



# Lessons from hepatitis C treatment during the COVID-19 pandemic: decreased resource utilization leads to similar efficacy in British Columbia, Canada



Shirley X. Jiang<sup>1</sup>, Jeanette Feizi Farivar<sup>2</sup>, Julia MacIsaac<sup>3</sup>, Edward Tam<sup>3</sup>, Hin Hin Ko<sup>2-4</sup>, Alnoor Ramji<sup>2-4</sup>

<sup>1</sup>Internal Medicine, University of British Columbia, Vancouver, BC Canada <sup>2</sup>Gastrointestinal Research Institute, Vancouver, BC, Canada, <sup>3</sup>Pacific Gastroenterology Associates, Vancouver, BC, Canada <sup>4</sup>Department of Gastroenterology, University of British Columbia, Vancouver, Canada

## Background

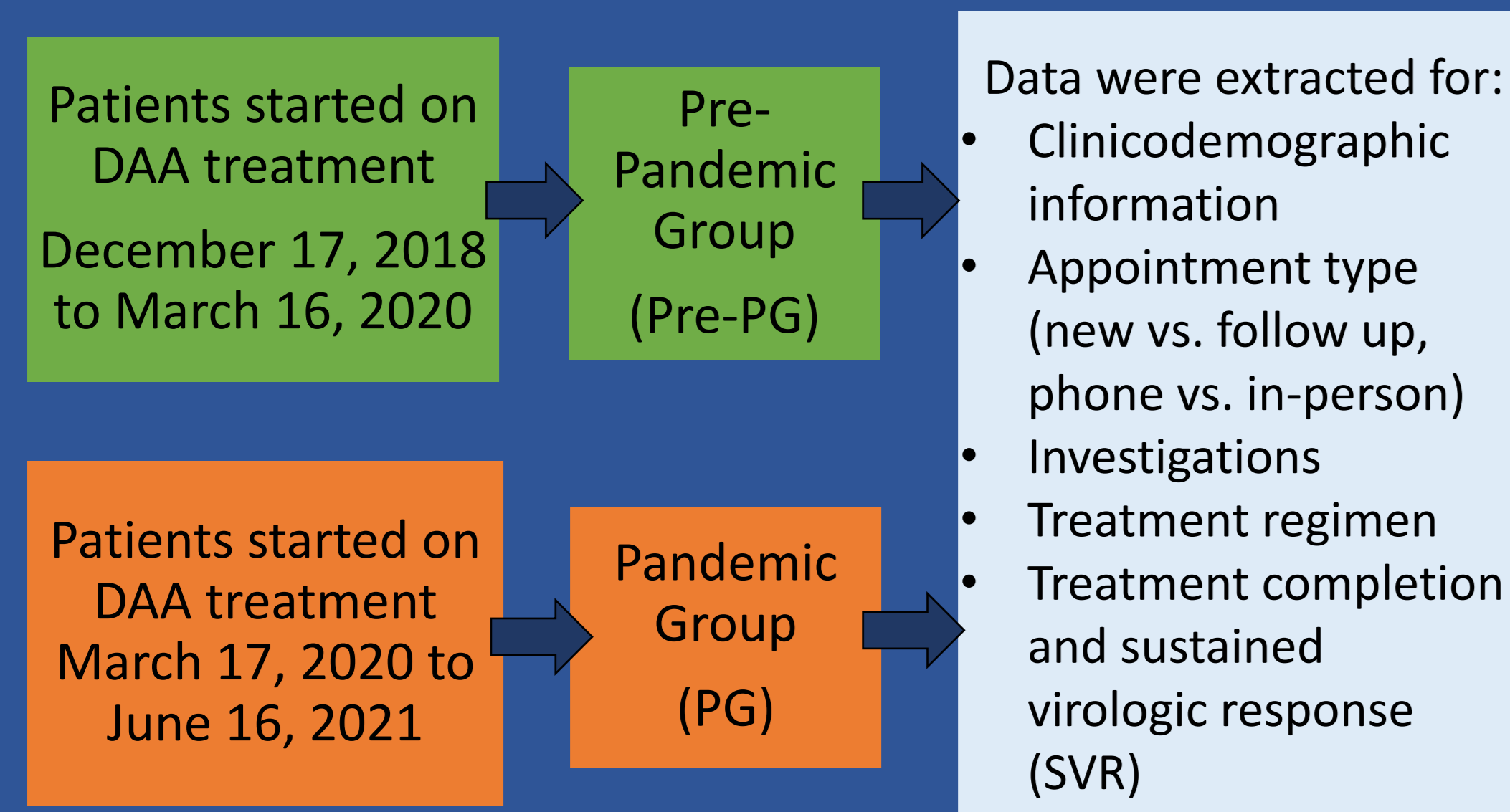
- The COVID-19 pandemic has impacted testing and treatment for hepatitis C (HCV) infection.<sup>1</sup>
- In British Columbia (Canada), pandemic measures led to a fall in weekly HCV testing of 62.3 tests/100 000 population (vs. 124.6 HCV tests/100 000 pre-pandemic).<sup>2</sup>
- Direct-acting antiviral (DAA) dispensation was reduced by 30%-49% in other areas of Canada.<sup>3,4</sup>
- As a result of the pandemic, more providers are using telemedicine and government payers require fewer pre-treatment investigations to secure HCV treatment reimbursement.<sup>4,5</sup>
- Little is known about the characteristics of treated patients and efficacy of treatment with minimal monitoring in the context of the pandemic.

## Objectives

To characterize patients who were treated for HCV during the COVID-19 pandemic and explore efficacy of treatment.

## Methods

- A retrospective chart review was conducted using the British Columbia Hepatitis C network (BCHcN), a database of patients with HCV across multiple sites in British Columbia.
- To compare patients treated during the pandemic with those treated prior, patients were divided into two groups based on the date of DAA initiation.



## Results

Table 1: Clinicodemographic Characteristics

Variables	Pre-COVID	COVID	P-value
Patients treated for HCV (n)	179	139	-
Male gender	129 (67%)	92 (66%)	0.91
Age (mean, SD)	59.5 ± 11.5	56.1 ± 13.2	0.01
Drug use			
Current use	10 (6%)	16 (12%)	0.11
Prior use	70 (39%)	45 (32%)	
Never	99 (55%)	78 (56%)	
OAT	22 (12%)	37 (27%)	<0.01
Significant alcohol use	55 (31%)	36 (26%)	0.41

OAT – Opioid agonist treatment

Table 2: Patient Investigations

Variables	Pre-COVID	COVID	P-value
Patients treated (n)	179	139	
Genotype			
1	107 (60%)	72 (52%)	0.81
2	22 (12%)	13 (9%)	
3	39 (22%)	31 (22%)	
Other genotype (4-6)	5 (3%)	5 (4%)	
Unknown genotype	11 (6%)	18 (13%)	
Initial labs (mean, SD)			
FIB-4 score <1.45	97 (54%)	70 (50%)	0.24
FIB-4 intermediate	69 (39%)	52 (37%)	
FIB-4 score >3.25	12 (7%)	17 (12%)	
Pre-treatment transient elastography			
F0-F1	87 (49%)	29 (21%)	0.17
F2	14 (8%)	11 (8%)	
F3-F4	29 (16%)	12 (9%)	

Figure 1: New Treatment Starts, by Month

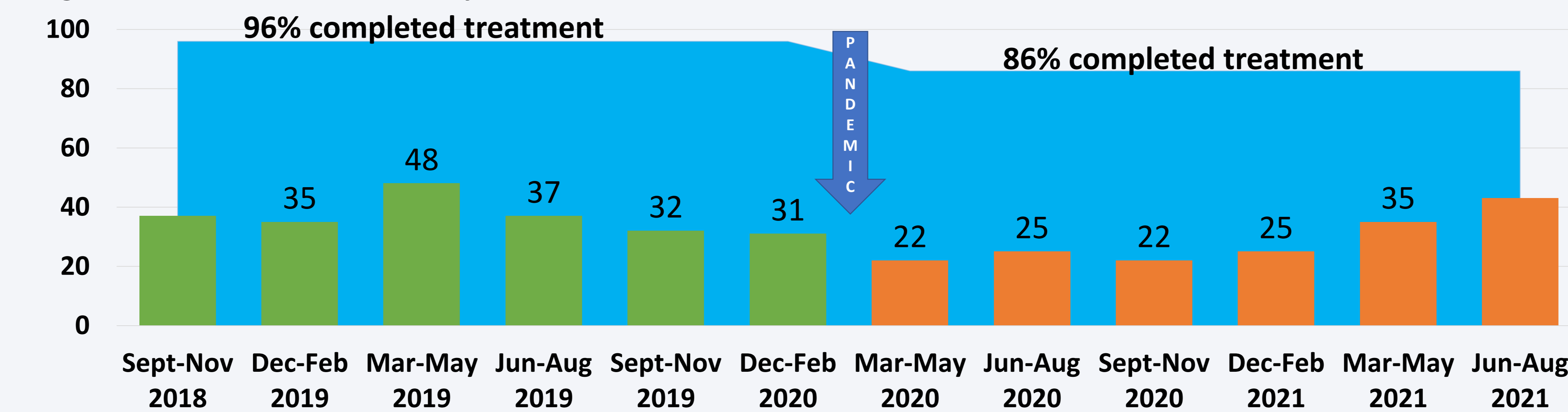


Figure 2: Number of Appointments per Patient

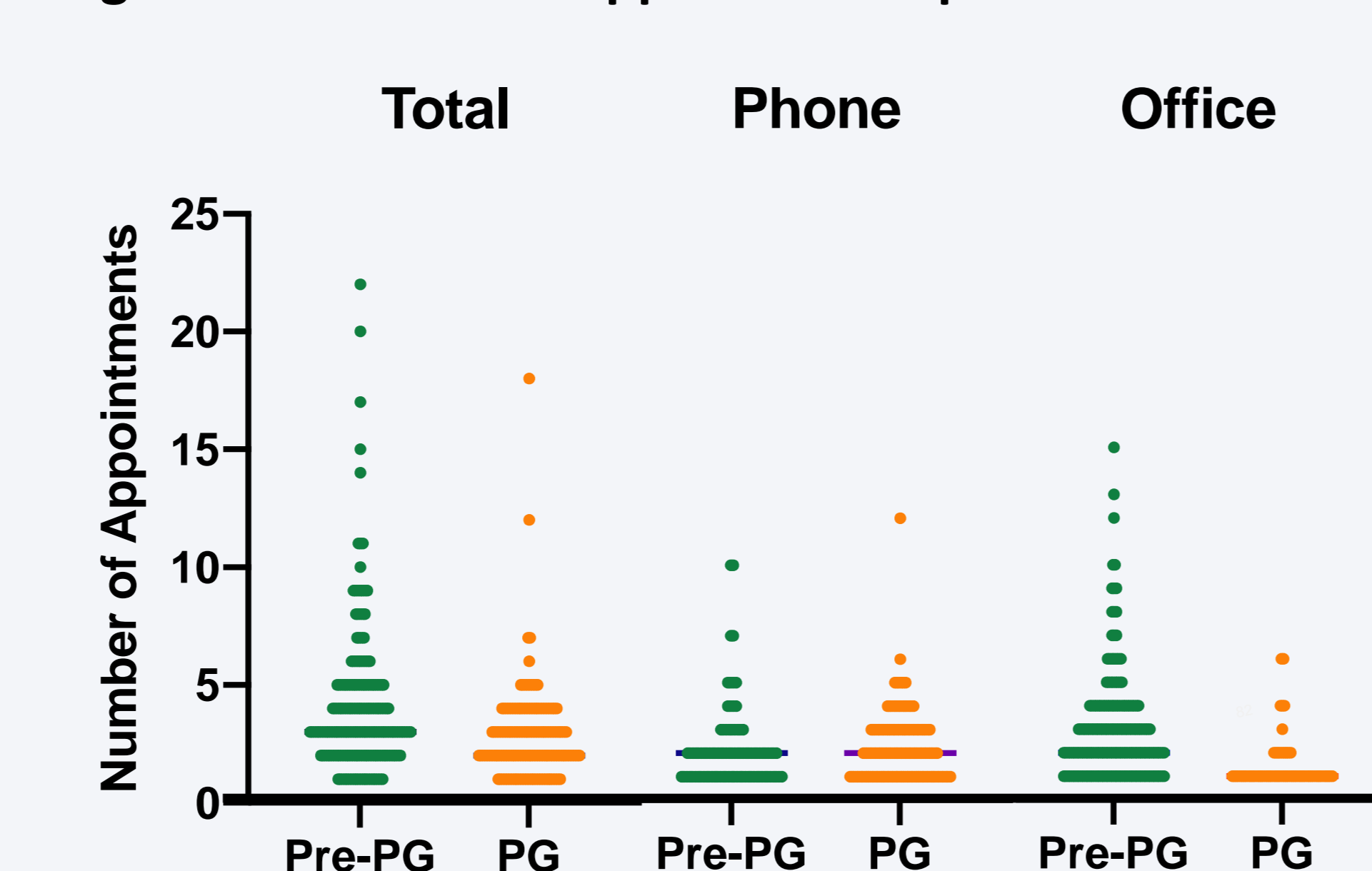
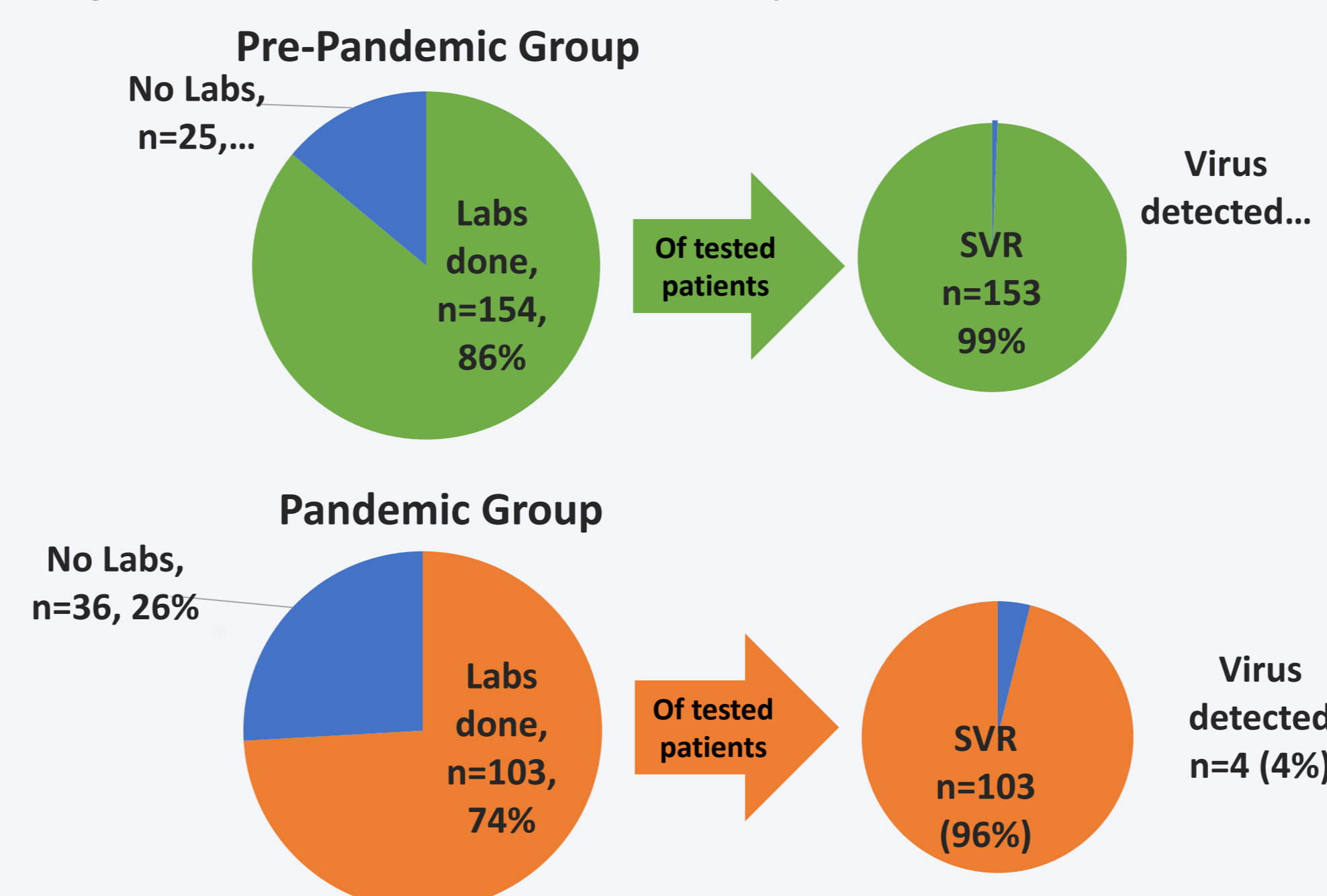


Figure 3: Rate of Lab work Completion & SVR



## Summary

During the COVID-19 pandemic:

- A 22% decline in HCV treatment initiation was observed.
- Lower treatment completion rate at 86% vs. 96% pre-pandemic.
- A greater proportion of treated HCV patients were on OAT during the pandemic at 27% (vs. 12% pre-pandemic).
- Significantly fewer patients had pre-treatment transient elastography (52% vs. 91% pre-pandemic).
- Fewer patients completed lab work for sustained virologic response (SVR) at 74% (vs. 86% pre-pandemic).
- Among those with completed labs, SVR rate was similar at 96% (vs. 99% pre-pandemic).

## Conclusions

- High SVR can be achieved with decreased resource utilization during HCV treatment.
- Fewer pre-treatment investigations and effective use of telehealth can potentially reduce barriers to HCV treatment.

## References

- Kaufman HW, Bull-Otterson L, Meyer WA, et al. Decreases in Hepatitis C Testing and Treatment During the COVID-19 Pandemic. *American Journal of Preventive Medicine*. 2021;61(3):369-376. doi:10.1016/j.amepre.2021.03.011
- Binka M, Bartlett S, Velásquez García HA, et al. Impact of COVID-19-related public health measures on HCV testing in British Columbia, Canada: An interrupted time series analysis. *Liver International*. 2021;41(12):2849-2856. doi:10.1111/liv.15074
- Konstantelos N, Shakeri A, McCormack D, Feld JJ, Gomes T, Tadrous M. Impact of COVID-19 on Prescribing Trends of Direct-Acting Antivirals for the Treatment of Hepatitis C in Ontario, Canada. *Am J Gastroenterol*. 2021;116(8):1738-1740. doi:10.14309/ajg.0000000000001287
- Lee SS, Williams SA, Pinto J, Israelson H, Liu H. Treating hepatitis C during the COVID-19 pandemic in Alberta. *Canadian Liver Journal*. Published online April 29, 2021. doi:10.3138/canlivj-2021-0007
- Sivakumar A, Madden L, DiDomizio E, Eller A, Villanueva M, Altice FL. Treatment of Hepatitis C virus among people who inject drugs at a syringe service program during the COVID-19 response: The potential role of telehealth, medications for opioid use disorder and minimal demands on patients. *Int J Drug Policy*. 2022;101:103570. doi:10.1016/j.drugpo.2021.103570

## Acknowledgments

Thanks to the many patients and their families we are privileged to care for in our clinics, assistants, nurses, peer-workers, students and the multi-disciplinary team.  
Funding source: Gilead Sciences SCALE program.

