THE 2019 HCV CASCADE OF CARE FOR CHILDREN AND YOUTH IN BRITISH COLUMBIA, CANADA

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BC Centre for Disease Control
Provincial Health Services Authority

British Columbia Ministry of Health

BC HTC British Columbia Hepatitis Testers Cohort

UBC

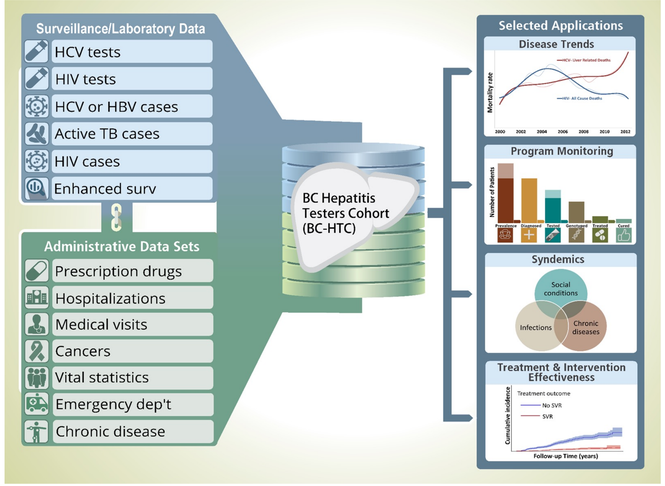
Background

- Globally, about 0.13% or over 3 million people aged between 0-18 years are living with chronic hepatitis C virus (HCV) infection.[1]
- Children and youth living in Canada are at risk from HCV through a few mechanisms. In high-income countries, opioid crisis and other syndemics have greatly increased the number of new HCV infections among young people under the age 30.[2,3] Children and youth immigrating from HCV endemic countries also have higher risk of HCV.
- The clinical and treatment experiences of young people living with HCV are frequently neglected in HCV research. It is critical to monitor young people's access to and progression through the HCV care cascade to ensure they receive timely and equitable access.
- Care cascades can visualize the journey of individuals across the stages of illness, care and treatment services and are useful for identifying the gaps in the progress across the stages of care.

Objectives

- To construct the HCV cascade of care for persons under 30 years living in British Columbia in 2019.
- To characterize the progression of young people along the HCV care cascade.

Methods



- We used data from the BC Hepatitis Testers Cohort (BC-HTC) to construct the 2019 HCV care cascade. The BC-HTC is linked with BC Ministry of Health administrative datasets (primary care visits, hospitalizations), chronic disease registry and prescription drugs dispensations.
- This analysis included all BC residents under age 30 **in 2019** who have been diagnosed with HCV in the BC-HTC.
- The HCV cascade of care was defined as: 1) HCV antibody (Ab) diagnosed 2) HCV RNA tested 3) HCV RNA positive 4) genotyped 5) initiated HCV treatment and 6) achieved sustained virologic response (SVR). SVR was determined through post-treatment HCV RNA testing, with an undetectable HCV RNA at ≥ 10 weeks after treatment.
- We estimated the number and proportion of people in each stage.

References
1. Schmelzer J, Dugan E, Blach S, et al. Global prevalence of hepatitis C virus in children in 2018: a modelling study. Lancet Gastroenterol Hepatol. 2020;5(4):374-392.
2. Holtzman D, Asher AK, Schillie S. The Changing Epidemiology of Hepatitis C Virus Infection in the United States During the Years 2010 to 2018. Am J Public Health. 2021;111(5):949-955.
3. Janjua NZ, Yu A, Kuo M, et al. Twin epidemics of new and prevalent hepatitis C infections in Canada: BC Hepatitis Testers Cohort. BMC Infect Dis. 2016;16(1):334.

Results

Figure 1. Young people living with HCV in British Columbia within the HCV care cascade in 2019

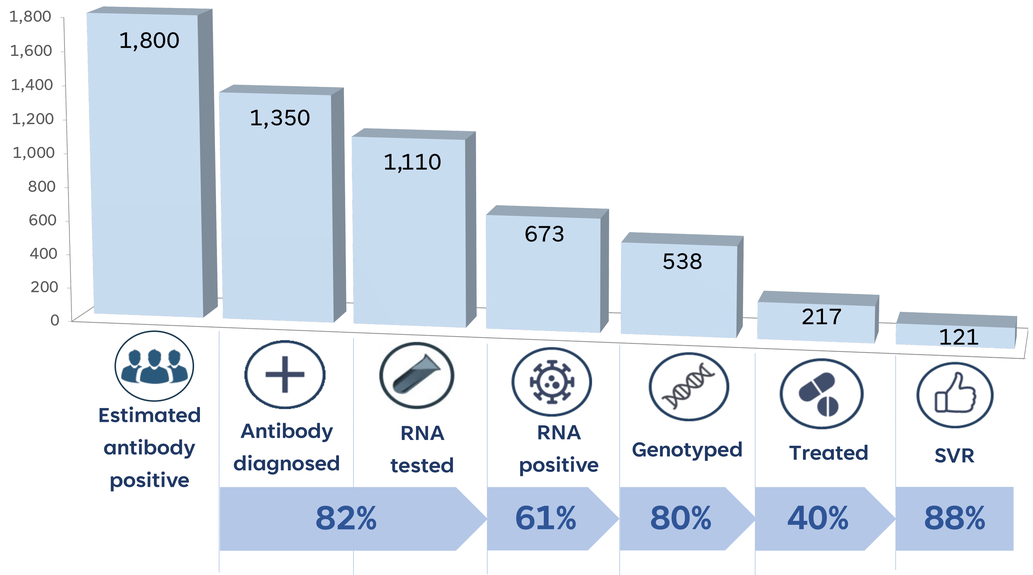
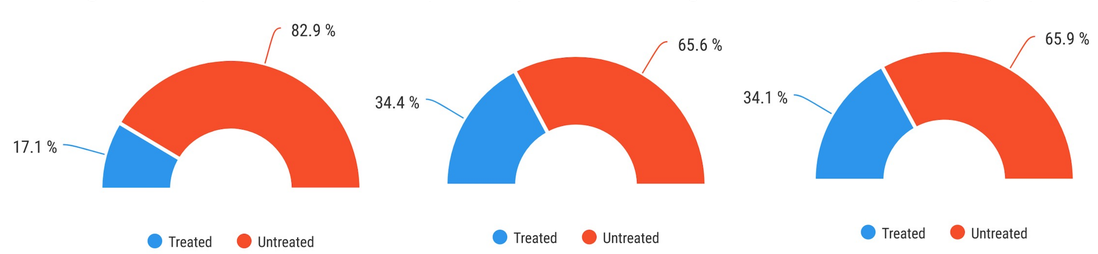


Figure 2. Proportions of HCV RNA positive persons receiving treatment in 2019 by age groups



Among 14-19 years: **17.1%** treated (6/35)

Among 20-24 years: **34.4%** treated (45/131)

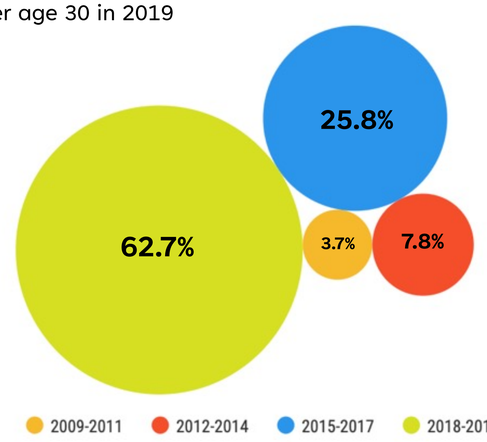
Among 25-29 years: **34.1%** treated (164/481)

Table 1. Characteristics of people under 30 who were living with HCV in British Columbia in 2019 in different stages of the HCV care cascade

	HCV Ab diagnosed (n=1350)	HCV RNA positive (n=673)	Treatment initiated (n=217)	SVR confirmed (n=121)	SVR unknown and missing (n=58)
Sex					
Females	763 (56.5%)	360 (53.5%)	110 (50.7%)	67 (55.4%)	25 (43.1%)
Males	587 (43.5%)	313 (46.5%)	107 (49.3%)	54 (44.6%)	33 (56.9%)
Location					
Rural	106 (7.9%)	57 (8.5%)	23 (10.6%)	13 (10.7%)	Less than 5
Urban	1208 (89.5%)	603 (89.6%)	194 (89.4%)	108 (89.3%)	>50 (>90%)
Age groups					
4 to 13	71 (5.3%)	26 (3.9%)	Less than 5	Less than 5	Less than 5
14 to 19	89 (6.6%)	35 (5.2%)	6 (2.8%)	Less than 5	Less than 5
20 to 24	300 (22.2%)	131 (19.5%)	45 (20.7%)	29 (24.0%)	10 (17.2%)
25 to 29	890 (65.9%)	481 (71.5%)	164 (75.6%)	91 (75.2%)	42 (72.4%)
Material DQ					
Q1 most privileged	183 (13.6%)	94 (14.0%)	36 (16.6%)	22 (18.2%)	8 (13.8%)
Q5 most deprived	385 (28.5%)	209 (31.1%)	52 (24.0%)	31 (25.6%)	11 (19.0%)
Social DQ					
Q1 most privileged	155 (11.5%)	67 (10.0%)	25 (11.5%)	16 (13.2%)	7 (12.1%)
Q5 most deprived	488 (36.2%)	266 (39.5%)	82 (37.8%)	46 (38.0%)	20 (34.5%)
Elixhauser CI ≥ 1	570 (42.2%)	318 (47.3%)	110 (50.7%)	59 (48.8%)	27 (46.6%)
Mood and anxiety disorder	754 (55.9%)	409 (60.8%)	141 (65.0%)	80 (66.1%)	35 (60.3%)
OAT	746 (55.3%)	440 (65.4%)	134 (61.8%)	66 (54.6%)	44 (75.9%)
Treatment					
DAA			189 (87.1%)	109 (90.1%)	47 (81.0%)
IFN			28 (12.9%)	12 (9.9%)	11 (19.0%)

CI, comorbidity index; DAA, direct-acting antivirals; DQ, deprivation quintiles; IFN, interferon; OAT, opioid agonist therapy; Q, quintiles.

Figure 3. HCV treatment initiation over time among people under age 30 in 2019



62.7% (136/217) treated between 2018-2019

Key Findings

By end of 2019, **only 32%** of RNA positive persons under 30 had accessed HCV treatment by 2019; with **68%** remaining **untreated**

- Many young people with HCV were living in urban settings, with material and social deprivation and other comorbidities, in particular mood and anxiety disorders. Many were accessing harm reduction services such as opioid agonist therapy.
- Young people living with HCV may benefit from having **HCV services co-located with other health and social services**, particularly mental health and harm reduction services. Other comorbidities need to be addressed to prevent reinfections.
- The approval of highly effective pangenotypic DAA regimens provides the opportunity for early treatment for young people living with HCV to prevent long term liver- and non-liver damages related to HCV and to promote overall quality of life. There is a need to identify and address unique barriers experienced by young people and their families to optimize access to HCV care and services.

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CanHepC Canadian Network on Hepatitis C / Réseau Canadien sur l'Hépatite C

CIHR IRSC Canadian Institutes of Health Research / Instituts de recherche en santé du Canada

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