A point prevalence survey on antimicrobial consumption and resistance at Yangon Children's Hospital, Yangon, Myanmar

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Background: antimicrobials

- **Antimicrobials are medicines that target microorganisms and are used to prevent and treat infections**
- **‘Antimicrobial’ is a broad classification including:**
  - **Antibacterials (including antibiotics)**
  - **Antifungals**
  - **Antiparasitics**
  - **Antivirals**
- **Antimicrobials are vital for treating infections and for allowing safer childbirth, surgical procedures, organ transplants, and cancer chemotherapy**

Image: The Conversation https://tinyurl.com/y5vmcf3w

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Background: antimicrobial resistance

- **Inappropriate antimicrobial use can lead to disease-causing microorganisms developing antimicrobial resistance (AMR)**
- **AMR reduces therapeutic options and makes it more difficult to treat certain infections**
- **Prudent antimicrobial prescribing is important for preserving the benefits of antimicrobials and slowing the further development and spread of AMR**
- **As hospitals are important sites of antimicrobial use, the World Health Organization (WHO) recommends that hospitals worldwide develop and implement antimicrobial stewardship (AMS) programmes utilising local prescribing data**
- **Point-prevalence surveys are a common method of collecting local prescribing data**

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Aim:

- **We sought to describe antimicrobial prescribing at Yangon Children's Hospital (YCH), Yangon, Myanmar and assess agreement with various quality indicators of antimicrobial prescribing**

Image: Yangon Children's Hospital.
https://en.wikipedia.org/wiki/Yangon_Children's_Hospital

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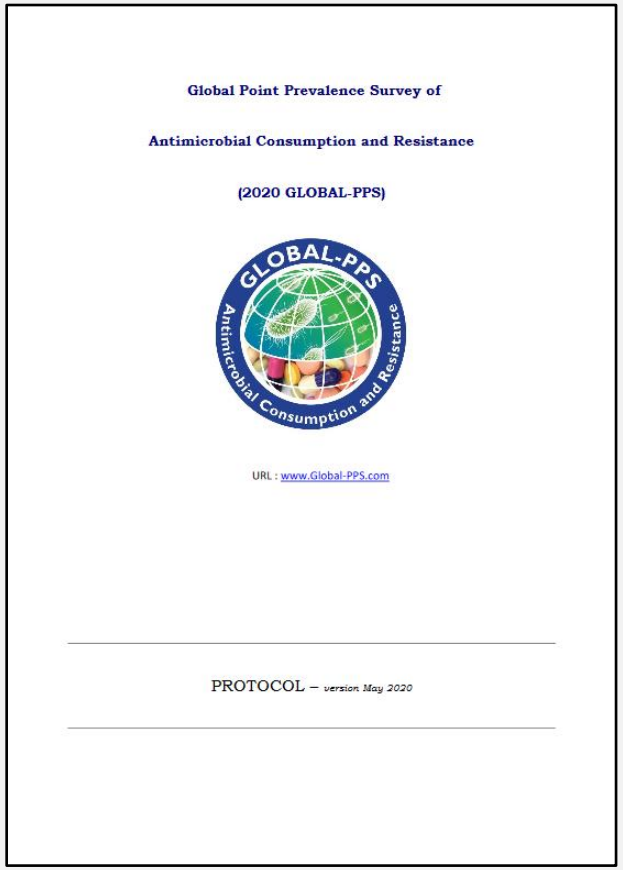
Methods: Global Point-Prevalence Survey

- **We used the Global Point-Prevalence Survey on Antimicrobial Consumption and Resistance (Global-PPS) method**
- **We surveyed each hospital ward once**
- **We counted all inpatients present on each ward at 08:00AM on the day of data collection**
- **We reviewed patient medical records to identify all inpatients receiving at least one antimicrobial and collected data on age, sex, weight, and antimicrobial prescribing for these individuals**



Global Point Prevalence Survey of

Antimicrobial Consumption and Resistance

(2020 GLOBAL-PPS)

URL : www.Global-PPS.com

PROTOCOL – *version May 2020*

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Methods: data collection and data entry

- **Antimicrobial prescribing details sought included:**
  - **the generic antimicrobial name**
  - **a diagnosis**
  - **a treatment indication (i.e., community-acquired infections, hospital-acquired infections, medical prophylaxis, and surgical prophylaxis)**
  - **whether the antimicrobial prescribed was compliant with local treatment guidelines for the stated diagnosis (if available)**
  - **whether a reason for antimicrobial use and a stop or review date was recorded in the medical record**
  - **whether treatment was based on a microbiology laboratory result**

Results: data collection

- **All 13 wards at YCH were surveyed from 9 December through 21 December 2019**
- **507 patients were admitted to a ward**
- **306 (60.4%) were prescribed at least one antimicrobial**
  - **111 (36.3%) were female**
  - **40 (13.1%) were aged 1-30 days, 86 (28.1%) were aged 1-23 months, and 180 (58.8%) were aged 2-14 years**
  - **185 (60.5%) were prescribed one antimicrobial, 76 (24.8%) were prescribed two antimicrobials, and 45 (14.7%) were prescribed three or more antimicrobials**

Results: antimicrobial prescribing

- **506 antimicrobials were prescribed**
  - **406 (80.2%) antibacterials for systemic use**
  - **41 (8.1%) antimycobacterials**
  - **36 (7.1%) antiprotazoals**
  - **14 (2.8%) antidiarrhoeals, intestinal anti-inflammatories, or anti-infectives**
  - **5 (1.0%) antivirals for systemic use**
  - **4 (0.8%) antimycotics for systemic use**

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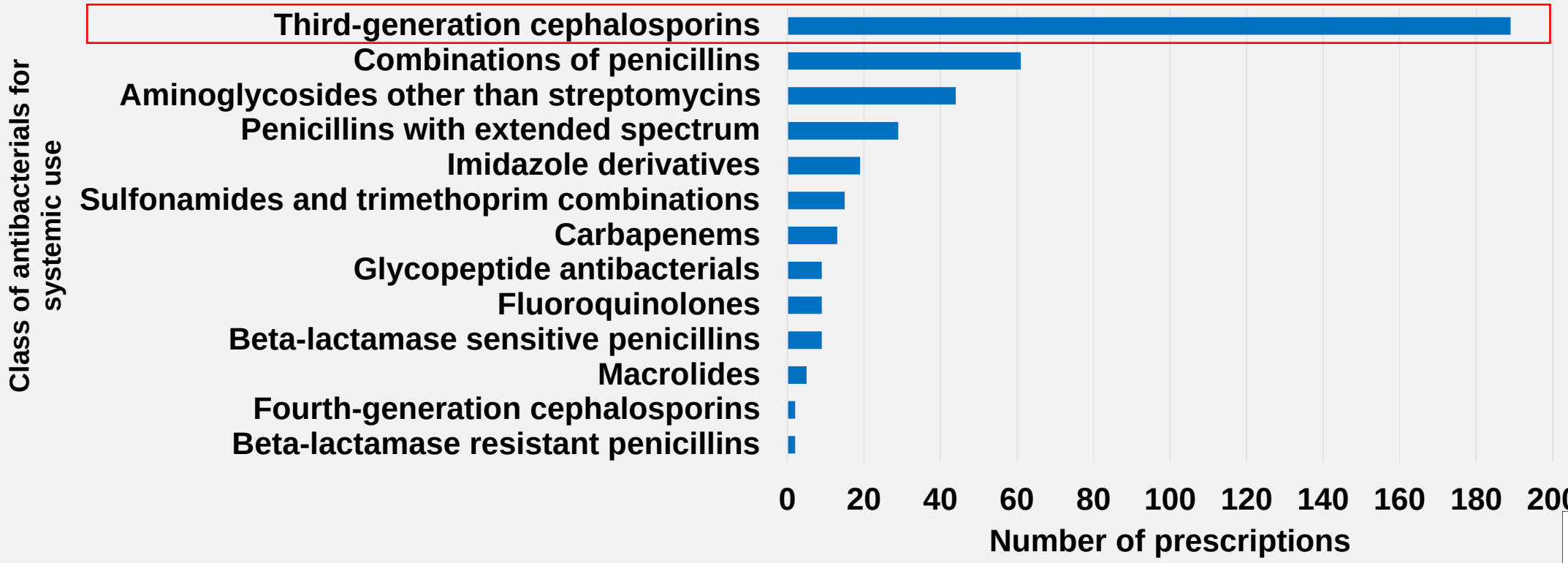
Number of antibacterials for systemic use prescribed by antibacterial class, Global Point Prevalence Survey of Antimicrobial Consumption and Resistance at Yangon Children's Hospital, 2019 (N = 406)



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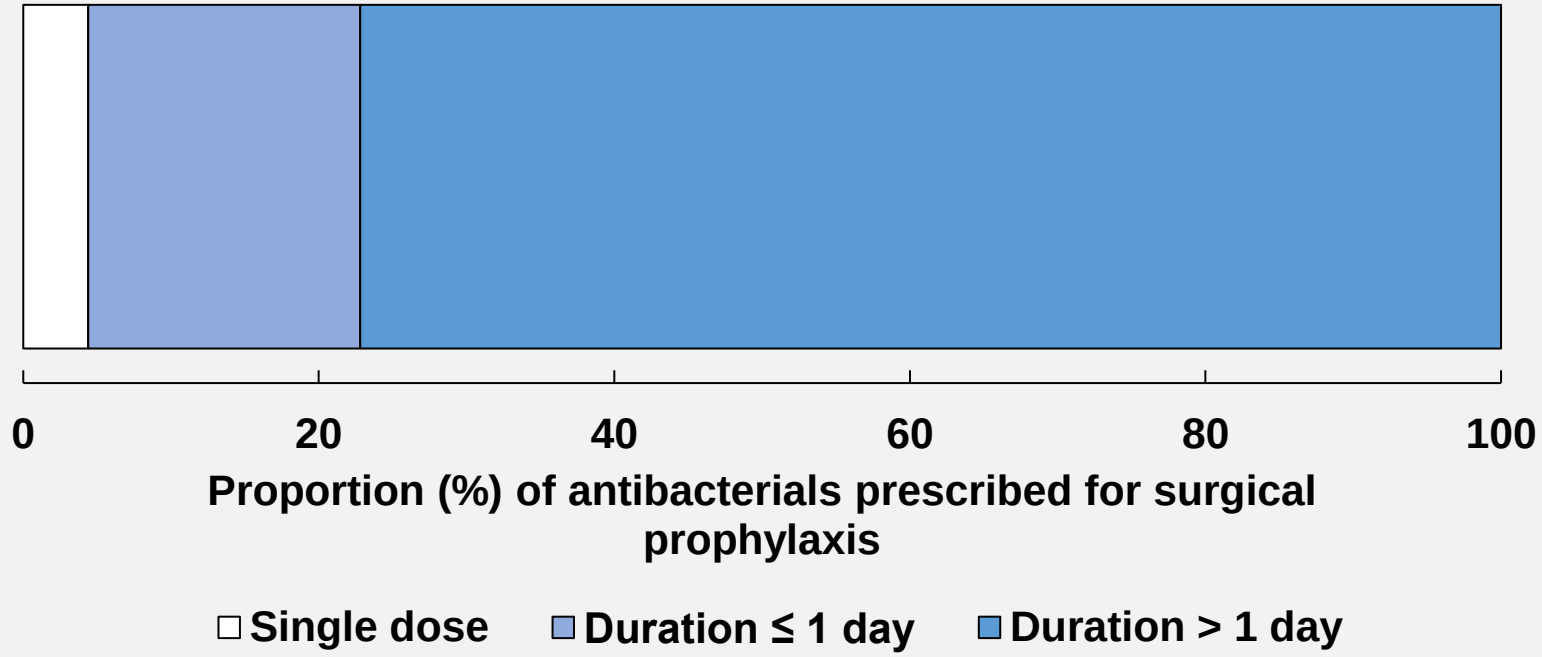
Antibacterial prescriptions by treatment type, Global Point Prevalence Survey of Antimicrobial Consumption and Resistance at Yangon Children's Hospital, 2019 (N = 406)

Treatment indication	n	(%)
Therapeutic use	**199**	**(49.0)**
Community-acquired infections	176	(43.3)
Hospital-acquired infections	23	(5.7)
Prophylactic use	**202**	**(49.7)**
Medical prophylaxis	66	(16.3)
Surgical prophylaxis	136	(33.5)
Unknown or other use	**5**	**(1.2)**
Total	**406**	**(100.0)**

Duration of antibacterial use for surgical prophylaxis, Global Point-Prevalence Survey of Antimicrobial Consumption and Resistance at Yangon Children's Hosptial, Myanmar, December 2019 (N = 136)



Antibacterial prescribing quality indicators, Global Point-Prevalence Survey of Antimicrobial Consumption and Resistance at Yangon Children's Hospital, 2019 (N = 406)

Quality indicator	n	(%)
Guideline missing	194	(47.8)
Guideline available	212	(52.2)
Guideline compliant*	162	(76.4)
Reason in notes	236	(58.1)
Stop or review date documented	82	(20.2)
Treatment based on microbiology result	37	(9.1)

*Denominator for proportion of guideline compliant prescriptions is 212; prescriptions for which a guideline was available.

Discussion: key findings

- **Third-generation cephalosporins were by far the most prescribed antibacterial class**
  - **Widespread use of third-generation cephalosporins is a risk factor for bacteria developing resistance to multiple antibacterial classes, challenging infection control**
- **Most surgical prophylaxis was for a duration >1 day**
  - **Inconsistent with international guidelines for the duration of surgical prophylaxis**
- **Guidelines were only available for the diagnoses corresponding with a little over half of antibacterial prescriptions**
  - **Of these, approximately three-quarters were guideline compliant**

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Discussion: recommendations

1. **Establish a dedicated AMS team**
2. **Expand current antimicrobial prescribing guidelines**
3. **Improve the documentation of antimicrobial prescribing**
4. **Align antimicrobial use for surgical prophylaxis with international guidelines**
5. **Increase the use of microbiology testing to improve antimicrobial choices**
6. **Repeat PPS of antimicrobial consumption and resistance to assess the impacts of these interventions**

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Image: YCH data collection team.

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