



# Antimicrobial use for healthcare-associated pneumonia in the Philippines from 2017-2021: results from the global point prevalence survey (Global-PPS)

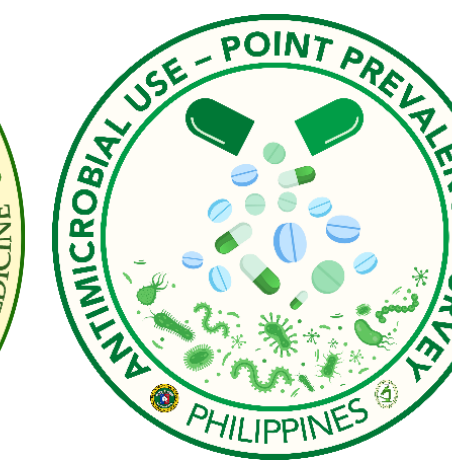


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## BACKGROUND & OBJECTIVES

Healthcare-associated pneumonia (HCAP) is a common indication for the use of broad-spectrum antimicrobials in the hospital setting. We describe the prevalence of healthcare-associated infections (HAI), and HCAP in public and private hospitals in the Philippines, and the most common antimicrobials used to treat HCAP.

## METHODS

The Global-PPS is a cross-sectional survey on the prevalence of antimicrobial use of admitted patients in the hospital. It was conducted in the Philippines from 2017-2021. The study involved 16 hospitals in 2017, 28 hospitals in 2018, 31 hospitals in 2019, 34 hospitals in 2020, and 51 hospitals in 2021. Hospitals performed a PPS once, twice or three times a year. The survey included all admitted patients at 8 am on the day of the survey. Data collected included details on the antimicrobial agents and indications for treatment. A web-based application was used for data entry, validation, and reporting, designed by the University of Antwerp ([www.global-pps.com](http://www.global-pps.com)). We report the prevalence of patients receiving at least one antimicrobial for HAI and for HCAP, respectively.

## RESULTS

The prevalence of HAI ranged from 6.1% in 2019 to 10.8% in 2021 and was highest in neonatal wards (Table 1). Comparison of public and private hospitals shows similar prevalence of HAIs except for the year 2020 when the prevalence of HAI was higher in public hospitals (Figure 1). The prevalence of HCAP ranged from 3.6% in 2019 to 5.1% in 2021. From 2017-2021, the two most common antimicrobials for treatment of HCAP were meropenem and piperacillin-tazobactam. Meropenem use for HCAP ranged from 17.6% to 22.4% of prescriptions. Piperacillin-tazobactam use ranged from 14.3% to 22.7%. The third most used antimicrobial was amikacin in 2017-2018 and levofloxacin in 2019-2021 (Table 2).

Table 1: Prevalence of HAIs

|                  | 2017         |                    |                     | 2018         |                    |                     | 2019         |                    |                     | 2020         |                    |                     | 2021          |                    |                     |
|------------------|--------------|--------------------|---------------------|--------------|--------------------|---------------------|--------------|--------------------|---------------------|--------------|--------------------|---------------------|---------------|--------------------|---------------------|
|                  | All patients | HAI prevalence (%) | HCAP prevalence (%) | All patients | HAI prevalence (%) | HCAP prevalence (%) | All patients | HAI prevalence (%) | HCAP prevalence (%) | All patients | HAI prevalence (%) | HCAP prevalence (%) | All patients  | HAI prevalence (%) | HCAP prevalence (%) |
| Adult wards      | 5,128        | 7.1                | 4.4                 | 7,583        | 6.7                | 3.6                 | 7,267        | 6.2                | 3.8                 | 4,478        | 8.4                | 5.0                 | 11,465        | 9.9                | 5.4                 |
| Paediatric wards | 944          | 7.3                | 4.0                 | 1,641        | 8.6                | 4.2                 | 1,758        | 6.0                | 3.2                 | 737          | 12.6               | 4.1                 | 2,010         | 12.5               | 3.9                 |
| Neonatal wards   | 491          | 10.8               | 3.3                 | 655          | 13.3               | 3.8                 | 755          | 7.0                | 2.4                 | 461          | 16.9               | 5.6                 | 1,257         | 16.0               | 4.9                 |
| <b>Total</b>     | <b>6,563</b> | <b>7.4</b>         | <b>4.3</b>          | <b>9,879</b> | <b>7.4</b>         | <b>3.7</b>          | <b>9,780</b> | <b>6.1</b>         | <b>3.6</b>          | <b>5,676</b> | <b>9.6</b>         | <b>4.9</b>          | <b>14,732</b> | <b>10.8</b>        | <b>5.1</b>          |

HAI prevalence: the percentage of all admitted patients, treated with at least one antimicrobial for a healthcare-associated infection.

HCAP prevalence: the percentage of all admitted patients, treated with at least one antimicrobial for a healthcare-associated pneumonia. This includes COVID-19 patients with HCAP.

Figure 1: Prevalence of HAIs (%) in Public and Private Hospitals in the Philippines

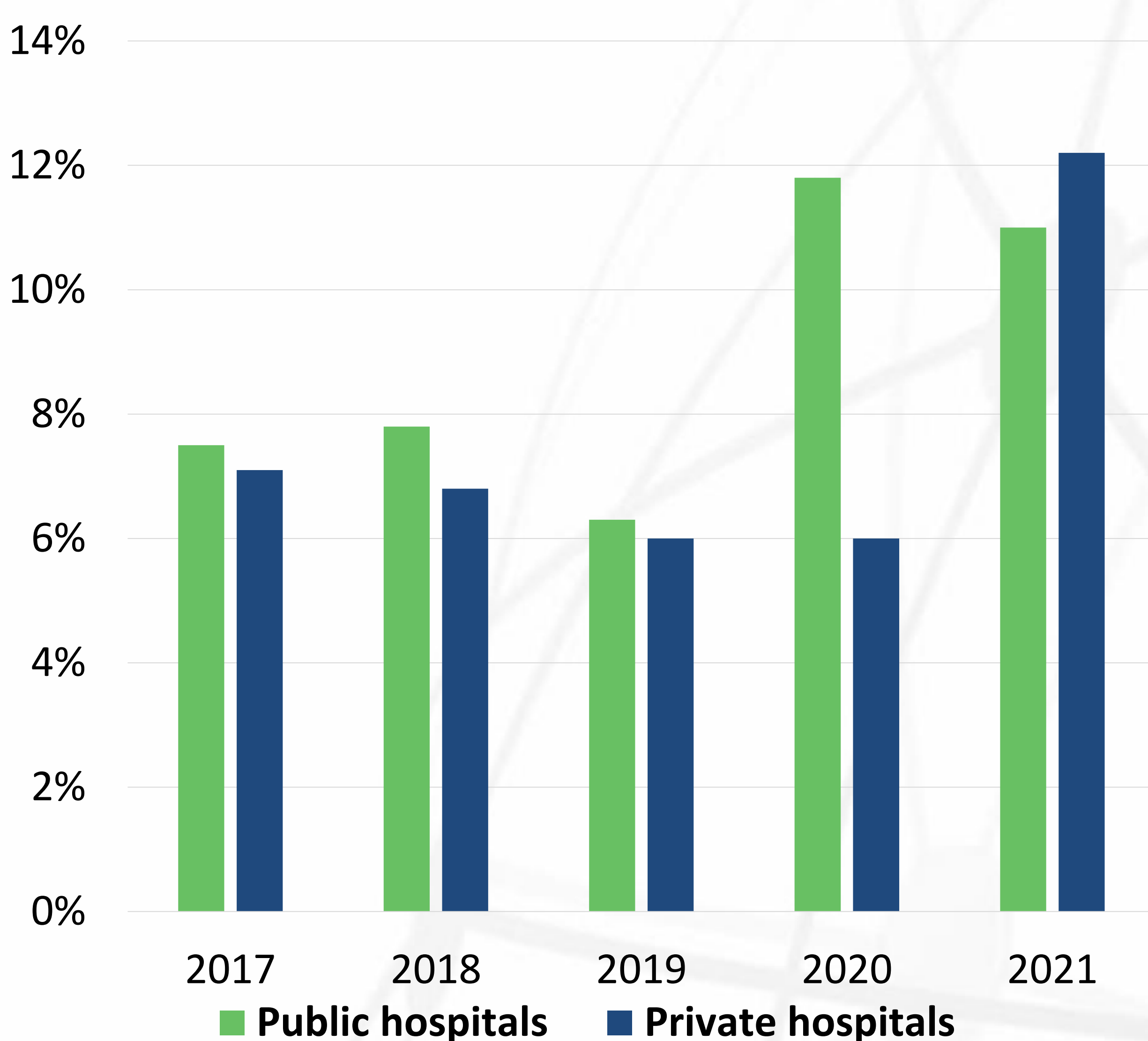


Table 2: Most common antibiotics (ATC J01) for HCAP

| 2017<br>(388 prescriptions)       |       | 2018<br>(520 prescriptions)       |       | 2019<br>(510 prescriptions)       |       | 2020<br>(410 prescriptions)       |       | 2021<br>(1037 prescriptions)      |       |
|-----------------------------------|-------|-----------------------------------|-------|-----------------------------------|-------|-----------------------------------|-------|-----------------------------------|-------|
| Piperacillin and enzyme inhibitor | 22.7% | Meropenem                         | 18.7% | Meropenem                         | 17.6% | Meropenem                         | 21.0% | Meropenem                         | 22.4% |
| Meropenem                         | 19.3% | Piperacillin and enzyme inhibitor | 16.9% | Piperacillin and enzyme inhibitor | 14.3% | Piperacillin and enzyme inhibitor | 15.4% | Piperacillin and enzyme inhibitor | 16.1% |
| Amikacin                          | 7.2%  | Amikacin                          | 6.9%  | Levofloxacin                      | 10.2% | Levofloxacin                      | 10.7% | Levofloxacin                      | 9.0%  |
| Ceftazidime                       | 6.7%  | Azithromycin                      | 6.5%  | Cefepime                          | 7.1%  | Amikacin                          | 8.0%  | Amikacin                          | 6.6%  |
| Levofloxacin                      | 5.7%  | Levofloxacin                      | 6.3%  | Amikacin                          | 6.7%  | Ceftazidime                       | 5.6%  | Cefepime                          | 5.2%  |
| Azithromycin                      | 4.6%  | Ceftazidime                       | 5.8%  | Ceftazidime                       | 6.3%  | Cefepime                          | 4.6%  | Vancomycin                        | 5.0%  |
| Clindamycin                       | 3.9%  | Ceftriaxone                       | 5.6%  | Vancomycin                        | 4.9%  | Vancomycin                        | 4.4%  | Ceftazidime                       | 4.3%  |
| Ceftriaxone                       | 3.4%  | Ampicillin                        | 3.8%  | Ceftriaxone                       | 3.5%  | Piperacillin                      | 3.2%  | Azithromycin                      | 4.0%  |
| Ciprofloxacin                     | 3.4%  | Cefepime                          | 3.1%  | Clindamycin                       | 3.5%  | Ciprofloxacin                     | 3.2%  | Ceftriaxone                       | 3.1%  |
| Cefepime                          | 3.1%  | Vancomycin                        | 3.1%  | Piperacillin                      | 3.3%  | Azithromycin                      | 2.9%  | Polymyxin b                       | 2.7%  |

## CONCLUSION

The overall prevalence of HAI and HCAP was high, particularly during the COVID pandemic in 2020-2021. The use of broad-spectrum antibiotics, such as meropenem and piperacillin-tazobactam was common in patients with HCAP. This highlights the need to strengthen antimicrobial stewardship and infection prevention and control efforts, even during a pandemic.