquired infections, medical or surgical prophylaxis?
- Which antimicrobials are being used for particular infections?
- Are the antimicrobials prescribed in line with local guidelines?
- Duration of antibiotics for surgical prophylaxis?
- Has a clear duration of treatment or stop date been recorded?
- Has a clear reason for prescription been recorded?
- Has treatment been changed in light of microbiology results?
What is the next step? And where to get started?

“Identify the low-hanging fruit first!”

“We need guidelines!”

“We need to restrict carbapenem use!”

We need to shorten the duration of surgical prophylaxis!
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  - The WHO AWaRe classification
What is antimicrobial stewardship?

Coordinated interventions designed to measure and improve the appropriate use of [antibiotic] agents by promoting the selection of the optimal [antibiotic] drug regimen including dosing, duration of therapy, and route of administration (IDSA guideline 2016)

A set of activities meant to optimize the use of antibiotics (in a health care facility)

Aims:

• Improve patient outcomes
• Decrease/optimize antimicrobial use
• Decrease antimicrobial resistance
• Decrease health care costs
The importance of local context

Antimicrobial stewardship → not a one-size-fits-all solution

- Differences in healthcare processes, healthcare workers involved

- Differences in available resources
  - Human resources
  - Laboratory capacity, surveillance
  - Paper-based records vs. electronic health records
  - ..

- Different drivers for prescribing antimicrobials: habits, relation to peers, hierarchical factors etc..
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From data collection to AMS activities

The **PDSA** cycle for continuous quality improvement

**Commitment** from hospital administration

Map possible **enablers and barriers**

Study available **data**

**Results from baseline PPS (quality indicators)**
e.g. “% of antimicrobial prescriptions with a documented stop/review date”

From data collection to AMS activities

The **PDSA** cycle for continuous quality improvement

**Present findings**

**Set SMART goals**

- **Specific**
- **Measurable**
- **Achievable**
- **Relevant**
- **Time-bound**

example: “by June 2022, 90% of the antibiotic prescriptions on the medical wards should have a documented stop/review date”

From data collection to AMS activities

The PDSA cycle for continuous quality improvement

Plan interventions to reach your goal:

For example:
- Education, workshops
- Stop/review policies
- Communication plan, report to hospital management
- ...

example: “by June 2022, 90% of the antibiotic prescriptions on the medical wards should have a documented stop/review date”

From data collection to AMS activities

The PDSA cycle for continuous quality improvement

Roll out AMS interventions

From data collection to AMS activities

The **PDSA** cycle for continuous quality improvement

1. **Prepare**
2. **Plan**
3. **Do**
4. **Study**
5. **Adjust**

**Measure** the impact of your interventions  ➔ **Repeated PPS**

From data collection to AMS activities

The **PDSA** cycle for continuous quality improvement

1. **Prepare**

2. **Plan**

3. **Do**

4. **Study**

5. **Adjust**

Make *adjustments* if needed

Communicate your results!

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A worldwide survey on AMS in hospitals in the Global-PPS network

- An online survey, conducted in 248 hospitals from 74 countries
- In 96.9% of hospitals: targets for improvement of prescribing were found
- In 69.3% of hospitals: AMS components initiated as a result of Global-PPS findings
- 43.1% of hospitals had a formal AMS strategy
Implementation of a multidisciplinary antimicrobial stewardship programme in a Philippine tertiary care hospital

Target for documentation of stop/review date:
“At the end of 2019, 85% of antibiotic prescriptions should have a documented stop/review date.”
Implementation of a multidisciplinary antimicrobial stewardship programme in a Philippine tertiary care hospital

Target for documentation of indication:
“At the end of 2019, 85% of antibiotic prescriptions should have a documented indication.”
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The WHO AWaRe classification
A tool for global antimicrobial stewardship

**Access**
- 1st or 2nd choice for empiric treatment of the most common infections
- Lower risk of resistance selection
- Amoxicillin, cefazolin, cloxacillin, clindamycin...

**Watch**
- 1st or 2nd choice for limited indications only
- Higher risk of resistance selection
- Quinolones, carbapenems, cephalosporins 2e / 3e gen...

**Reserve**
- To be used only as a ‘last resort’, when all other antibiotics have failed
- Colistin, linezolid, tigecyclin...

**Not recommended (new category 2019)**
Mainly fixed-dose combinations of broad-spectrum antibiotics
Figure: Antibiotics included in 2019 WHO Essential Medicines List by AWaRe group

*Antibiotics listed in the complementary list of the 2019 WHO Essential Medicines List, indicating the need for specialist supervision.

How to integrate AWaRe in stewardship activities?

- **Use AWaRe in surveillance of antibiotic consumption**
  AWaRe categories can be used for evaluation, benchmarking and setting targets

- **Update national Essential Medicines List with AWaRe groups**
  Improve “Access to Access antibiotics”

- **Apply AWaRe categories in national and local antibiotic guidelines**
  Maximise the use of ACCESS antibiotics in empiric treatment guidelines

- **Target WATCH and RESERVE groups for stewardship**
  Focused stewardship interventions (e.g. audit and feedback, formulary restriction)

- **Include in health professional curricula**
  Pre- and in-service training of health care professionals
How to integrate AWaRe in stewardship activities?

Use AWaRe in surveillance of antibiotic consumption

AWaRe categories can be used for evaluation, benchmarking and setting targets

New, global target, set by WHO:

“By 2023, Access antibiotics should make up at least 60% of national consumption”

https://adoptaware.org/
Hospital antibiotic prescribing according to the WHO AWaRe classification: results from the 2015-2018 Global-PPS
Take home messages

- When implementing antimicrobial stewardship, build on what is already there
- Involve ward staff, pharmacists, microbiologists etc...
- Set SMART goals
- Start small and go step by step
- Follow up using repeated (targeted) measurements
- Communicate your results and report to hospital management
Thank you!

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Any hospital is welcome to participate