

Dynamics of STIs during and after the COVID-19 pandemic in PrEP-cohort at the University Medical Center Hamburg-Eppendorf (UKE)

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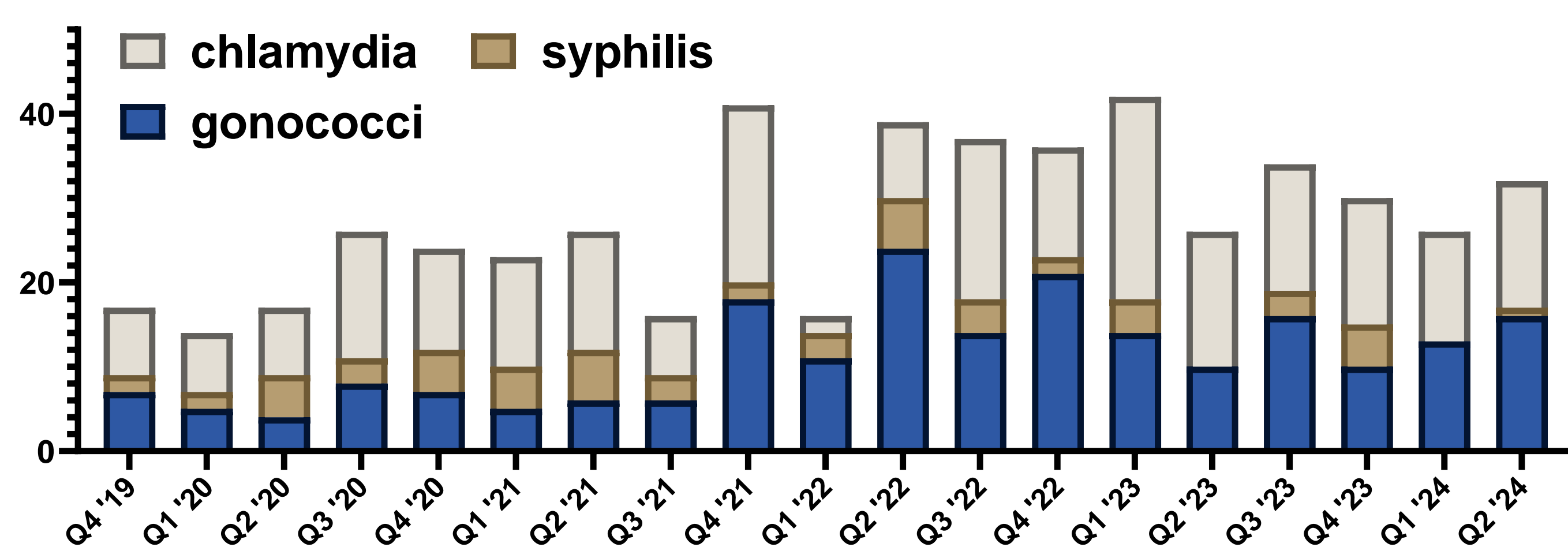
Background:

Pre-exposure prophylaxis (PrEP) for HIV prevention is highly effective in reducing the risk of HIV infection in high-risk populations. Besides HIV prevention, regular screening for other **sexually transmitted infections (STIs)** remains critical due to potential shifts in sexual behavior and STI epidemiology. The **COVID-19 pandemic** has significantly impacted social interactions and may have altered sexual behavior, potentially influencing the transmission patterns of non-HIV STIs. This study aims to assess the changes in **diagnoses and positivity rates** for **gonorrhea, syphilis, and chlamydia** among PrEP users at the University Medical Center Hamburg-Eppendorf (UKE) during and after the pandemic.

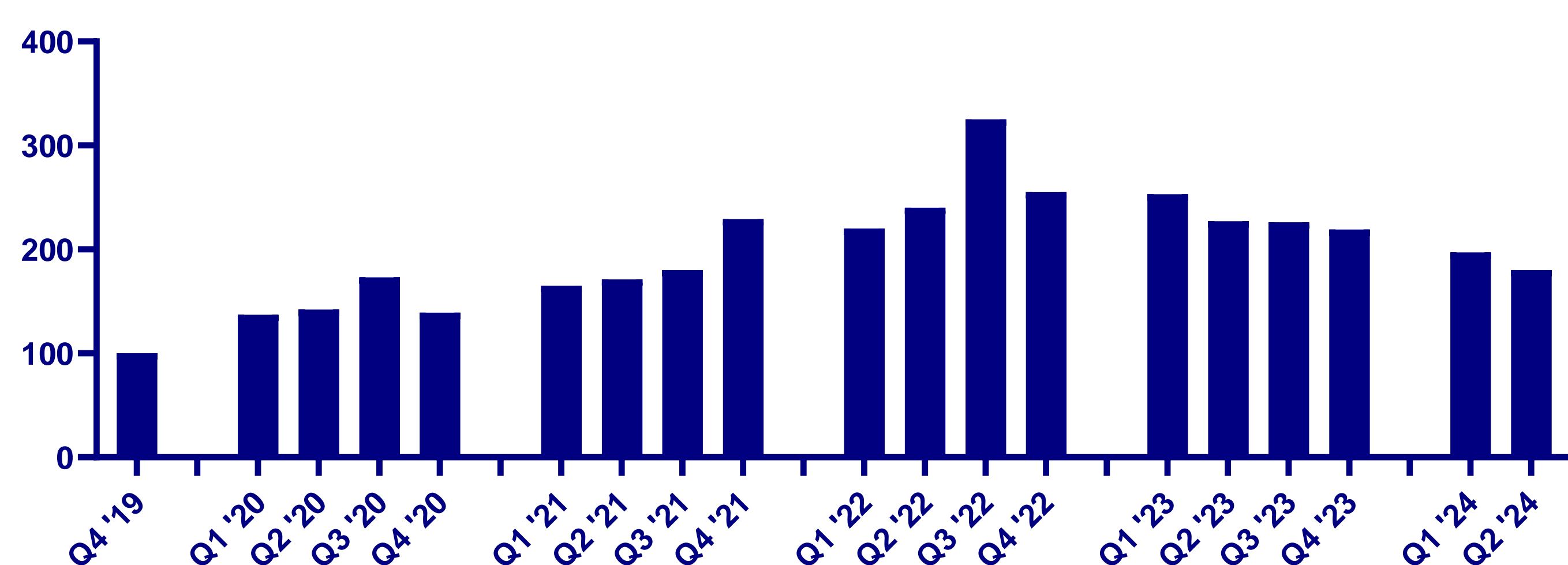
Methods:

At the Outpatient center for Infectious Diseases at the University Medical Center Hamburg-Eppendorf (UKE), we have been following a **PrEP cohort** since **October 2020** as part of an ongoing prospective observational study. We use recurring **online questionnaires (RedCap®)**, **standard blood tests and STI tests**. We analyzed the data collected in the period from Q1 2020 to Q4 2023. **Positivity rates** were calculated for each quarter **during and after the pandemic** using RedCap® and Excel®. We used AI tools (DeepL®, ChatGPT®) for translation and text editing. Standard descriptive statistic methods were employed.

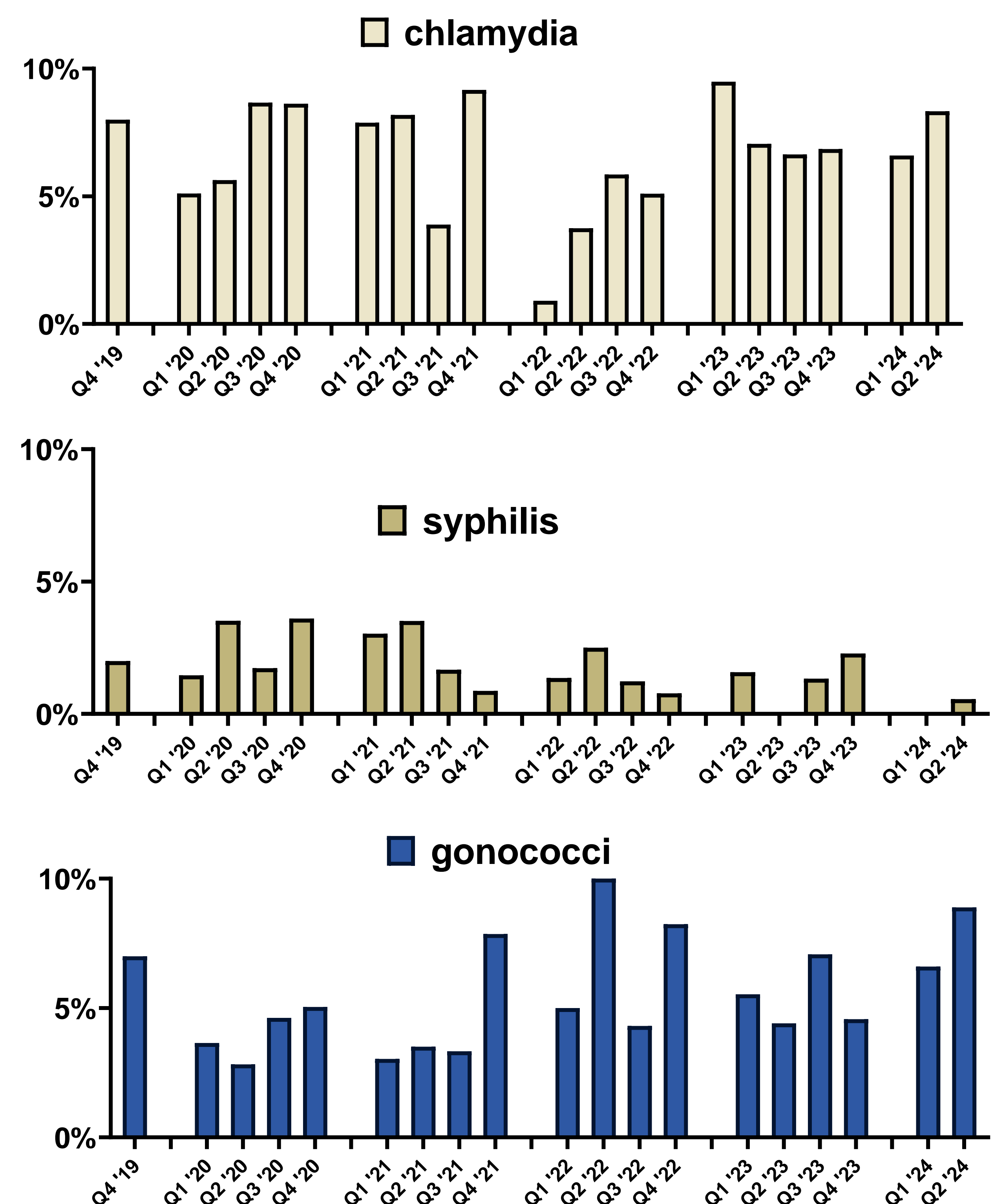
Total number of STI diagnoses



Total Number of Tests Over Time (n=3778)



STI Positivity Rate (%) Relative to Testing Volume



Results:

- Analysis of **3778 tests** from 701 individuals revealed **522 positive diagnoses** overall
- Diagnoses included **215 gonococcal**, **61 syphilis** and **246 chlamydia** infections
- **Stable positivity rates** for chlamydia and syphilis, and **low gonococci rates** during lockdowns (Q2 '20 – Q1 '21), followed by an **increase in gonococci** starting in Q4 '21 and remaining elevated in 2022 ($p=0.08$)
- Comparing Covid- and Non-Covid periods showed **higher chlamydia positivity rates during 2022** (vs. 2021; $p=0.172$), while **gonococci rates were elevated 2022** (vs. 2021; $p=0.174$); **syphilis** positivity stayed consistently low with a **slight decline** after Q2 '22 ($p=0.16$)
- **Stabilization from Q3 '22 through Q4 '23**, with chlamydia and gonococci at a **higher baseline positivity rate** (Gonococci: 95%-CI=4.71–7.69; Chlamydia: 95%-CI=5.84–8.14); syphilis remained unchanged

Conclusions:

- The **increase in gonococcal positivity rates** in Q4 2021 likely reflects **catch-up effects** following eased restrictions, while **chlamydia rates remained stable** during lockdowns
- **Syphilis's consistently low rates** indicate distinct transmission dynamics with no significant rebound observed within the cohort
- The **divergent trends** in gonococcal, chlamydial, and syphilis positivity rates underscore the need for **dynamic prevention strategies** tailored to each STI's unique transmission pattern