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Difference in Carbapenem Use by ASP Intervention in Japanese Healthcare Facilities

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Introduction

- ASP interventions have been reported to reduce unnecessary AMU.
- There are multiple ASP interventions.
- We aimed to investigate **the most effective category to reduce the use of carbapenems (DOT)** in J-SIPHE healthcare facilities.

Material

- **Data collection from J-SIPHE**
  - Study period: January to December 2019
  - AMU data : DOT / 100 patient days
  - ASP interventions are divided into four categories
    1) pre-authorization
    2) PAF
    3) PAF and RN
    4) RN

Methods

- All facilities were classified into four categories based on their implemented ASP interventions. **DOT / 100 patient days of carbapenem** were compared **among four categories**.
- **Statistical analysis**
  - The Kruskal-Wallis test is performed to see overall difference.
  - The Dunn test is done for each pair of categories.

Results

Table 1. Summary statistics of healthcare facilities by ASP Interventions (n=114)

	Total	ASP Intervention			
		1) pre-authorization	2) PAF	3) PAF and RN	4) RN
Number of data	1022	36 (3.5 %)	4 (0.4 %)	639 (62.5 %)	343 (33.6 %)
Number of beds	430 [281-602]	515 [183-604]	450 [261-639]	440 [300-651]	347 [261-468]
Total number of inpatients per month	10087 [6247-14536]	12970 [4235-14848]	10881 [7302-14475]	11376 [6160-16692]	8070 [6362-11921]
DOT (DOTs /100 patient - days)	2.1 [1.2-3.1]	0.7 [0.2-1.1]	2.7 [2.1-3.4]	2.1 [1.4-3.1]	2.0 [1.2-3.5]

Median and IQR are presented.

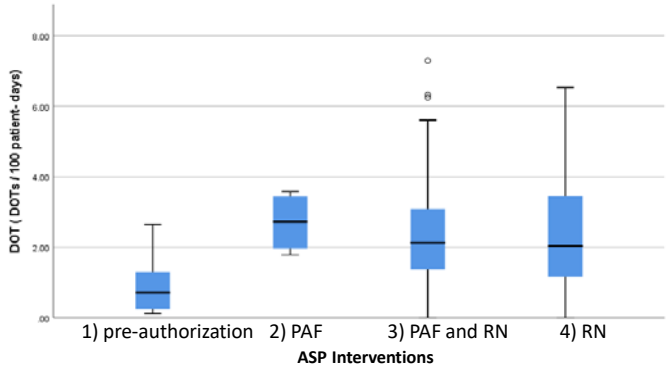


Figure 1. DOT by ASP Interventions

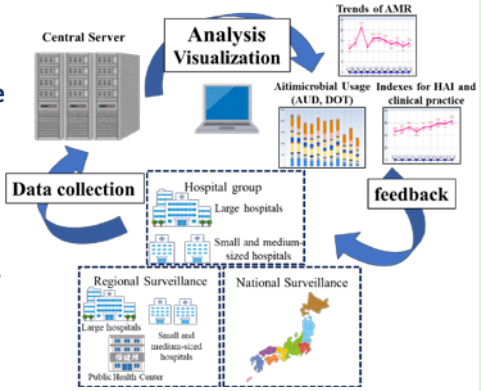
- **Summary statistics of healthcare facilities (Table 1.)**
  - A total of 114 hospitals were included in the analysis.
  - The median average hospital stay was 13.0 days [IQR: 11.4-15.2].
- **DOT by ASP Interventions (Figure 1.)**
  - **The median DOTs are significantly different between 1) and 2), 1) and 3), and 1) and 4) (p=0.014, p<0.01 and p<0.01, respectively)** while the differences between 2) and 3), 2) and 4), and 3) and 4) are not significant (p = 1.00).

Discussion

- When comparing 1)pre-authorization systems and 3)PAF and RN, 3)PAF and RN has been reported to have more of an impact on decreasing antibiotic DOTs[1)].
- Previous reports by Japanese acute care hospitals have shown a decrease in the use of carbapenems due to 3) PAF and RN interventions[2,3)].
- The variances of DOT were especially large in the categories of 3) PAF and RN and 4) RN, and **analysis may need to include details of the timing of PAF interventions and hospital characteristics** in order to accurately assess their effectiveness.

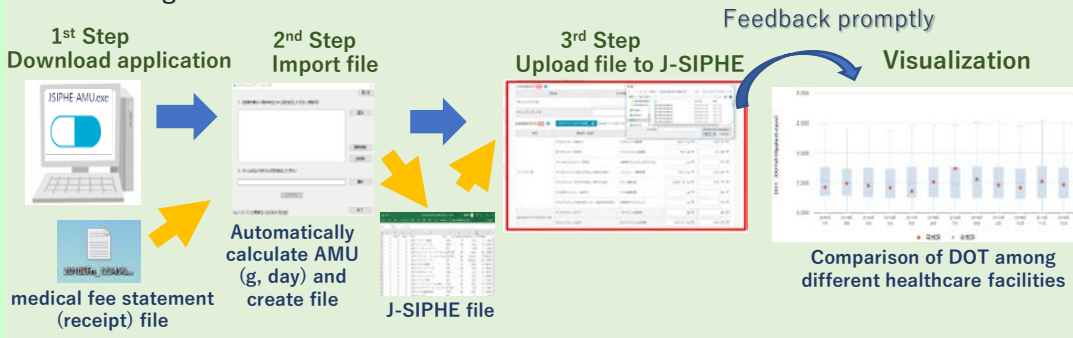
What is J-SIPHE?

- ✓ **Japan Surveillance for Infection Prevention and Healthcare Epidemiology**
  - **A national surveillance platform** developed by the AMR Clinical Reference Center **for healthcare facilities' AMR measures.**
- ✓ **Major components of J-SIPHE**
  1. Quality indicators for ID management and ASP
  2. AMU
  3. Quality indicators for infection control practices
  4. HAI
  5. Microbiology, including drug-resistant bacteria
- ✓ **Application automatically calculates AMU**
  - Flow from **medical fee statement** to visualization



https://j-siphe.ncgm.go.jp/en

How to register AMU data in J-SIPHE



Abbreviation

AMU : antimicrobial use, ASP : Antimicrobial stewardship program, AUD : antimicrobial use density, DOT : Days of Therapy, HAI : Healthcare-associated infections, ID : infectious disease, J-SIPHE : Japan Surveillance for Infection Prevention and Healthcare Epidemiology, PAF : prospective audit and feedback, RN : required notification

References

1) Tamma PD, et al. Clin Infect Dis 2017; 64:537–43.
2) Akazawa T, et al. Open Forum Infect Dis 2019; 6;5:ofz389.
3) Honda H, et al. Open Forum Infect Dis 2018;22;5:ofy314.

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