

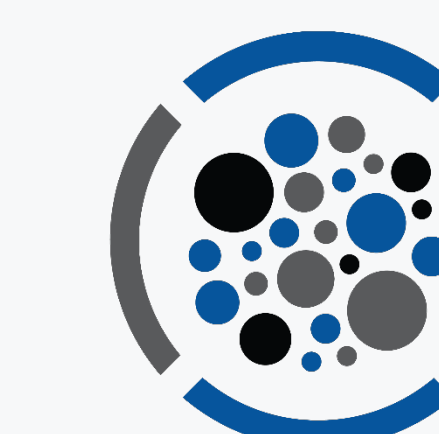
# Effect of Loosening Overnight Restrictions on Antimicrobial Starts



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## Background

- Some institutions allow administration of restricted antibiotics overnight until evaluation the following day (i.e. “first dose free”) to adapt to limitations in personnel resources.
- If this method results in a higher number of overnight antimicrobial starts compared to strict 24/7 preauthorization has not been fully described.

## Methods

- Duke University Hospital (DUH) implemented a process change from strict preauthorization to allow initiation of two restricted agents (meropenem and micafungin) between the hours of 11pm to 7am.

## Analysis:

- interrupted time series (ITS)** with linear regression to estimate the phase shift and change in trend for new meropenem and micafungin orders\* per week before and after the process change.
- Gaussian distribution fit** to the number of orders per hour of day to estimate the percent of orders initiated overnight (11p-7a) and during day/evening hours (7a-11p) before and after the process change.

## Results

- 1728 new meropenem and micafungin starts over 61 week period
- Increase in trend after process change, sensitivity analysis removing a single outlier week eliminated significance of the trend change.
- The percent of total orders between 11am to 7pm increased from 13.3% to 17.2%

Fig 1.

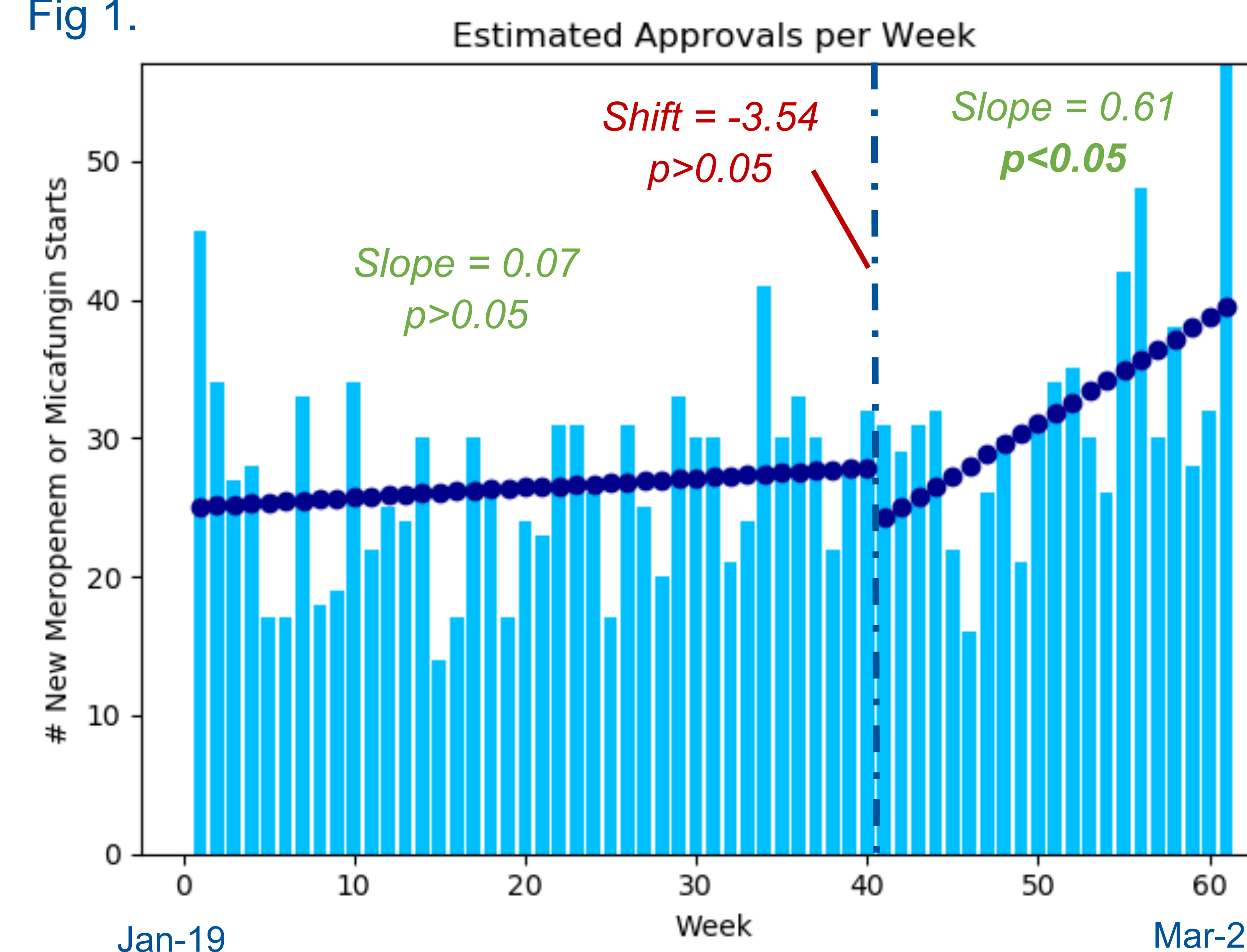
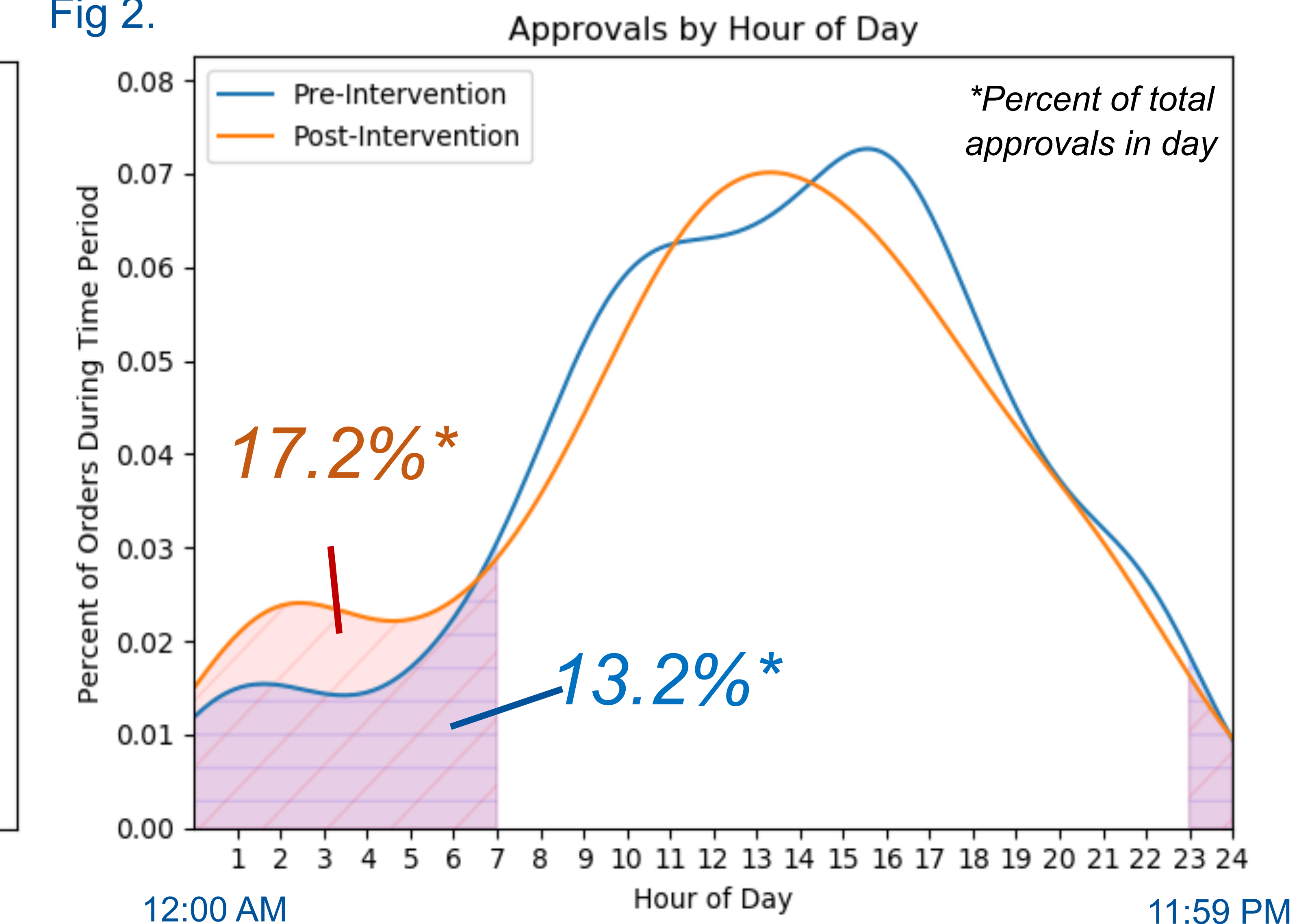


Fig 2.



## Conclusions

- No significant immediate change in overnight prescribing of meropenem and micafungin, however an increasing trend in number of orders appeared after relaxing overnight restriction requirements.
- High week to week variability limited evaluation and COVID-19 limited study period
- No “stealth dosing” occurred where providers wait to enter restricted antibiotic orders until evening hours.
- We observed a small increase in starts in early morning hours (1am-5am), however preauthorization approaches must adapt to personnel resources and quality of life for antimicrobial stewards.

