

# Maternal Group B Streptococcus colonisation: risk factors, serotypes and antibiotic susceptibility profiles

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## BACKGROUND

- High rates of neonatal infection with Group B Streptococcus (GBS) are reported globally, and maternal vaginorectal GBS colonisation is a preceding risk factor.
- However, there are limited data from low- and middle-income countries to inform strategies to reduce colonisation and neonatal infection.
- Previous study in Jakarta has reported high prevalence of serotype II, III, Ia and IV among pregnant women but there has no further surveillance of GBS colonisation among pregnant women in Indonesia

## METHODS

- We conducted a prospective cohort study in a tertiary referral hospital in Jakarta, Indonesia between March 2024 to December 2024.
- Maternal characteristics collected during enrolment were maternal age, maternal education, maternal employment, household income and population, sanitation, handwashing habit, bathing practice, allergic and comorbidity, smoking, gravida and parity.
- Streptococcus agalactiae* (GBS) was isolated from vaginorectal swabs with LIM Broth and selective GBS agar media followed by CAMP test and Latex agglutination for identification, serotyping was done by multiplex PCR
- Antimicrobial susceptibility testing was done by broth microdilution. Interpretation of MIC value was done by CLSI 35<sup>th</sup> Edition breakpoints. isolates with resistant to  $\geq 3$  antibiotic classes were defined as multidrug resistant (MDR)

## RESULTS

- 47 GBS were isolated from 178 enrolled pregnant women (26.4%) with maternal age ( $p = 0.006$ ), household population ( $p=0.021$ ) and allergic diseases or comorbidity as significant risk factor of GBS colonization ( $p= 0.007$ )
- Among 47 isolates, serotype II is predominant serotypes (23%), followed by serotype III and V (21%, each) and serotype Ia (19%). Other serotypes were found less than 10%: serotype Ib (6%), VI (4%), VII and VIII (2% each) (Figure 1).
- All isolates were still susceptible to vancomycin, daptomycin and cefotaxime.
- Non-susceptibility was most commonly observed for tetracycline (83%, 39/47), followed by clindamycin (17%, 8/47), macrolide (11%, 5/47) and penicillin (6%, 3/47) (Figure 2A)
- We found serotype III (6%, 3/47) as predominant multidrug-resistant strain, followed by serotype Ib, and serotype V (2%, 1/47, each) (Figure 2B).
- Serotype III was found as predominant serotype of clindamycin resistant (Figure 2C)

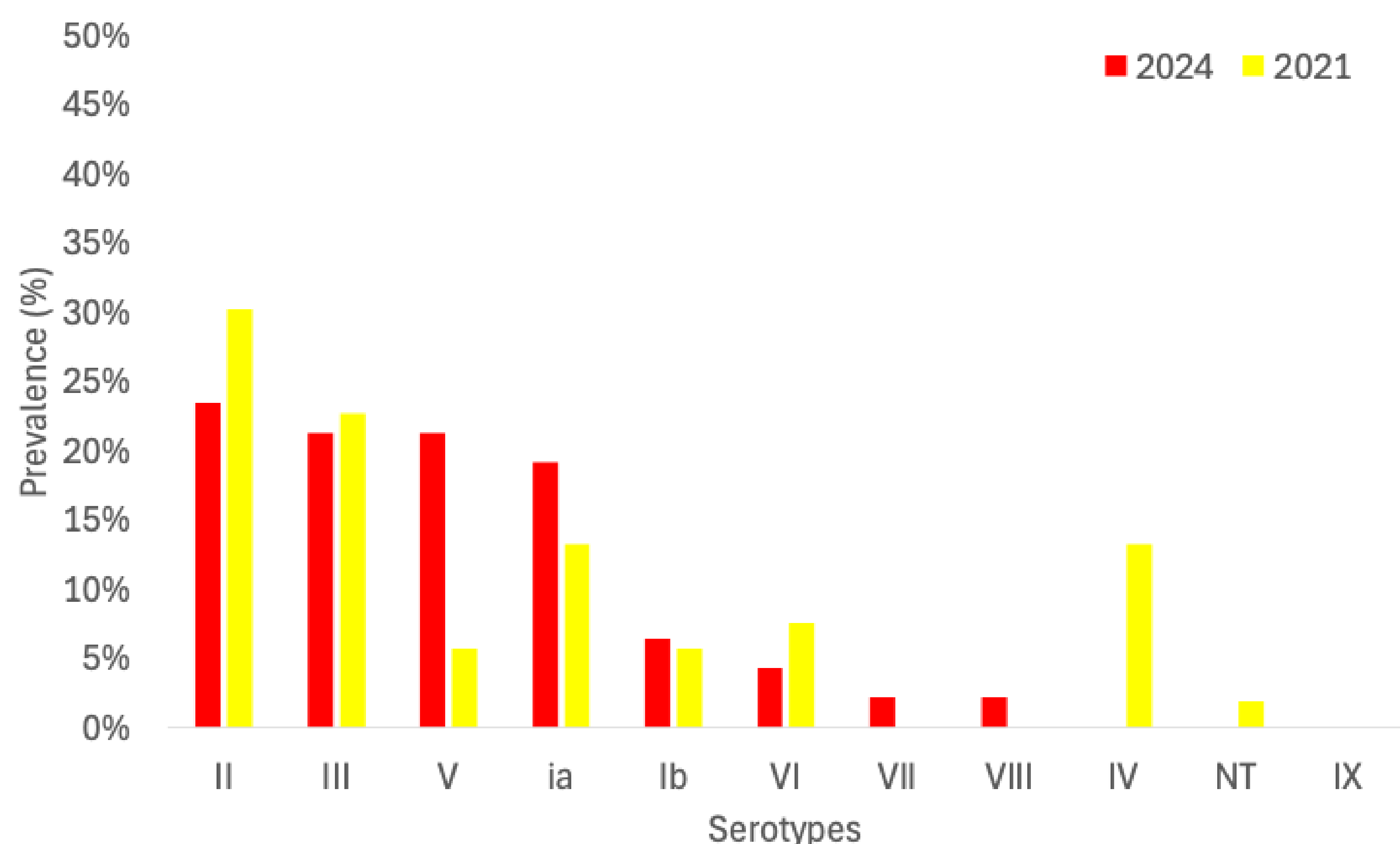
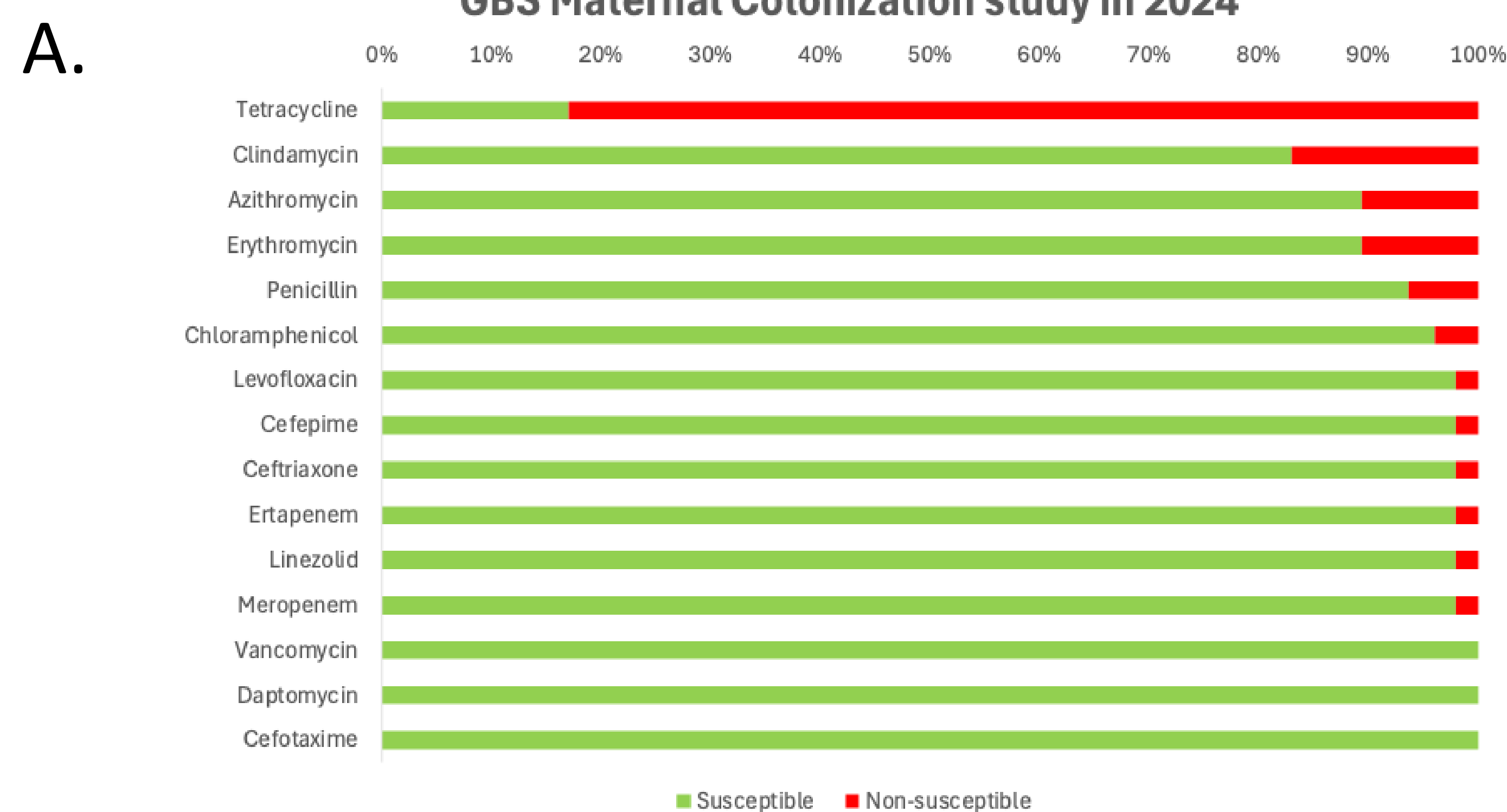
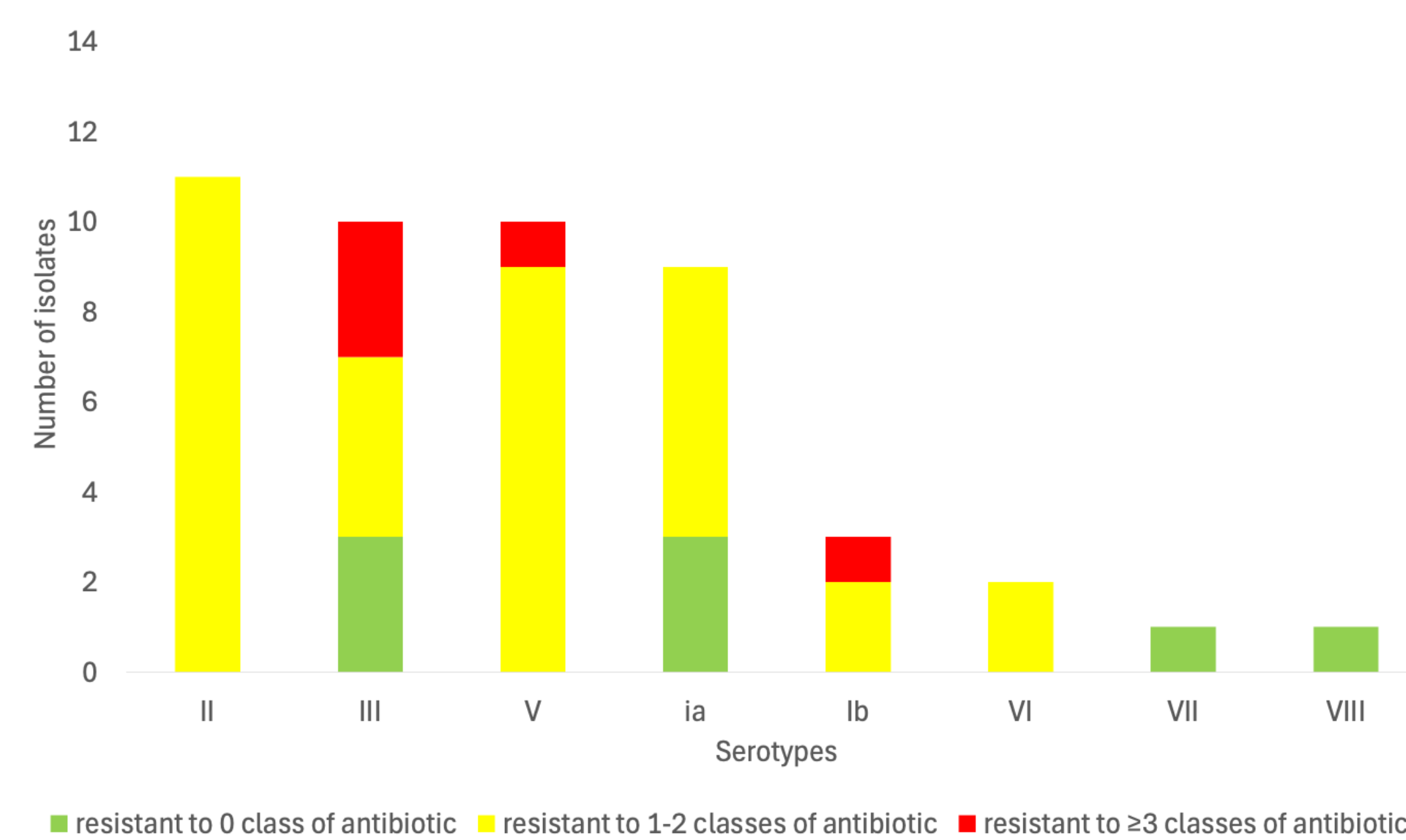


Figure 1. Comparison of serotype distribution of GBS colonising pregnant women between study in 2024 and 2021

## GBS Maternal Colonization study in 2024



## B.



## C.

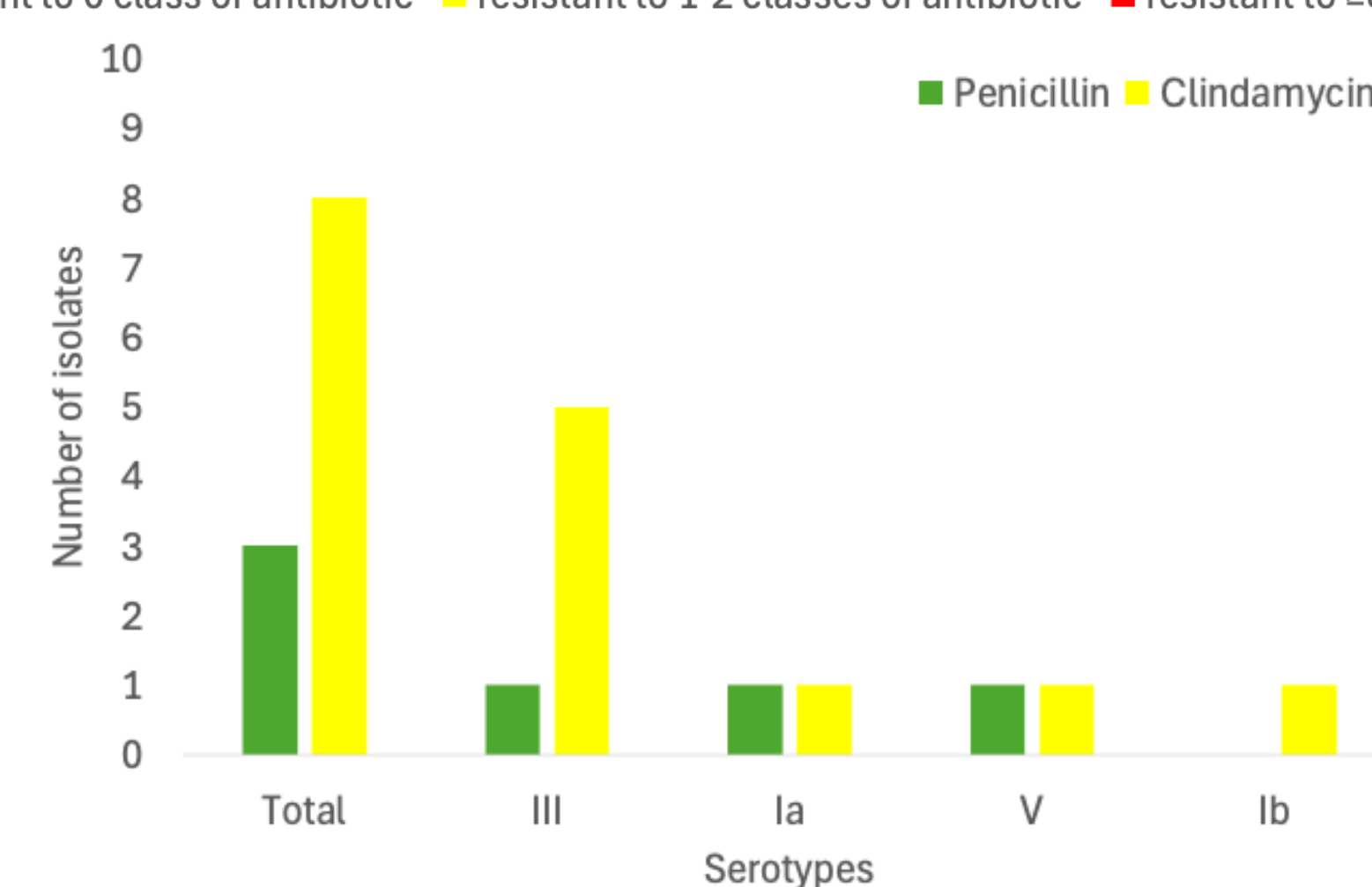


Figure 2. Antimicrobial Resistance Profile of GBS Isolates among pregnant women in Jakarta, Indonesia.

## STUDY COMPARISON

- Comparison of serotype distribution between GBS colonization study conducted in 2021 and 2024 showed increasing prevalence of serotype V with serotype II and III are still predominant serotypes.
- Serotype VII and serotype VIII are found in 2024 and not reported in 2021.
- Penicillin non-susceptible isolates were detected in 2024 and not reported in 2021. I'm sure that will be a query that arises!
- MDR strain was predominantly found in serotype III consistent with our findings in 2021. This study found that serotype II and V at least resistant to 1-2 classes of antibiotics.

## CONCLUSION

- Colonisation rate of GBS among pregnant women in Jakarta, Indonesia is 26.4% with prevalence of serotype previously reported in invasive cases among neonates is 91%.
- Penicillin and clindamycin non-susceptible are observed among GBS colonising pregnant women in Jakarta that includes serotype III, Ia, V and Ib which are reported causing invasive diseases in neonates. This finding would consider precision prophylaxis antibiotic therapy to reduce risk of neonatal infection.

## ACKNOWLEDGEMENT

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### References:

- Safari D, Gultom SM, Tafroji W, Azzahidah A, Soesanti F, Khoeri MM, et al. Prevalence, serotype and antibiotic susceptibility of Group B Streptococcus isolated from pregnant women in Jakarta, Indonesia. PLoS One. 2021;16(5):e0252328.