

BACKGROUND

- Sexually transmitted infections (STIs) remain a serious public health concern. Undiagnosed STIs can lead to infertility, prolonged symptomatic infections, and progression of HIV to AIDS. Improving STI diagnosis and treatment remains imperative to minimize the complications of STIs and reduce ongoing transmission and community spread.
- During the 2014-2018 period, 1.8 million cases of Chlamydia (CT), up 19% compared to 2015, were reported in the United States (US). 616,392 cases of Gonorrhea (GC) and 129,813 cases of Syphilis were also reported: an increase of 56% and 74%, respectively, from 2015¹.
- From March-April 2020, while reported STI cases dropped to 71% (GC), 50% (CT), and 64% (syphilis) of their 2019 levels for the same months, by December 2020 a resurgence was noted that had begun in the summer months and GC, CT, and syphilis were at 135%, 101%, and 151% of their 2019 levels, respectively². STIs have continued to increase in the US similarly to before the pandemic's onset.
- Prior analyses in the US have demonstrated delayed diagnoses of Syphilis, HIV, and other STIs in primary care, emergency department (ED), urgent care (UC), and rural and urban environments along with missed opportunities for testing³⁻⁵.
- STIs have continued to increase in the US similarly to before the pandemic's onset. Recent STI data from 2021 indicate a continued increase in STIs. Rates of syphilis have continued to rise (up 52% from 2016) and congenital syphilis rates have also increased (up 235% from 2016)⁶.
- While the state of Utah has historically reported a low incidence of primary and secondary syphilis (4.1 per 100,000 in 2020), it has seen an increase in new cases of primary and secondary syphilis by 925% since 2005⁷.
- As part of a multi-modal QI initiative to improve STI testing, diagnosis, and treatment, we characterized positive treponemal and non-treponemal syphilis tests performed across our healthcare system.

METHODS

- Intermountain Healthcare (IH) is a large integrated healthcare delivery system with 23 emergency departments (ED), 34 urgent care (UC) clinics, and >100 primary care (PC) clinics.
- Organizational protocol favors treponemal testing as the initial screening test.
- All positive treponemal or non-treponemal syphilis test results within IH were routed to an electronic inbox within the electronic health record (EHR) and reviewed by a team of Infectious Disease (ID) clinicians from May 1st 2021 – January 31st, 2022.
- Results originating from ID clinicians or HIV-trained primary care clinician orders were excluded.
- Tests associated with ambulatory encounters were reviewed via the EHR. Corresponding cases were evaluated for appropriate staging and treatment plans based on CDC guidelines⁸.
- Additionally, each case was also evaluated for appropriate follow-up and pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), or HIV treatment eligibility.

TABLE 1: Cases of positive Syphilis testing reviewed were assessed for potential opportunities for improved care via Infectious Diseases physician input/involvement.

Cases Benefiting from ID Physician Input or Review	
Scenario	Cases
Appropriately staged and treatment initiated but no long-term provider to complete therapy and follow-up response prior to ID Physician engagement	20 (15.4%)
Inappropriately staged and received inadequate therapy prior to ID Physician review	14 (10.8%)
Staged and appropriately treated by a primary provider following input by an ID Physician	11 (8.5%)
Appropriately staged and treated but could also benefit from PrEP, PEP, or HIV care on ID physician review	9 (6.9%)

RESULTS

- 130 unique encounters associated with any positive syphilis test were reviewed.
- Patients age 30-44 years old were most likely to have a positive test (Figure 1).
- Most positive tests originated from primary care (Figure 2).
- 38 (29.2%) positive tests required additional testing and evaluation beyond chart review to determine staging (Figure 3)
- 112 (86.2%) positive tests were from white patients consistent with overall racial demographics of Utah.
- 54 (41.5%) unique cases were also identified where ID involvement could potentially aid in clarifying staging, treatment plans, or also lead to PrEP/PEP consideration or HIV treatment evaluation (Table 1).

Figure 1: Positive syphilis tests by patient age.

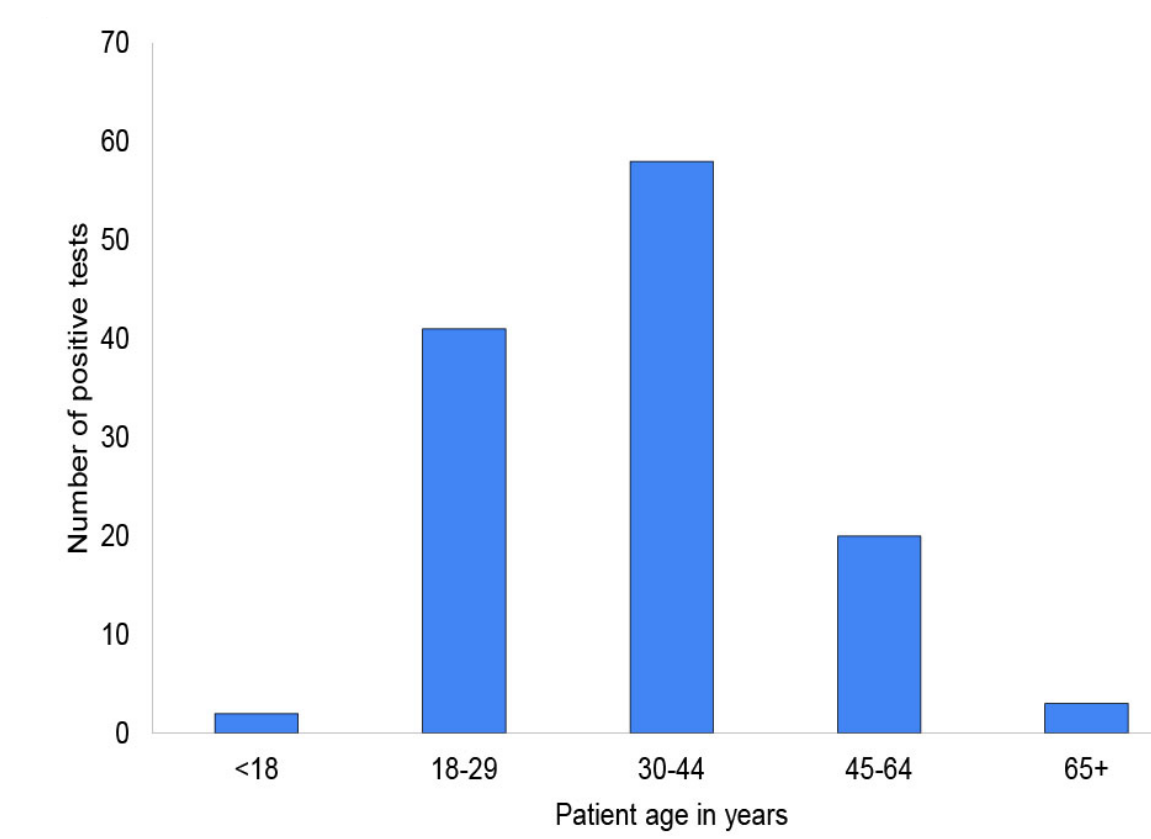


Figure 2: Positive syphilis tests by clinical setting.

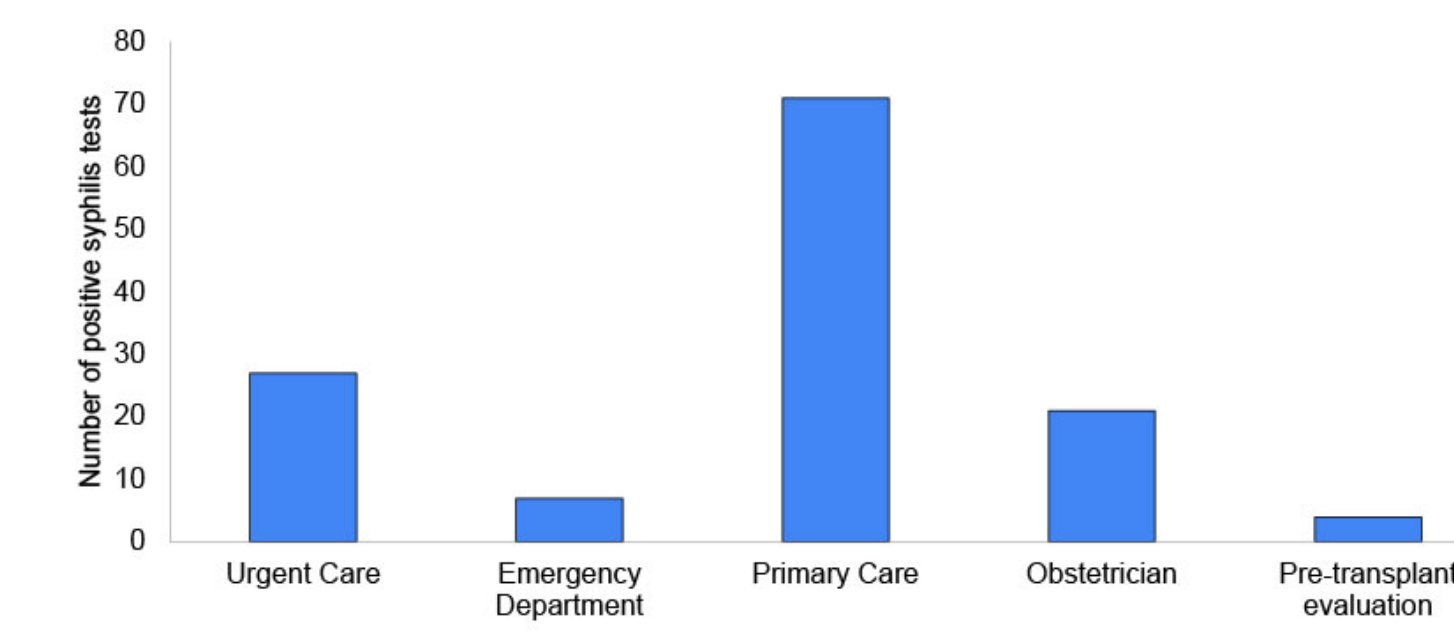
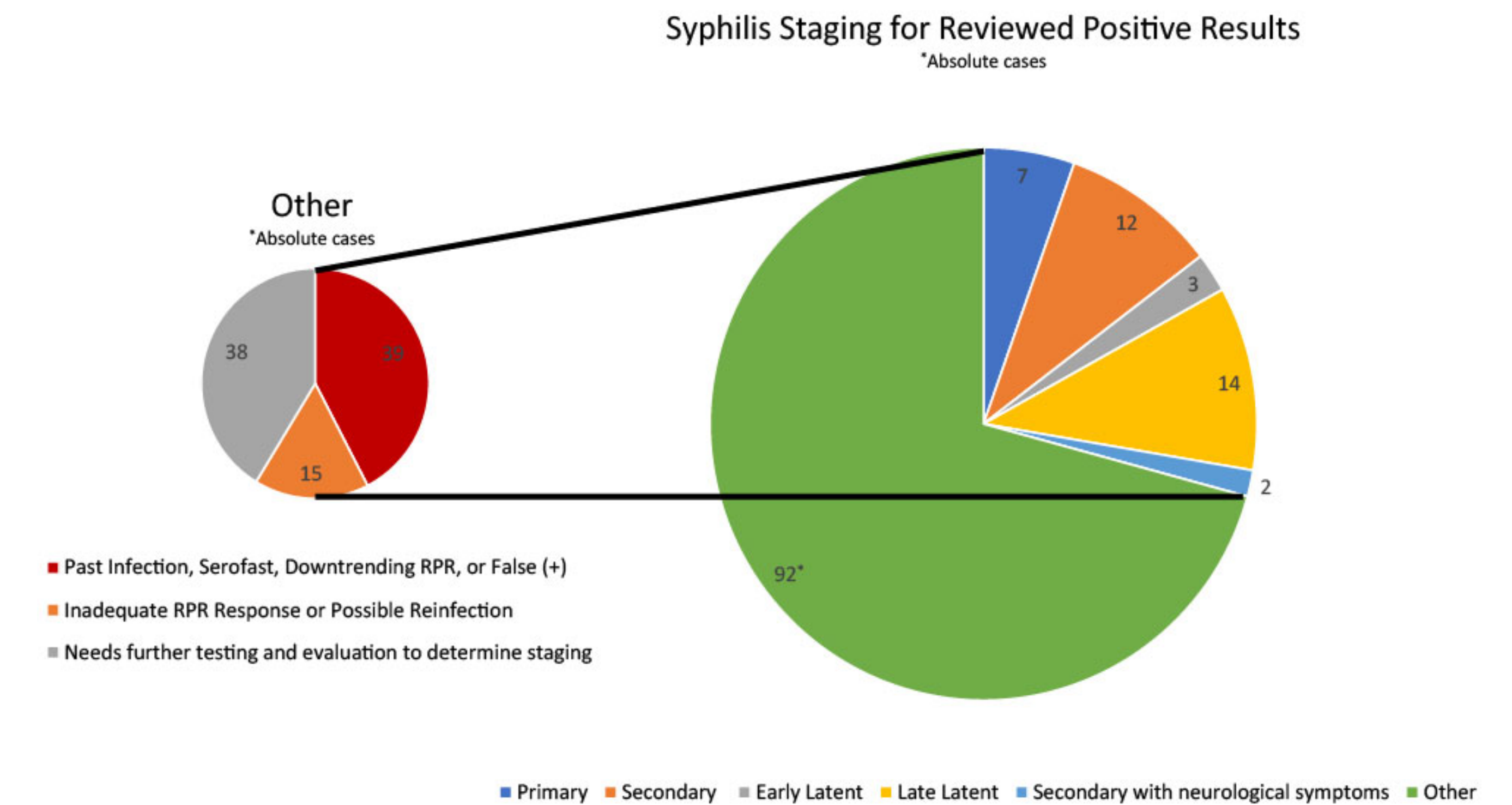


Figure 3: Positive syphilis tests broken down by staging.



CONCLUSIONS

- Similarly to other states, syphilis remains a serious public health concern in the state of Utah⁶⁻⁷.
- Syphilis testing, test result interpretation, staging, treatment, and follow-up may pose significant challenges to busy primary care, urgent care, and emergency department providers.
- Syphilis staging, treatment planning and delivery, and follow-up can be improved in our healthcare organization. ID physicians may be uniquely positioned to improve syphilis management and engage patients for PrEP, PEP, or HIV care.

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