養和醫療
HKSH MEDICAL GROUP

The Effectiveness of an Automatically Generated Memorandum for Meropenem Prescriber as a Behavioral Intervention for Meropenem Overuse: a Pilot Study

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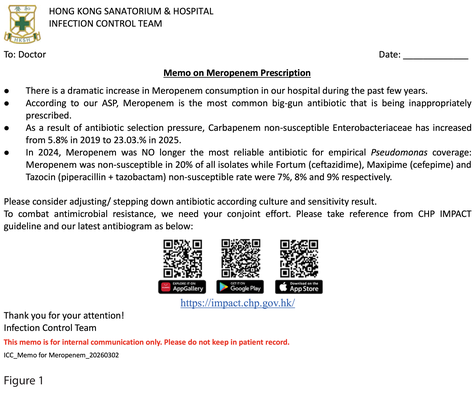
Background

The rise of multidrug-resistant organisms, especially carbapenem-resistant Enterobacterales (CRE), poses a significant public health threat in Hong Kong. [1]Addressing misconceptions about antimicrobial prescriptions and raising awareness of antimicrobial resistance (AMR) are central to the region's AMR Strategy. [2]Hong Kong Sanatorium and Hospital, a 600-bed facility, operates an antibiotic stewardship program (ASP) that includes 15 broad-spectrum antibiotics, with meropenem being the most misprescribed. To address this, an automatically generated memorandum was issued to prescribers starting in October 2024. We conducted a retrospective review of meropenem prescription trends.

Methods

Since October 2024, the Infection Control Team distributed bright yellow A5 memoranda to remind prescribers of meropenem misuse and offer alternative options, including a 2D barcode linking to local guidelines. (Figure 1)

The ASP continued its regular operations with immediate feedback. We aimed to reduce meropenem consumption (DDD) and inappropriate prescriptions, comparing rates before and after the memo using interrupted time series (ITS) analysis.



HONG KONG SANATORIUM & HOSPITAL
INFECTION CONTROL TEAM

To: Doctor

Date: _____

Memo on Meropenem Prescription

- There is a dramatic increase in Meropenem consumption in our hospital during the past few years.
- According to our ASP, Meropenem is the most common big-gun antibiotic that is being inappropriately prescribed.
- As a result of antibiotic selection pressure, Carbapenem non-susceptible Enterobacteriaceae has increased from 5.8% in 2019 to 23.03.% in 2025.
- In 2024, Meropenem was NO longer the most reliable antibiotic for empirical *Pseudomonas* coverage: Meropenem was non-susceptible in 20% of all isolates while Fortum (ceftazidime), Maxipime (cefepime) and Tazocin (piperacillin + tazobactam) non-susceptible rate were 7%, 8% and 9% respectively.

Please consider adjusting/ stepping down antibiotic according culture and sensitivity result.
To combat antimicrobial resistance, we need your conjoint effort. Please take reference from CHP IMPACT guideline and our latest antibiogram as below:

https://impact.chp.gov.hk/

Thank you for your attention!
Infection Control Team

This memo is for internal communication only. Please do not keep in patient record.

ICC_Memo for Meropenem_20260302

Figure 1

Results

Meropenem consumption started at 3.04 DDD per 100 Bed Days in 2019, peaking at 4.23 in 2020, stabilizing around 4.04 in 2021, and slightly decreasing to 4.03 in 2022. In 2023, it rose to 4.43, before dropping to 4.13 in 2024 and stabilizing at 4.28 in early 2025. (Figure 2)

In 2024, consumption began at 3.80 DDD in January. After the intervention, a mean decline of 0.53 DDD (95% CI, −1.273 to 0.217; P = 0.155) was observed, though not statistically significant. (Figure 3)

Before distributing the memo, inappropriate prescriptions peaked at 19.05% in May 2024; post-memo distribution, they stabilized, showing a monthly decrease of 3.24% (95% CI, −9.018 to 2.530; P = 0.255), indicating a consistent downward trend. (Figure 4)

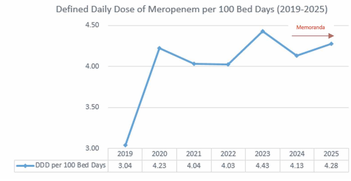


Figure 2

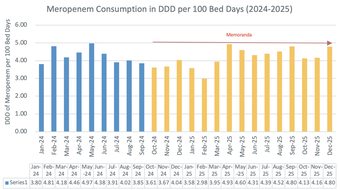


Figure 3

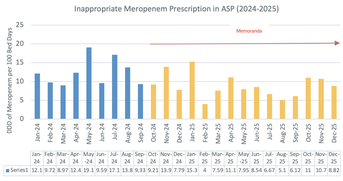


Figure 4

Conclusion

The intervention showed potential in achieving its objectives. However, limited sample size and short follow-up necessitate further monitoring to confirm long-term effectiveness.

Reference

[1] Reducing bacterial resistance with IMPACT sixth Edition https://impact.chp.gov.hk/chapters.php (Accessed Feb 2026)
[2] https://www.chp.gov.hk/files/pdf/amr_action_plan_eng_2023.pdf (Accessed Feb 2026)