



# The Impact of the COVID-19 Pandemic on the Notification of Sexually Transmitted Infections in Ireland



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## 1. Introduction

- The COVID-19 pandemic has served as a global experiment on the impact of large-scale public health responses on the health landscape. One key aspect has been its impact on other diseases with previous studies highlighting a significant decrease in the notifications of respiratory and gastrointestinal illnesses [1, 2].
- STIs provide a unique case study in this context. Alongside the impact of pandemic associated behavioural change, service disruption may be important. Interventions such as sexual health clinics, screening, and contact tracing affect the rate of disease transmission and serve as key reporting mechanisms [3].
- Previous analyses have provided mixed results, with some demonstrating a decrease, while others have seen no change or even increases [5-7].

## 2. Objective

To identify and quantify the impact of the COVID-19 pandemic on three of the most common bacterial STIs in Ireland: chlamydia, gonorrhoea, and early infectious syphilis (EIS).

## 3. Methods

- Cases of chlamydia, gonorrhoea, and EIS aged  $\geq 15$  years, occurring between Jan. 2017 and Sep. 2022, were extracted from the Computerised Infectious Disease Reporting database.
- Interrupted time series using negative binomial regressions were fit to monthly counts of each disease, with included terms for sex, step changes, and continuous change post-lockdown.
- Model fit was evaluated using Akaike Information Criterion.
- Counterfactual models for scenarios without COVID-19 were fitted against each final model.
- All analysis was undertaken in R v4.2.1.

## 5. Discussion

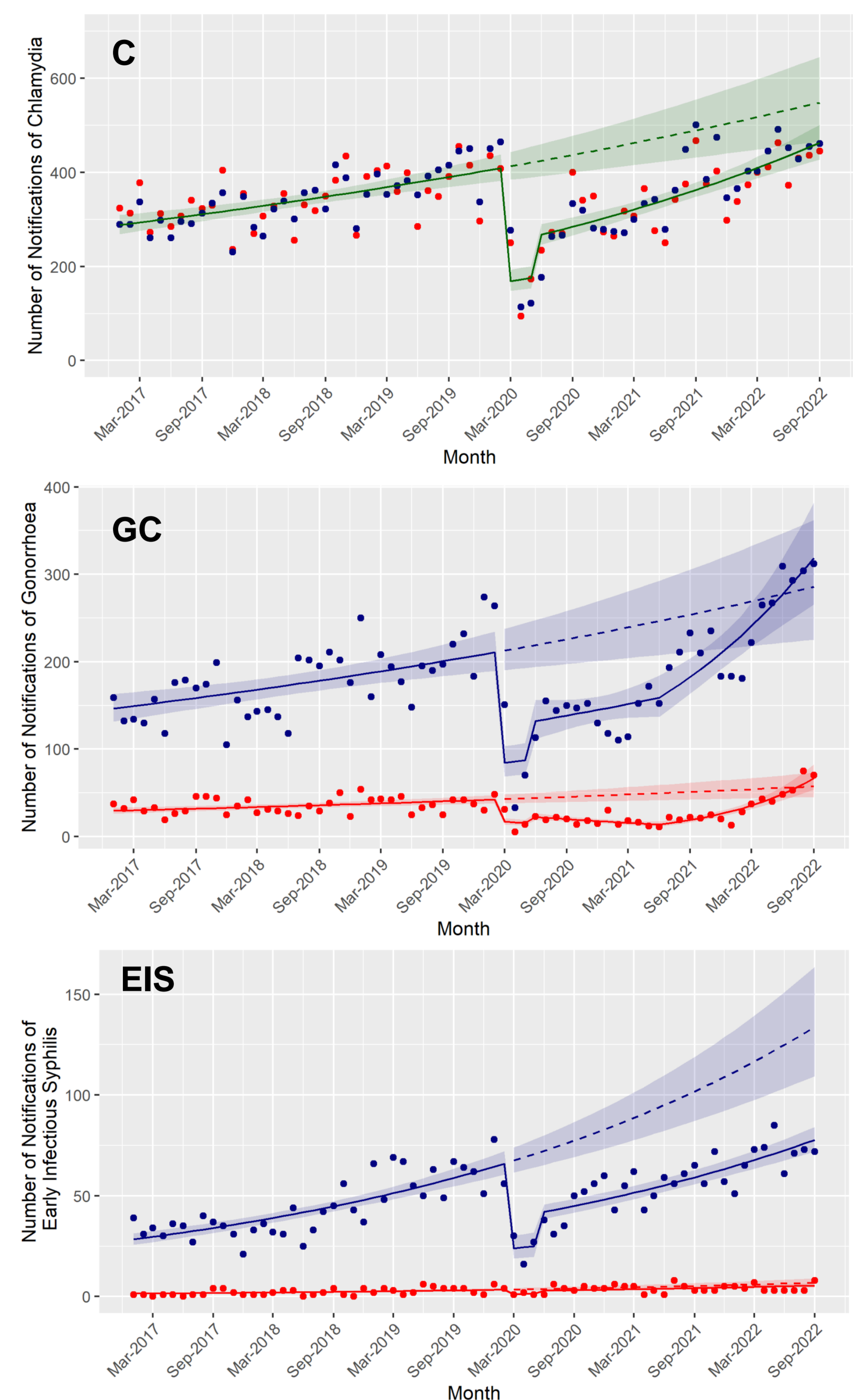
- The rapid decrease in notifications during the initial lockdown in March 2020 followed the stringency of lockdown and the suspension of sexual health services.
- The corresponding recovery in June 2020 followed a lifting of restrictions and the resumption of some sexual health services.
- EIS recovered at a proportionally higher level in June 2020 signifying the potential for stronger influence of access to care. However, notifications remained suppressed, indicating a possible long-term impact from the pandemic or an increased awareness due to the HPSC EIS outbreak response [8].
- The rising rates of gonorrhoea may reflect global trends observed, as gonorrhoea notifications have risen globally, especially in young people [9].
- As the data are for notifications and not true incidence, this analysis only represents a snapshot of the true patterns of infection.
- Further analysis is needed to identify the underlying mechanisms which contributed to the pattern observed.

## 6. Conclusions

- The COVID-19 pandemic had a significant impact on notifications of chlamydia, gonorrhoea, and EIS, with an immediate suppression of cases in March 2020.
- However, recovery, and subsequent trajectory, differed across diseases.
- The long-term suppression of EIS notifications may indicate a sustained impact of the pandemic, or outbreak response, on notifications.
- This analysis helps planning for future public health emergencies, indicating that essential sexual health services need to be protected wherever possible.

References available upon request

## 4. Time Series Analysis



**Fig. 1 Time Series Analysis of Selected STIs.** In each figure, red represents females and blue represents males, while solid lines represent the fitted model and dashed lines represent the counterfactual (both with 95% CIs). **C** is chlamydia (note models are in green as sex did not play a role), **GC** is gonorrhoea, and **EIS** is EIS.

- Reported infections dropped significantly in March 2020 compared to pre-pandemic period: 60% (CI 56% - 63%) for chlamydia, 60% (CI 55% - 65%) for gonorrhoea, and 65% (CI 60% - 69%) for EIS
- A smaller recovery followed in June 2020: 20% (CI 15% - 25%) for chlamydia, 20% (CI 12% - 29%) for gonorrhoea, and 44% (CI 30% - 59%) for EIS.
- Notifications for chlamydia were similar across sexes.
- An additional 15% (CI 13% - 17%) increase in gonorrhoea cases was observed month on month after June 2021, however, no similar pattern was observed for chlamydia or EIS.
- The subsequent trajectory of notifications varied across pathogens:
  - Chlamydia and gonorrhoea returned to levels predicted in the absence of the pandemic by March 2022.
  - EIS notifications remained substantially below the predicted trajectory.