



### BACKGROUND

- Association between nasopharyngeal (NP) SARS-CoV-2 viral load and clinical outcomes has been heavily investigated:
  - Majority of studies utilize qualitative reverse transcription PCR (RT-qPCR assays)
  - Results are conflicting
- Utility of determining SARS-CoV-2 viral load:
  - Optimization of early treatment eligibility
  - Transmission prevention
  - Prognostication
  - Determining efficacy of novel treatments

PCR technology that is more sensitive, specific, and repeatable than RT-qPCR dd-PCR dd-PCR Absolute quantification via comparison of cycle threshold value to standard curves difinitividual PCR reactions difinitividual PCR reactions between SARS-CoV-2 viral load and patient symptoms, demographics and clinical outcomes in COVID-19 utilizing dd-PCR Structure source collected between November 2020 and September 2021 METHODS Peak CRP 7.09 (2.58 – 14.62) Peak CRP 7.09 (2.58 – 14.62	<ul> <li>Droplet digital PCR (dd-PCR) is a newer, quantitative PCR technology that is more sensitive, specific, and repeatable than RT-qPCR</li> </ul>		Table 1: Descriptive characteristics of cohort		Figure 1: Histogram of Viral Loads		
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## Association Between SARS-CoV-2 Viral Load and Patient Symptoms and **Clinical Outcomes Using Digital Droplet PCR**

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# Nasopharyngeal viral load was predictive of symptomatic disease and in-hospital mortality.

# Early viral control may prevent progression of disease.



f Fever



Figure 4: Viral Load vs. Presence of Respiratory Symptoms





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### RESULTS

- Total of 698 veterans included (Table 1)
  - 76.3% (n=529) were unvaccinated at diagnosis
- Strong correlation observed between Log 10 viral load and time of onset of symptoms (Figure 2)
- In univariate analyses, Log 10 viral load associated with fever, respiratory symptoms, gastrointestinal symptoms, and headache (Figures 3-5)
- In univariate analyses, Log 10 viral load associated with death during hospital admission (Figure 7)
- In multivariate analyses, when adjusting for days between symptom onset and sampling, wave of the epidemic (Delta vs pre-Delta), and risk factors (e.g. diabetes mellitus, coronary artery disease, immunosuppression), viral load was still predictive of death during

Figure 5: Viral Load vs. Presence of Gastrointestinal symptoms













## **FINANCIAL SUPPORT**

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