衛生防護中心
Centre for Health Protection

Antimicrobial Usage (AMU) Surveillance in Public Hospitals and Clinics - Hospital Authority Antimicrobial Dispensing Data (2022)

April 2024

衛生署
Department of Health

Contents Outline

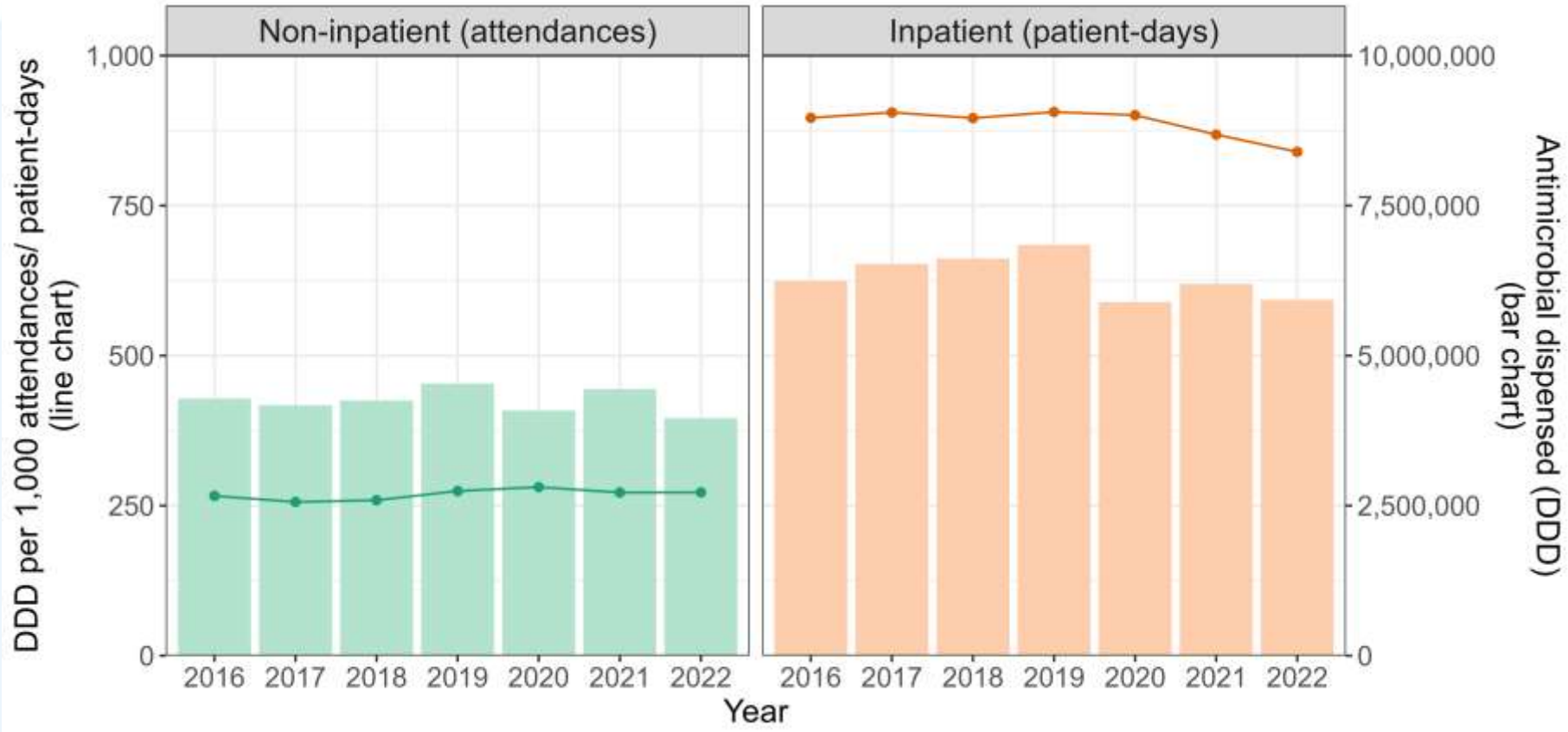
- Results
  - Total antimicrobials dispensed in public hospitals and clinics by service type
  - Antimicrobials dispensed in HA non-inpatient service by service
  - Antimicrobials dispensed in HA inpatient service by specialty
- Summary
- Recommendations

- (Background, Data Scope, Definitions, Measurements, and Statistical Method remained unchanged compared to 2021, and can be referred in Supplementary slides)

Results

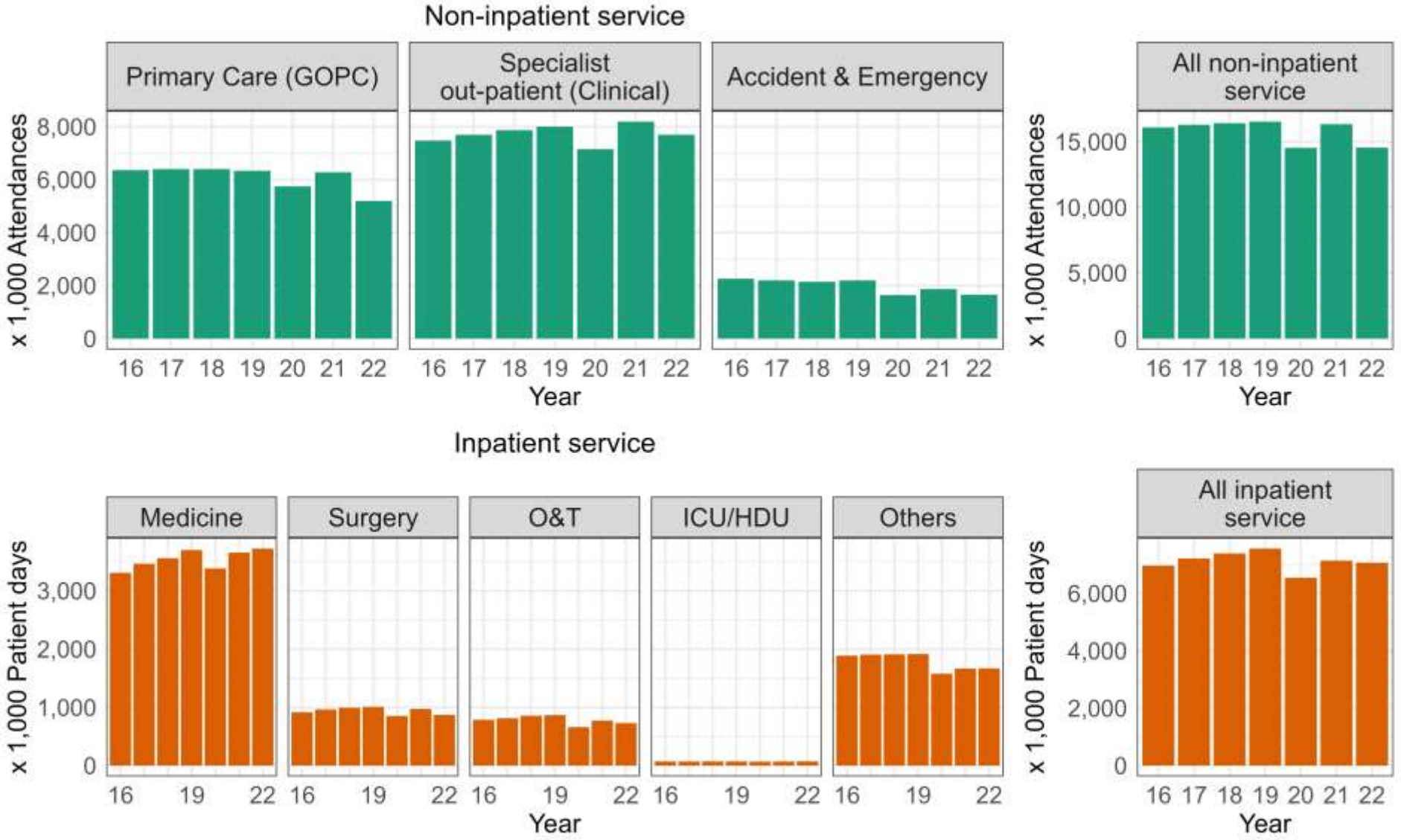
Total antimicrobials dispensed in public hospitals and clinics by service type

Total Antimicrobials Dispensed in Public Hospitals and Clinics by Service Type

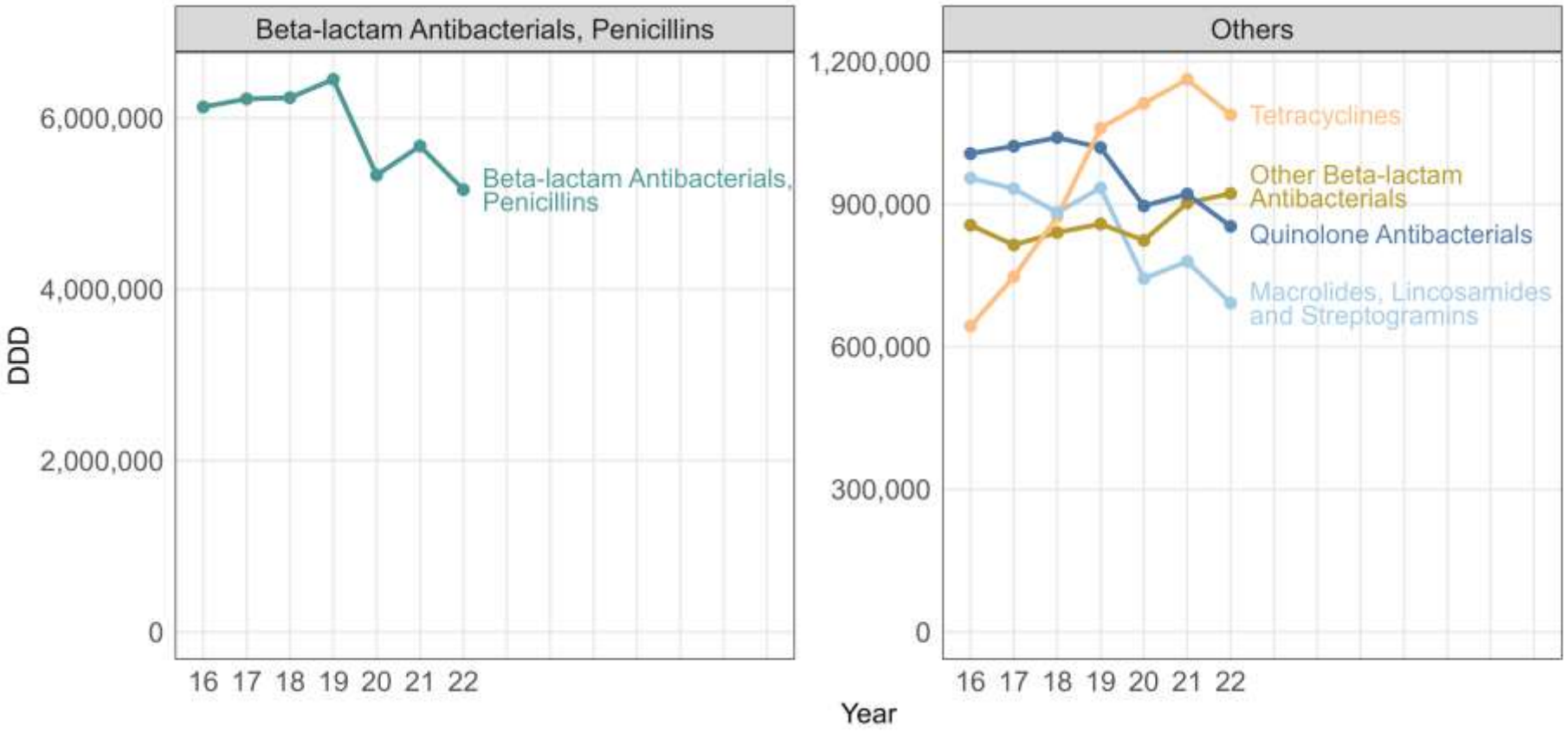


- For inpatient services, total antimicrobial dispensing volume continued to decrease in 2022.
- For non-inpatient services, total antimicrobial dispensed remained stable in 2021 and 2022.

HA service volume by service type and specialty

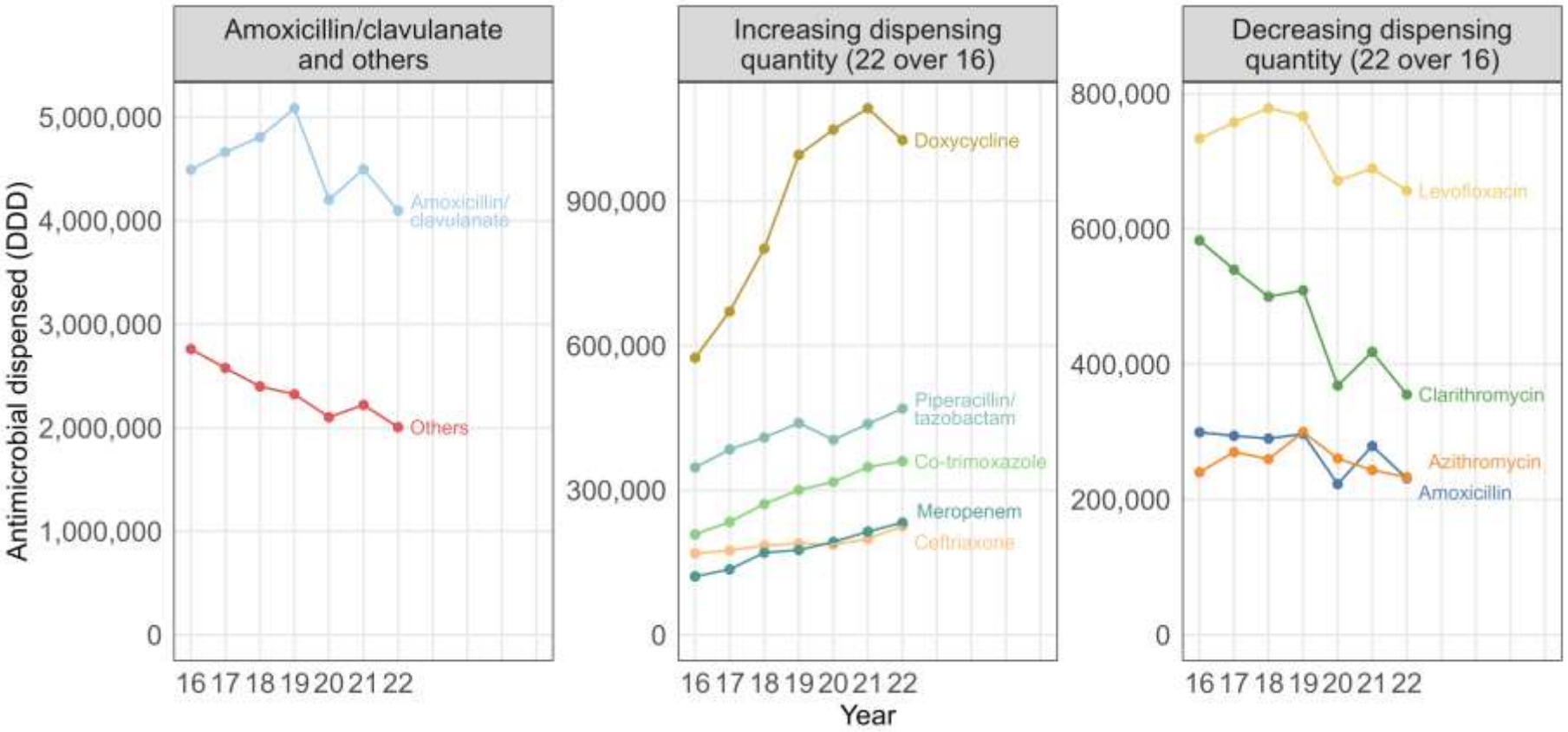


Five Most Dispensed Antimicrobial Groups in Public Hospitals and Clinics in 2022



- In 2022, Beta-lactam antimicrobials, penicillins continued to be the most dispensed antimicrobials.
- Compared to 2021, four of the most dispensed antimicrobial groups experienced a reduction in dispensing volume, with the exception of Other Beta-lactam Antimicrobials.
- Tetracyclines dispensing volume started to decrease in 2022 after continuous rise from 2016 to 2021.

Ten Most Dispensed Antimicrobials in Public Hospitals and Clinics in 2022

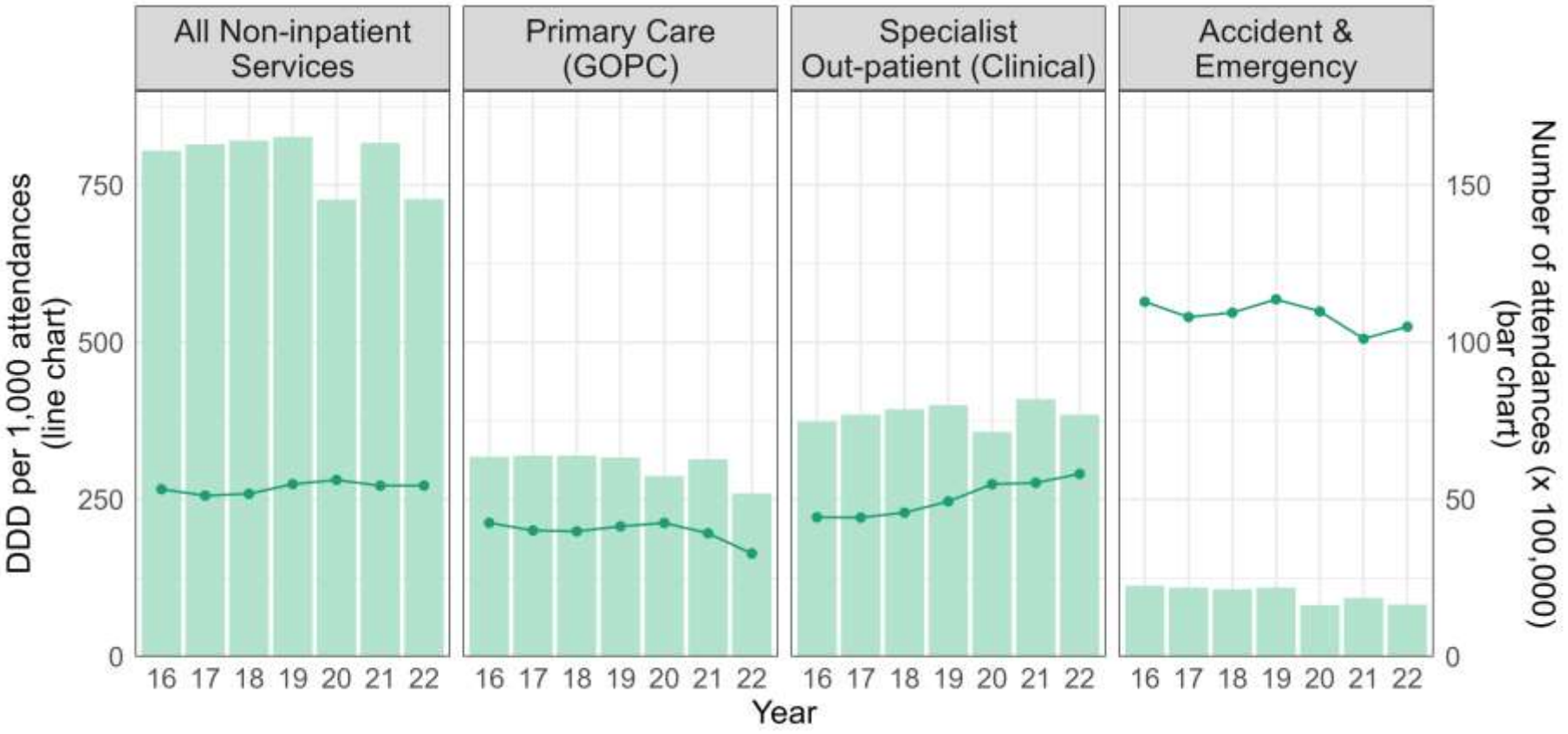


- In 2022, amoxicillin/clavulanate (Augmentin) maintained as the most dispensed antimicrobial.
- Notably, meropenem and ceftriaxone emerged as two of the ten most dispensed antimicrobials in 2022, replacing cloxacillin and nitrofurantoin from the previous year.
- Furthermore, compared to 2021, four of the ten most dispensed antimicrobials experienced a continuous increase in dispensing volume, specifically piperacillin/tazobactam, co-trimoxazole, meropenem, and ceftriaxone.
- In contrast, six of the ten most dispensed antimicrobials witnessed a drop in dispensing volume, including amoxicillin/clavulanate, doxycycline, levofloxacin, clarithromycin, azithromycin and amoxicillin. In particular, doxycycline dispensing volume showed a reduction for the first time in 2022.

Results

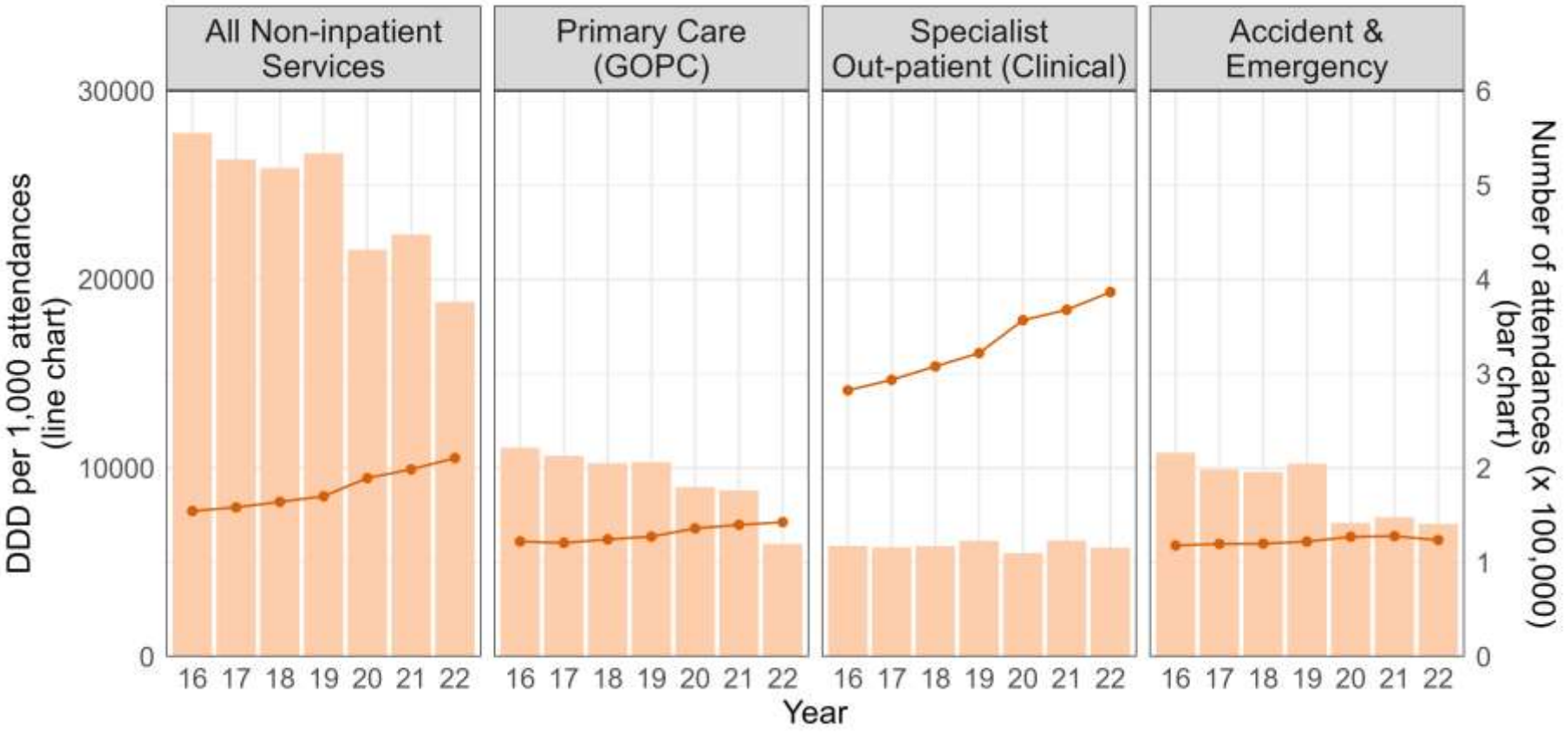
Antimicrobials dispensed in HA non-inpatient service by service

Total Antimicrobials Dispensed in HA Non-inpatient Service by Service



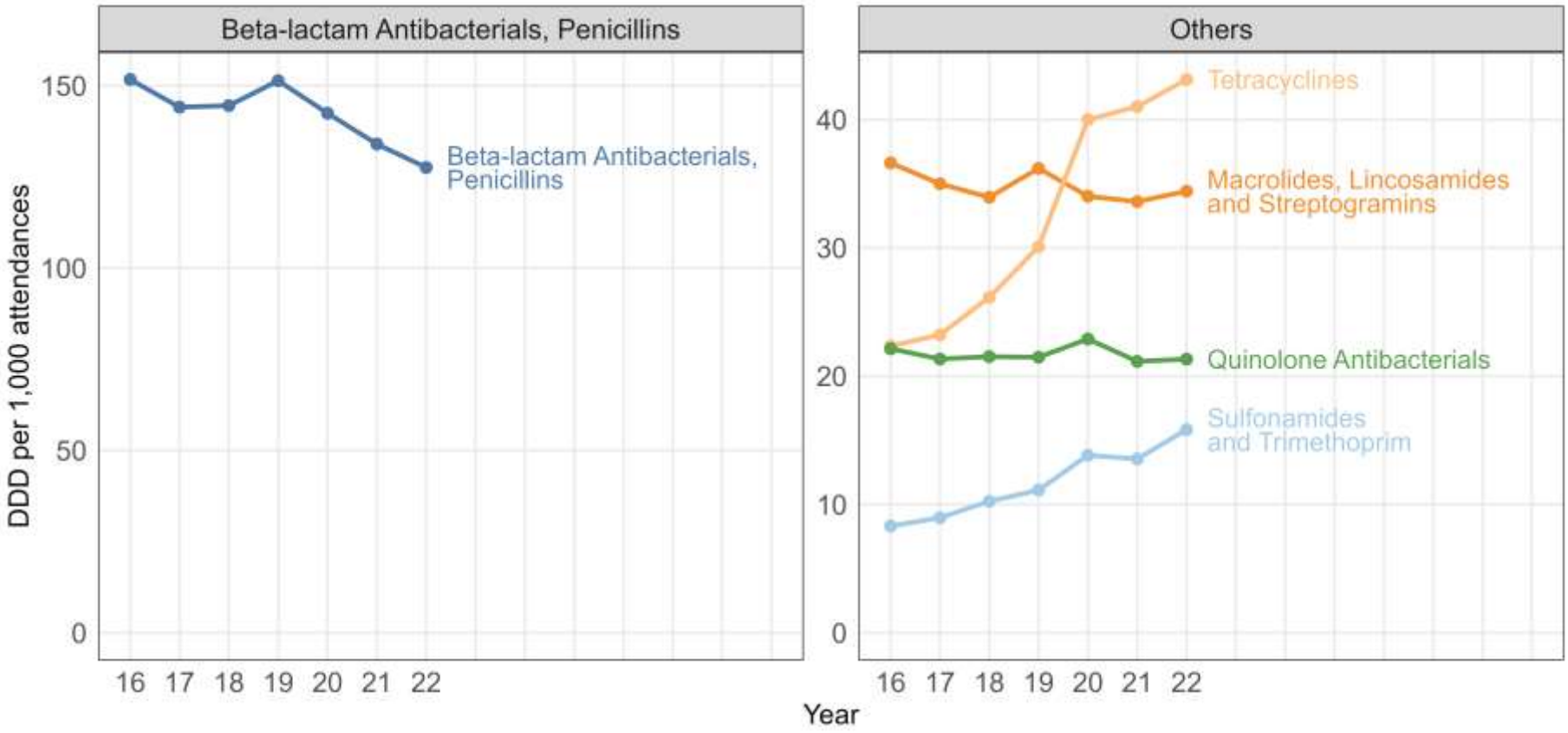
- In 2022, Primary Care (GOPC) attendances decreased from 6.3 million in 2021 to 5.2 million, with the amount of dispensed antimicrobials (in DDD per 1,000 attendances) dropped from 196.3 to 164.0.
- For Specialist out-patient (Clinical) services, attendances decreased from 8.2 million in 2021 to 7.7 million in 2022. However, the amount of dispensed antimicrobials (in DDD per 1,000 attendances) increased from 276.5 in 2021 to 290.6 in 2022.

Pattern of HA non-inpatient service attendances having dispensed antimicrobials



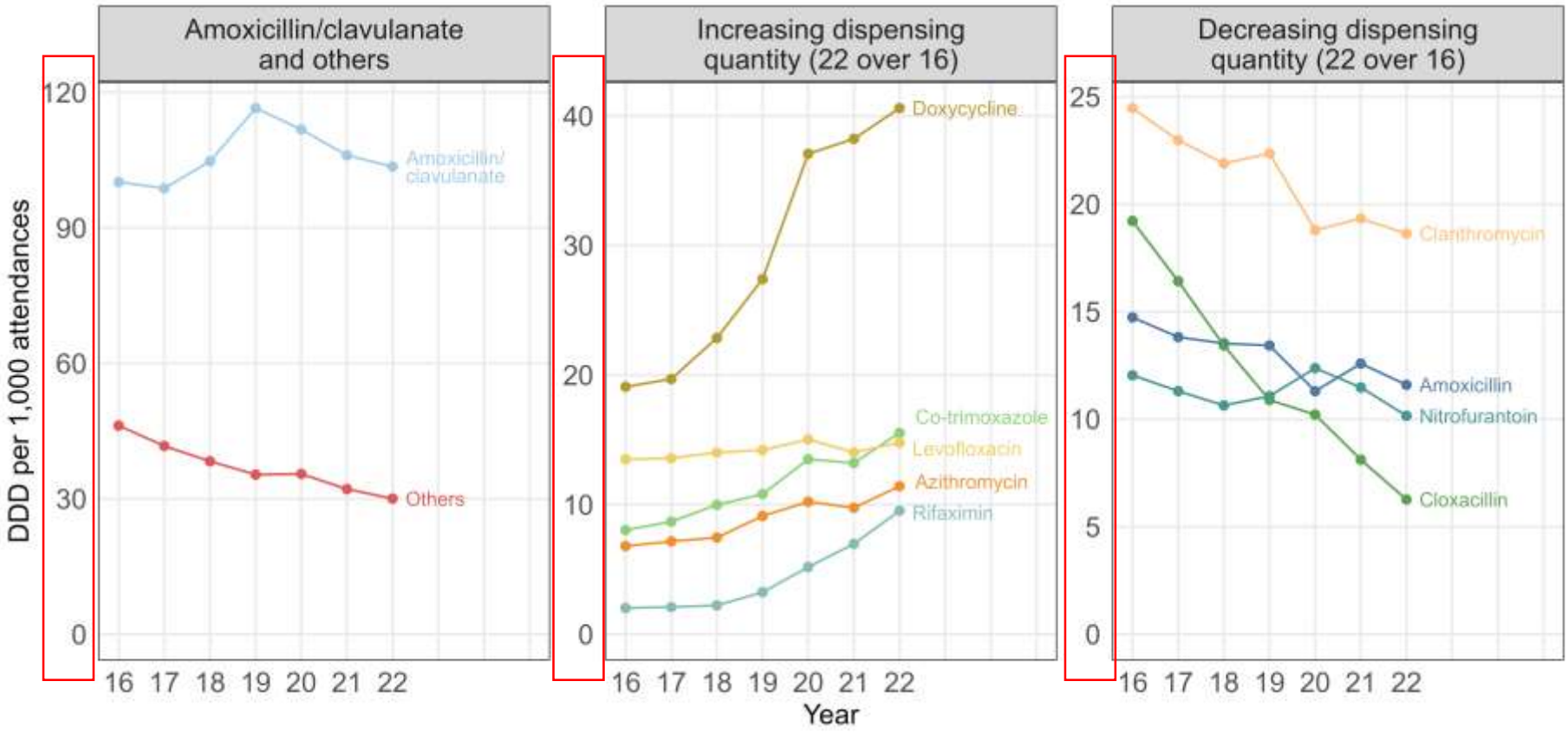
- Focused on attendances where antimicrobials were dispensed, the number of Primary Care (GOPC) attendances decreased from 180,000 in 2021 to 120,000 in 2022. However, the amount of dispensed antimicrobials (in DDD per 1,000 attendances) saw a slight increase from 7,000 in 2021 to 7,100.
- In Specialist out-patient (Clinical) services, attendances remained steady since 2016, with a count of 120,000 in 2022. Yet, the amount of dispensed antimicrobials (in DDD per 1,000 attendances) increased from 18,000 in 2021 to 19,000 in 2022.

Five Most Dispensed Antimicrobial Groups in Non-inpatient Service in 2022



- Except penicillins, other four most dispensed antimicrobials groups showed an increase in dispensing volume when compared with 2021 data.

Ten Most Dispensed Antimicrobials in Non-inpatient Service in 2022

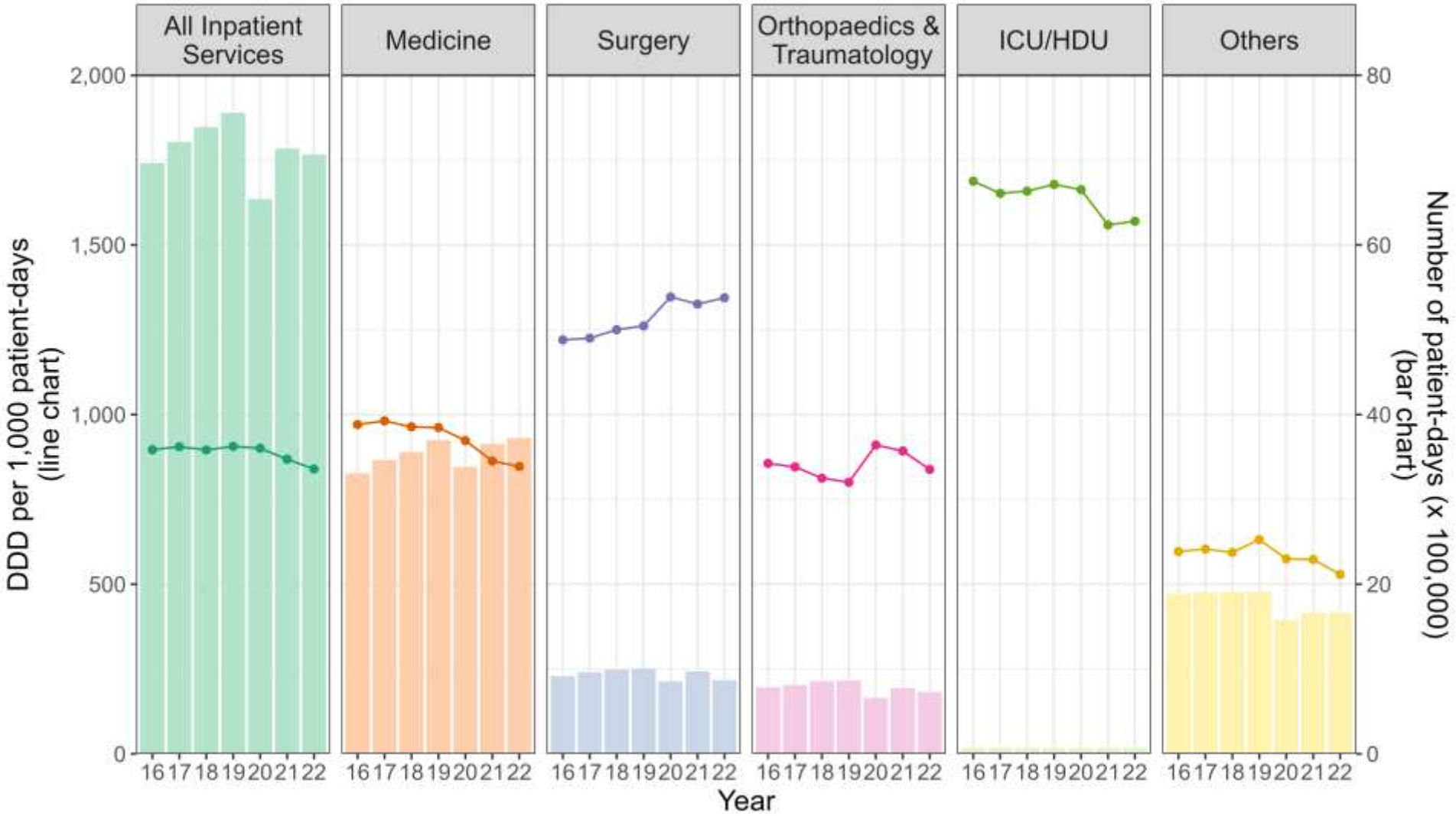


- In 2022, amoxicillin/clavulanate (Augmentin) remained as the most dispensed antimicrobial in non-inpatient services, with a decrease in dispensing volume since 2019.
- Even though the number of attendees decreased in 2022 compared to 2021, five of the ten most dispensed antimicrobials in non-inpatient services continued to increase in dispensing volume, including doxycycline, co-trimoxazole, levofloxacin, azithromycin, and rifaximin.
- On the other hand, five of the ten most dispensed antimicrobials continued to decrease in dispensing volume, including amoxicillin/clavulanate, clarithromycin, amoxicillin, nitrofurantoin and cloxacillin.
- Notably, while a reduction in doxycycline dispensing volume was observed in inpatient service, its dispensing in non-inpatient services continued to increase.

Results

Antimicrobials dispensed in HA inpatient service by specialty

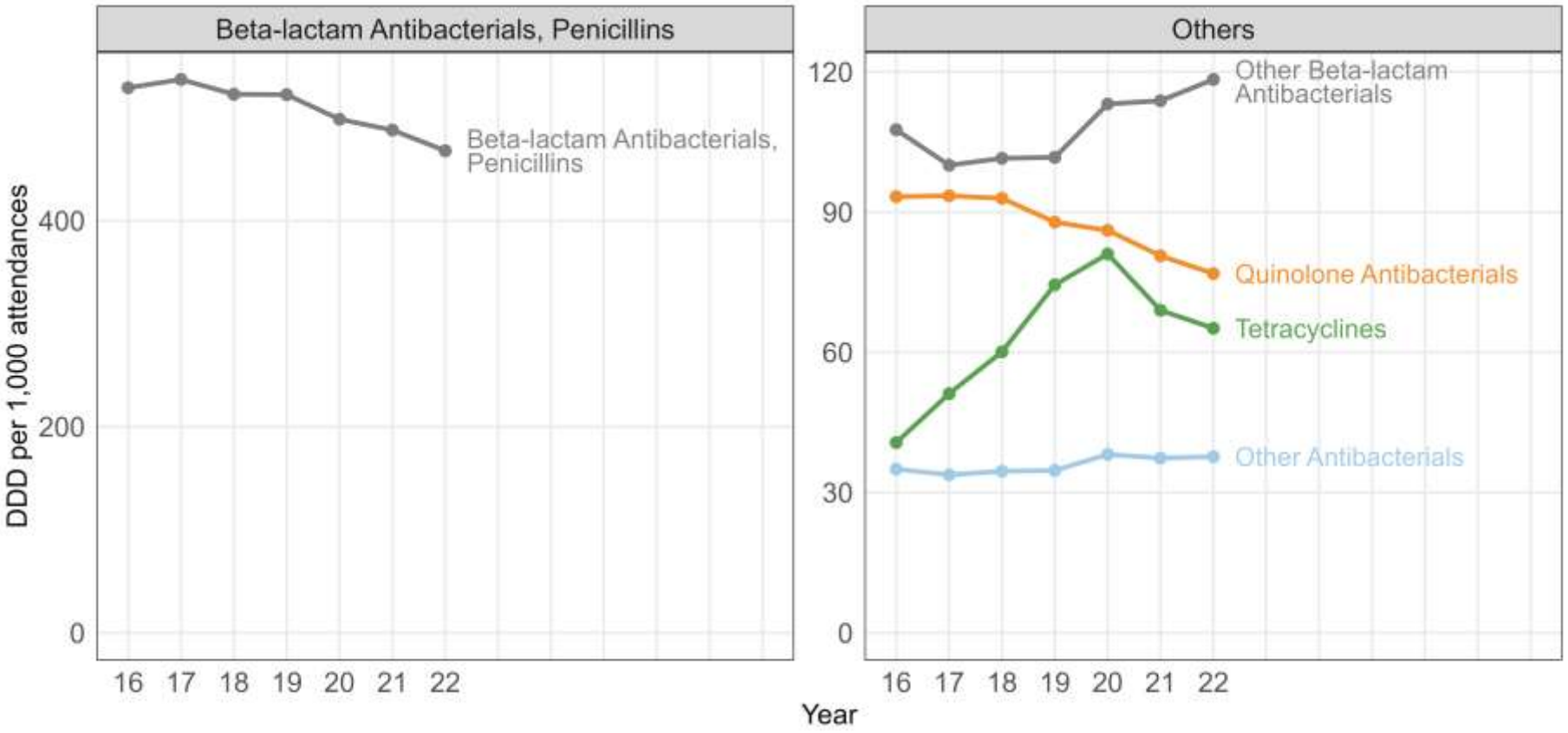
Antimicrobials Dispensed in HA Inpatient Service per 1,000 Patient-days by Specialty



- In 2022, while patient-days in medicine returned to pre-COVID levels, the amount of antimicrobials dispensed in DDD per 1,000 patient-days continued to decline.
- Similarly, in ICU/HDU, patient-days in 2022 (73,000 patient-days) surpassed the 2019 level (71,000 patient-days), yet the amount of antimicrobials dispensed remained lower than 2019.
- In contrast, for surgery and O&T, the number of patient-days in 2022 remained lower than that of 2019, but after adjusting for patient-days, the amount of antimicrobials dispensed in these two departments was still higher than in 2019.

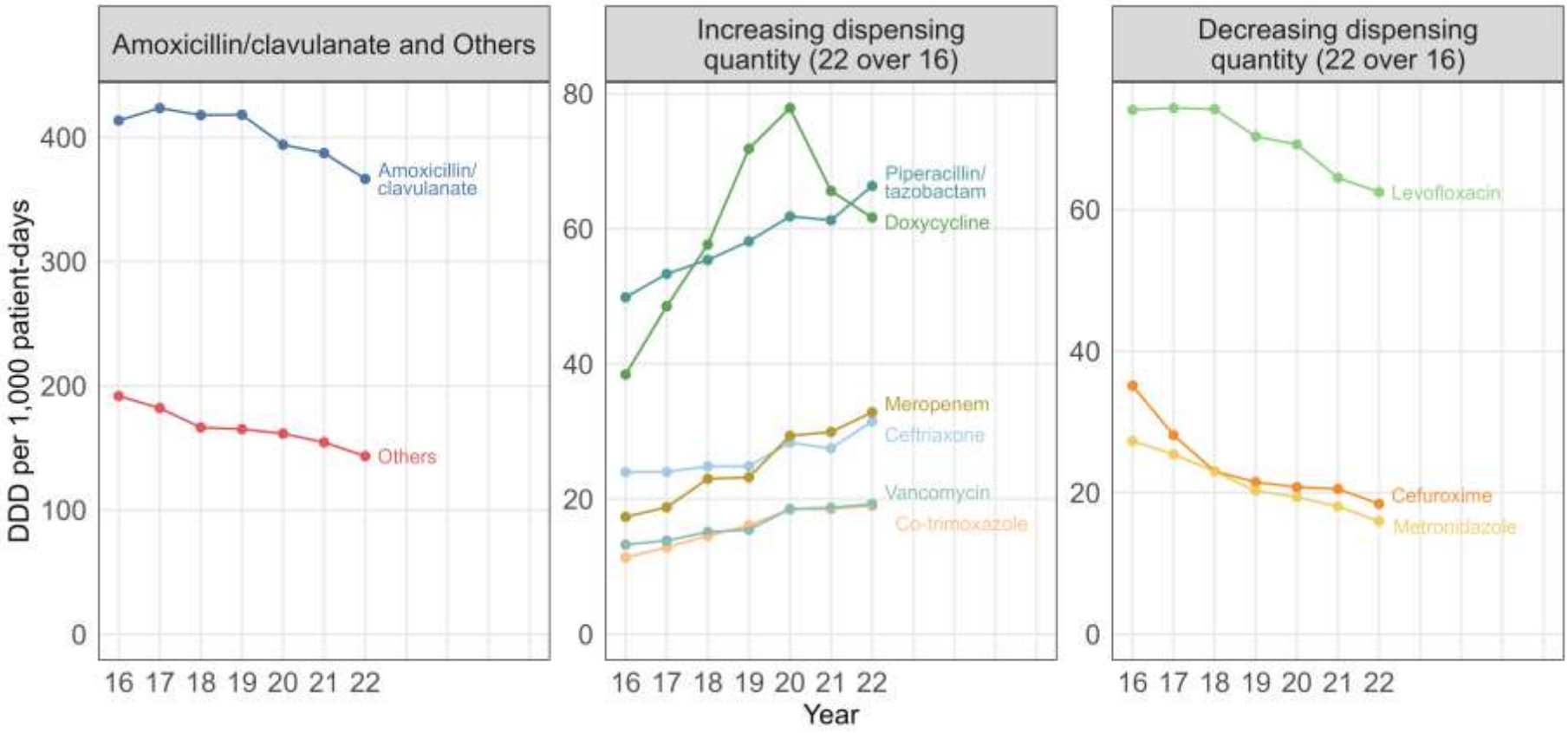
衛生署
Department of Health

Five Most Dispensed Antimicrobial Groups in Inpatient Service in 2022



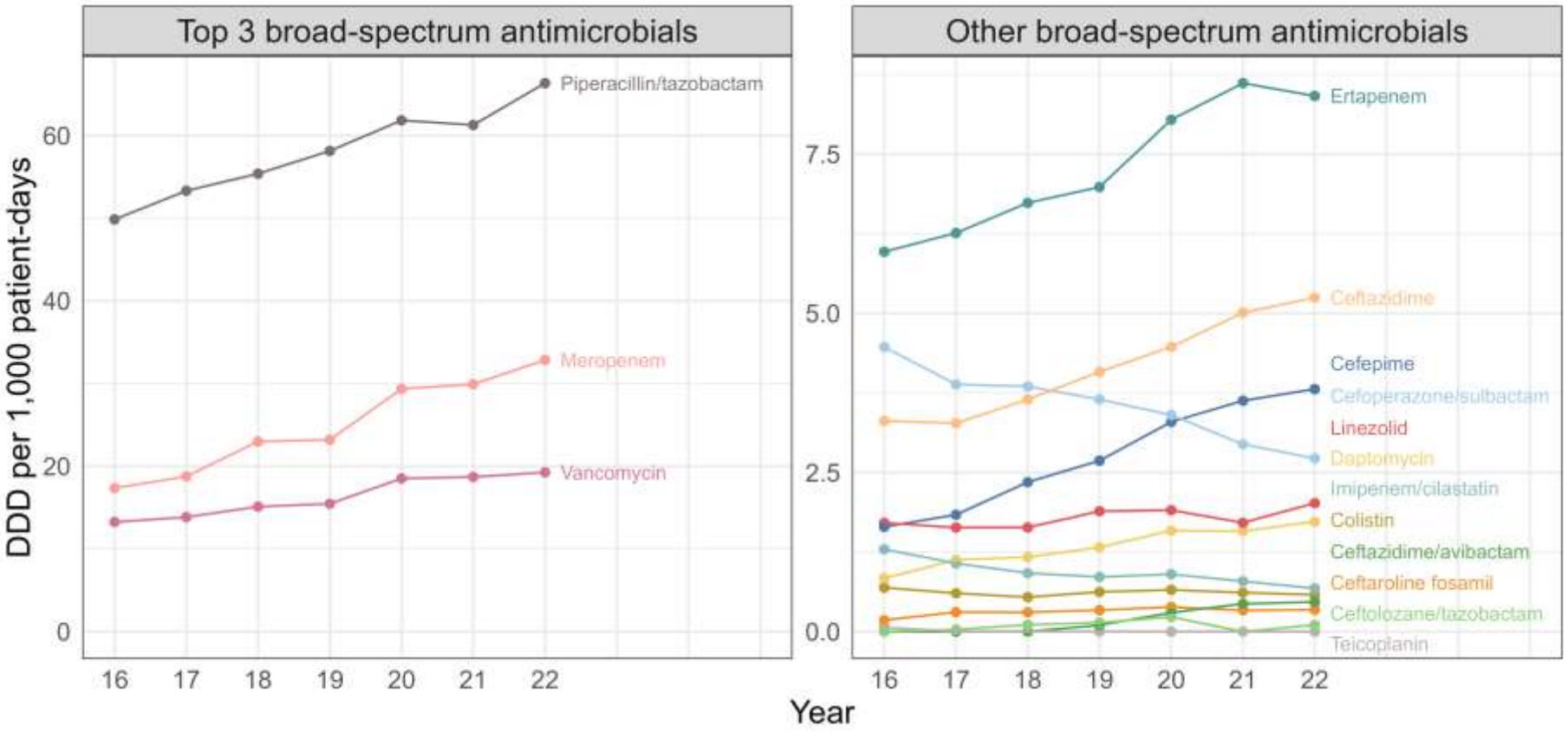
- In 2022, Beta-lactam antibacterials, penicillins continued to be the most dispensed antimicrobials in inpatient services.
- However, since 2020, three of the five most dispensed groups of antimicrobials have experienced a decrease in dispensing volume, including beta-lactam antibacterials (penicillins), quinolone antibacterials, and tetracyclines.
- In contrast, the dispensing volume of other beta-lactam antibacterials, a group that encompasses cephalosporins, monobactams, and carbapenems, has continued to increase since 2020.

Ten Most Dispensed Antimicrobials in Inpatient Service in 2022



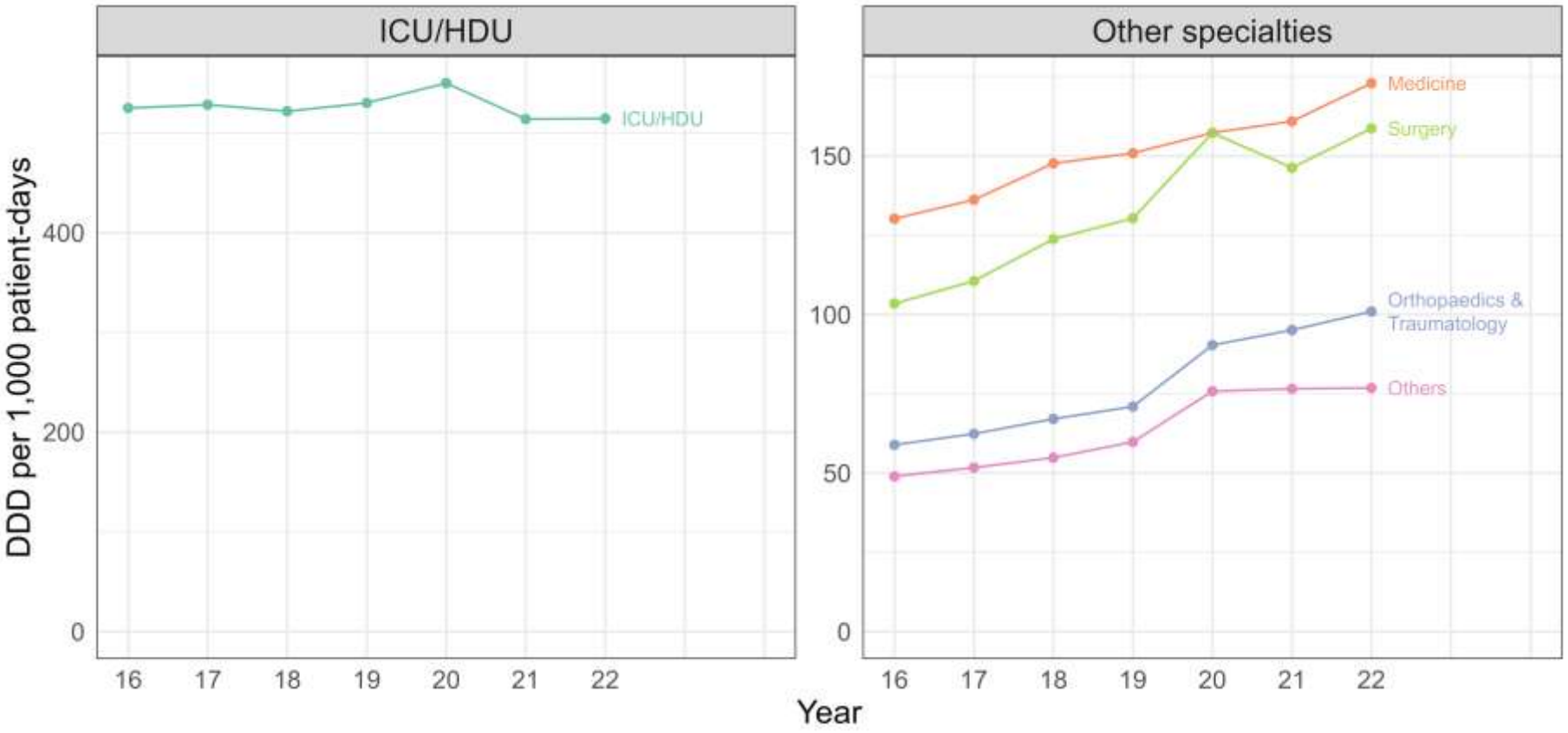
- In 2022, amoxicillin/clavulanate (Augmentin) maintained as the most dispensed antimicrobial in inpatient services.
- Among the ten most dispensed antimicrobials in inpatient services, three are considered broad-spectrum antimicrobials: piperacillin/tazobactam, meropenem, and vancomycin. All three of these antimicrobials experienced an increase in dispensing volume compared to 2021 figures.
- Furthermore, piperacillin/tazobactam surpassed doxycycline in 2022, becoming the second most commonly dispensed antimicrobial in inpatient services.
- On the other hand, four of the ten most dispensed antimicrobials witness a drop in dispensing volume, including amoxicillin/clavulanate, levofloxacin, cefuroxime and metronidazole.

Broad-spectrum Antimicrobials in Inpatient Service



- In 2022, the three most dispensed broad-spectrum antimicrobials continued to be piperacillin/tazobactam, meropenem, and vancomycin.
- The dispensing volume of these three broad-spectrum antimicrobials increased in 2022 compared to 2021.
- In contrast, the dispensing volume of ertapenem, another broad-spectrum antimicrobial, showed a decrease for the first time.

Broad-spectrum Antimicrobials in Inpatient Service by Specialty



- In 2022, ICU/HDU continued to be the specialty with the highest dispensing of broad-spectrum antimicrobials.
- Antimicrobial dispensing in ICU/HDU peaked in 2020 and plateaued in both 2021 and 2022.
- In contrast, the dispensing volume of antimicrobials in medicine, surgery, O&T, and other specialties continued to show an increase.

Summary and Recommendation

Summary on AMU surveillance

- Overall, the surveillance data showed a decrease in antimicrobial use in 2022 (in DDD) in Public Hospitals and clinics (Slide 4), interpret with caution is warranted due to reduced non-inpatient attendance, while inpatient attendance remained stable.
- While the overall antimicrobial dispensing volume in non-inpatient services remained stable (Slides 4), certain antimicrobials, such as doxycycline, co-trimoxazole, levofloxacin, azithromycin and rifaximin, experienced an increase in dispensing volume (slide 12).
- Despite the overall decrease in inpatient antimicrobial dispensing volume (Slides 4), certain antimicrobials experienced an increase in use. This includes meropenem, ceftriaxone, piperacillin/tazobactam, and vancomycin (Slide 16).
- In 2022, the dispensing volume of three broad-spectrum antimicrobials (piperacillin/tazobactam, meropenem, and vancomycin) increased compared to 2021, particularly in ICU/HDU, which remains the specialty with the highest dispensing volume but plateaued in 2021 and 2022. (Slides 17 & 18)
- Doxycycline dispensing volume decreased for the first time in 2022, despite a continued increase in non-inpatient services, warranting further investigation. (Slides 7 & 12)

Recommendation

- Continue monitoring antimicrobial usage in HA hospitals and clinics to assess the effectiveness of the Antibiotic Stewardship Program, with a focus on the increased dispensing of broad-spectrum antimicrobials in inpatient services.
- Investigate the discrepant trend of doxycycline dispensing in inpatient and non-inpatient settings, as the overall reduction in HA contrasts with the continued increase in non-inpatient services.
- As the city returns to normalcy, an increase in antimicrobial use in 2023 is anticipated. Close monitoring of antimicrobial usage is warranted to inform future stewardship efforts.