


Prevalence of SARS-CoV-2 among community members presenting for testing in Peoria, Illinois from 21 April to 15 May 2020

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ABSTRACT

Expanding easily accessible community SARS-CoV-2 screening is essential in the response to the COVID-19 pandemic. In this report, we describe the findings from the initial 25 days of a SARS-CoV-2 drive-up and walk-up testing initiative was organized in Peoria, Illinois. Eighty-seven out of 4,073 individuals (2.1%) tested positive for SARS-CoV-2, and 46% of these were asymptomatic at the time of testing. There were ten frontline workers without symptoms consistent with COVID-19 who tested positive, including six that did not report any known exposure to SARS-CoV-2. These results stress the importance and effectiveness of widely available community SARS-CoV-2 testing and suggest a possible benefit to screening of asymptomatic individuals at higher risk for infection.

ARTICLE HISTORY

Received 4 June 2020

Accepted 4 September 2020

KEYWORDS

SARS-CoV-2; COVID-19; SARS-CoV-2 screening; COVID-19 testing; COVID-19 prevalence; asymptomatic COVID-19

1. Introduction

Community testing for severe acute respiratory syndrome 2 (SARS-CoV-2) in rural Illinois counties has been limited for the majority of the coronavirus disease 2019 (COVID-19) pandemic, leading to underestimation of prevalence. Accurate disease reporting is key to informing plans to ease social distancing restrictions and reopen communities [1], as poor surveillance would likely lead to more widespread disease [2].

We report the initial results of a community SARS-CoV-2 testing effort in Peoria, Illinois over a course of 25 days. This information sheds light on the effect of increased screening efforts on the reporting of COVID-19 prevalence and also the rates of SARS-CoV-2 test positivity in asymptomatic individuals.

2. Methods

Starting from 21 April 2020, community drive-up and walk-up screening for COVID-19 was performed by Heartland Health Services (HHS) in partnership with the Peoria City/County Health Department (PCCHD), Advanced Medical Transport (AMT), and the University of Illinois College of Medicine Peoria (UICOMP). Testing was initially offered for all frontline essential workers (which includes health-care workers), individuals with high risk for exposure, and anyone with symptoms consistent with COVID-19. However due to high demand, from

8 May 2020 testing was publicized as open to all individuals. Repeat testing was allowed, and individuals considered a positive case if at least one test result was positive for SARS-CoV-2.

COVID-19 screening was performed by nasopharyngeal swab (NP) sampling and reverse-transcription polymerase chain reaction (RT-PCR) assays (Reditus Labs, Pekin, IL). Tested individuals were asked about demographic information and the presence of any symptoms consistent with COVID-19. Reports of known or possible SARS-CoV-2 exposure as well as frontline worker status were also noted. Test results were communicated to all screened persons, and for positive cases, instructions on self-isolation were given and contact tracing performed. The overall number of COVID-19 cases in the Tri-County area (Peoria, Tazewell, and Woodford) over time were also assessed.

This study was evaluated by the UICOMP Institutional Review Board and determined to be not human subjects research based on being part of an initiative authorized by a public health authority.

3. Results

A total of 4,073 individuals were tested for SARS-CoV-2 over a period of 25 days, with 87 (2.1%) positive cases. Age, gender, race and ethnicity, any reported symptoms, possible exposure, and frontline worker status among screened individuals are reported (Table 1). Of the positive cases, 40 (46%)

Table 1. Characteristics of screened individuals from 21 April–15 May 2020.

	SARS-CoV-2 testing by NP Swab RT-PCR assay		Proportion (%; detected/total)
	Detected ^a	Not Detected ^b	
Total number resulted	87	3986	2.1
Sex			
Male	27	1754	1.5
Female	60	2222	2.6
Age Group (years) ^a			
<18	2	30	6.3
18–35	34	814	4.0
36–60	39	1602	2.4
>60	12	1523	0.8
Race and Ethnicity			
American Indian/Native Alaskan	0	10	N/A
Asian	1	58	1.7
Black or African American	38	794	4.6
Hispanic or Latino	10	147	6.4
Native Hawaiian or other Pacific Islander	0	12	N/A
White	37	2720	1.3
Not Reported	1	245	0.4
No. reporting any symptom	46	1424	3.1
Fever or chills	18	422	4.1
Cough	21	844	2.4
Shortness of breath	7	402	1.7
Body or muscle aches	10	98	9.3
Sore throat	9	202	4.3
Headache	11	172	6.0
Rhinorrhea	4	60	6.3
Loss of taste or smell	5	23	17.9
No. reporting no symptoms (asymptomatic)	40	2562	1.5
No. reporting exposure to suspected or known case	41	1041	3.8
Reporting any symptom	14	299	4.5
No symptom reported (asymptomatic)	27	742	3.5
Frontline workers	12	435	2.5
Reporting any symptom	2	95	2.0
No symptom reported (asymptomatic)	10	341	2.8
Healthcare workers	4	108	3.6
Reporting any symptom	1	32	3.0
No symptom reported (asymptomatic)	3	76	3.8

^aOne case missing data for presence of symptoms^b17 cases missing data for age

did not report the presence of any symptoms associated with COVID-19 (asymptomatic). Among the 46 persons who reported symptoms, the frequency of each is also shown, with cough (46%) and fever or chills (39%) most commonly reported. Data from one positive case was missing. There were 12 frontline workers who tested positive, 10 of whom were asymptomatic. Six of these asymptomatic frontline workers, (including two health-care workers) did not report any exposure to SARS-CoV-2.

The number of positive cases reported in the Tri-County area, overall number of tests performed at the Peoria test sites, and number of positive cases detected from this testing effort are shown (Figure 1). There was a noted increase in number of reported cases after Peoria test sites were established, demonstrating the effect of this drive-up and walk-up testing effort.

4. Discussion

Results from the first 25 days of community SARS-CoV-2 testing reveal that COVID-19 in the greater Peoria area was considerably underreported. Increasing the availability of community testing allowed for better measurement of prevalence and for increased contact tracing, suggesting that aggressive community testing is key to combating the spread of COVID-19.

In a report of community drive-up and negative pressure tent testing site Daegu, South Korea 2.64% of individuals tested were asymptomatic and had no known exposure to SARS-CoV-2 [3]. The significant rate of positivity among asymptomatic individuals was also noted in our results albeit somewhat less (1.5%). Additionally, only 12 positive cases (0.7%) were of people who were both asymptomatic and did not report a known SARS-CoV-2 exposure. Certainly, differences in demographics, timing of testing in relation to the course of pandemic, local prevalence rates, and study methodologies account for these differences, among other factors.

Positivity rates in frontline workers were slightly higher than in the overall population tested (2.5% versus 2.1%, respectively). Interestingly, within the positive cases, we found that six (7%) were asymptomatic frontline workers that did not report any known SARS-CoV-2 exposure. Asymptomatic transmission has been demonstrated to be an important route of virus spread [4,5], and is of significant concern in congregate living health facilities [6] and among essential workers including healthcare personnel [7]. Thus, screening of higher risk asymptomatic individuals could be beneficial as communities reopen [8].

Our report is limited in that testing was performed in one geographic area and over a relatively shorter duration of 25 days. Additionally, frontline essential worker status among tested subjects may also have been underreported, and in future testing this question can be asked more directly to tested individuals. Despite these limitations, these preliminary findings will likely be applicable to similar rural-based populations that have experienced limited COVID-19 surveillance and are facing difficult decisions regarding reopening their communities.

Acknowledgments

The authors report no potential conflicts of interest or disclosure for this study. The authors did not receive any specific funding for this work.

We would like to acknowledge the tremendous efforts of the partner organizations and volunteers in maintaining this critical public health effort in our community. We also wish to recognize the significant contributions in data compilation UICOMP students and residents- Nikita H Patel, Nica Lorenz C Lim, Priyali Saxena, Aleyna Grace Brunner, Melissa Q Dominguez, Andrie Haijun Kwon, Brent Cao, Cassandra J Palmer, Tracey Thompson, Justin Steele, Timothy Roos, Rab Asra, and Habiba Hussain.

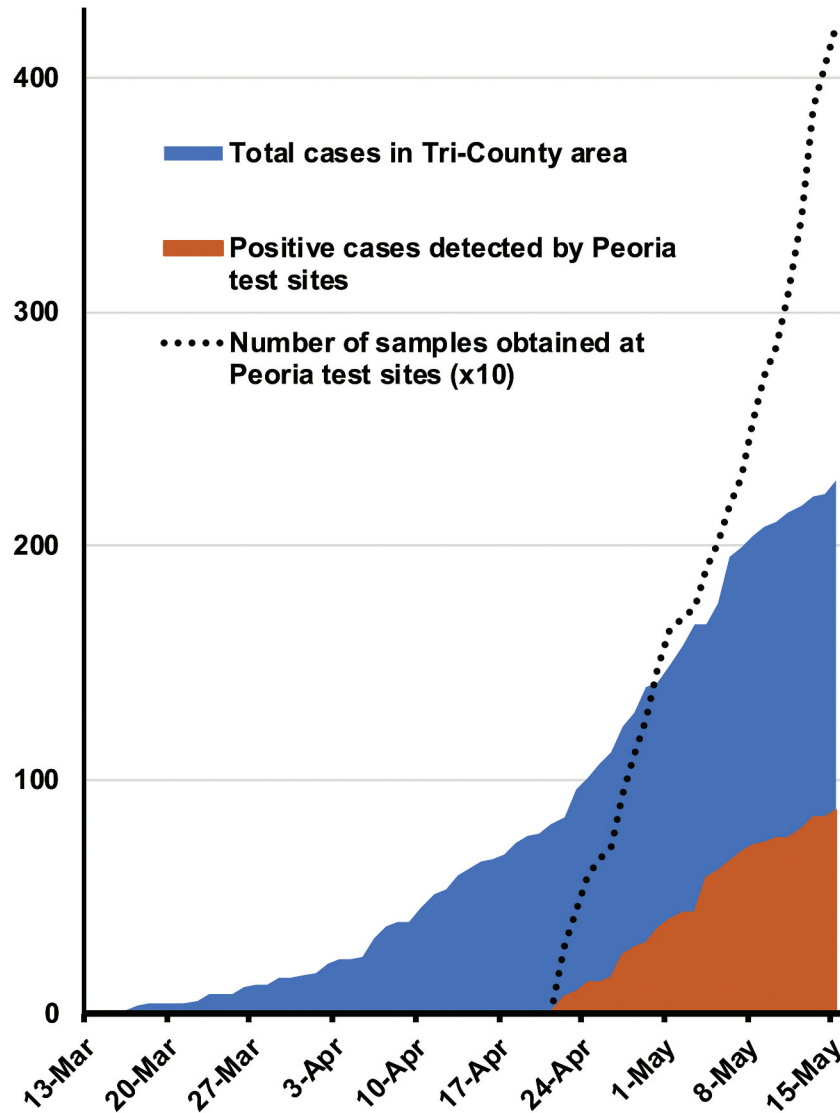


Figure 1. Trend in number of detected cases in Tri-County area, positive cases detected by Peoria test sites, and total number of samples obtained at Peoria test sites.

Disclosure statement

No potential conflict of interest was reported by the authors.

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