

The **COVID-19** test-based discharge strategy leads to **unnecessary** increased length of **hospitalization**, higher healthcare **costs**, and procedure **delays**.

Evan Bradner

Mentor: Rachel Roper

Microbiology & Immunology

“COVID-19 persistent PCR positive tests cause treatment delays and increased length of stay”

Jiwani R, Roper R, Pona A, Bradner E, Hussain J, Cook P, Burch A, Afriyie F, Labbe J, Younes A, Badr M, Lee E, Mao Y.



For references and more info:



## Abstract

- The CDC has recommended discontinuing transmission-based precautions for Coronavirus disease-2019 (COVID-19) hospitalized patients according to either a **symptom-based or test-based** approach.<sup>1</sup>

Symptom-based	Test-based
<ul style="list-style-type: none"> <li>10 days since symptom onset</li> <li>≥ 72-hours afebrile</li> <li>Improved respiratory symptoms</li> </ul>	<ul style="list-style-type: none"> <li>10 days since symptom onset</li> <li>≥ 72-hours afebrile</li> <li>2 negative RNA tests ≥ 24 hours apart</li> </ul>

- We designed a **retrospective cohort study** to evaluate the **consequences of the test-based strategy** for discontinuation of transmission precautions.
- This study measures the total length of stay of hospitalized patients with COVID-19 and shows when they were **clear for discharge** by the symptom-based approach but were **withheld** from discharge due to **repeatedly testing positive**.

## Introduction

- SARS-CoV-2** is the virus that causes **COVID-19**. It was first identified in Wuhan, China in December 2019. It has resulted in a **pandemic** with millions of infections and hundreds of thousands of deaths.<sup>2,3</sup>
- The majority of diagnostic testing for COVID-19 relies on detecting **viral ribonucleic acid (RNA)** using reverse transcription real-time **polymerase chain reaction (PCR)**.
- While useful for diagnosing COVID-19, evolving research shows that detection of viral RNA is **not adequate** to conclude that a recovering patient is still infectious.<sup>4,5,6</sup>
  - Therefore, a recovering patient may **no longer be infectious** and be prepared for discharge based on symptom-based criteria but **kept in isolation** due to persistent positive RNA tests.
  - This can influence the availability of certain therapies, the timing of procedures, and **length of hospitalization** in addition to placing an **emotional and financial burden** on the patient.

## Methods

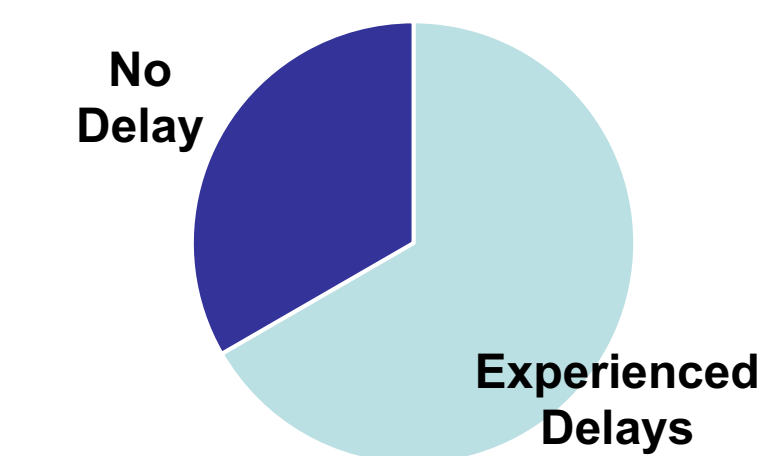
- We conducted a retrospective cohort study of **196 COVID-19** hospitalized subjects within the **Vidant Health** system in Eastern North Carolina.
  - Of the 196 COVID-19 subjects, 34 were identified as having **one or more PCR tests** ≥ 3 days after the first positive test on admission were identified

### Methods continued

- Improvement of respiratory symptoms was defined as a clear improvement in presenting symptoms, minimal or no supplemental oxygen requirement, and overall clinical readiness for discharge.
- Total **extra days of hospitalization** (delayed discharges) were calculated using the date identified as appropriate for discharge based on the symptom-based approach and the actual date of discharge.

## Results

Of 34 repeat testers, **20 patients** (59%) experienced delays.



This resulted in

**174 DAYS**

of unnecessary hospitalization...

...with an estimated total cost of

**\$435,000**

to the health care system for only 17 of the patients.<sup>7,8</sup>

### Extended lengths of hospitalization for patients due to test based strategy

