

Appendix 6 (as supplied by authors): Supplemental Cascade of Care Findings

Table S10. Demographic and clinical characteristics of Status First Nations people in Ontario at first treatment dispensation date for the cascade measured until December 31, 2013 and December 31, 2018.

Characteristic	Initiated Treatment by December 31, 2013	Initiated Treatment by December 31, 2018
Total, N	N=207	N=1,002
Age at treatment start, years (Mean ± SD)	44.0 ± 10.1	43.7 ± 12.5
Age at treatment start, years (Median (IQR))	45 (37-52)	44 (33-54)
Age at treatment start, years, N (% of total in stage)		
0-24	8 (3.9%)	55 (5.5%)
25-29	13 (6.3%)	97 (9.7%)
30-34	17 (8.2%)	126 (12.6%)
35-39	27 (13.0%)	112 (11.2%)
40-44	36 (17.4%)	123 (12.3%)
45-49	42 (20.3%)	135 (13.5%)
50-54	31 (15.0%)	127 (12.7%)
55+	33 (15.9%)	227 (22.7%)
Birth cohort, N (% of total in stage)		
<1945	<=5	9 (0.9%)
1945 to 1964	110 (53.1%)	347 (34.6%)
1965 to 1975	59 (28.5%)	260 (25.9%)
>1975	<=37	386 (38.5%)
Sex, N (% of total in stage)		
Female	98 (47.3%)	444 (44.3%)
Male	109 (52.7%)	558 (55.7%)
Urbanicity at treatment start, N (% of total in stage)		
Missing/Unknown	0 (0.0%)	11 (1.1%)
Urban	170 (82.1%)	722 (72.1%)
Rural	37 (17.9%)	269 (26.8%)
Community status at treatment start, N (% of total in stage)		
Missing/Unknown*	6 (2.9%)	<=5
Outside of First Nations community	183 (88.4%)	822 (82.0%)
Within First Nations community	18 (8.7%)	<=179
LHIN at treatment start, N (% of total in stage)		
Missing/Unknown	0 (0.0%)	0 (0.0%)
1. Erie St Clair	15 (7.2%)	46 (4.6%)
2. South West	20 (9.7%)	79 (7.9%)
3. Waterloo Wellington	6 (2.9%)	13 (1.3%)
4. Hamilton Niagara Haldimand Brant	20 (9.7%)	95 (9.5%)
5. Central West	<=5	<=9
6. Mississauga Halton	<=5	<=5
7. Toronto Central	25 (12.1%)	87 (8.7%)
8. Central	9 (4.3%)	16 (1.6%)
9. Central East	18 (8.7%)	43 (4.3%)
10. South East	10 (4.8%)	32 (3.2%)
11. Champlain	<=5	34 (3.4%)
12. North Simcoe Muskoka	<=5	36 (3.6%)
13. North East	47 (22.7%)	200 (20.0%)
14. North West	28 (13.5%)	311 (31.0%)
Type of treatment at first dispensation record, N (% of total in stage)[†]		
Record of Interferon regimen at treatment start	<=77	78 (7.8%)
Record of DAA regimen at treatment start	<=5	417 (41.6%)

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Missing/Unknown [‡]	129 (62.3%)	509 (50.8%)
Comorbidities		
ADG score up to one year prior to treatment start, mean \pm SD	5.6 \pm 3.6	5.6 \pm 3.7
ADG score up to one year prior to treatment start, median (IQR)	5 (3-8)	5 (3-8)
Number of ADG categories up to one year prior to treatment start, N (% of total in stage)		
0	10 (4.8%)	35 (3.5%)
1-4	78 (37.7%)	406 (40.5%)
5-9	87 (42.0%)	417 (40.5%)
10+	32 (15.5%)	144 (14.4%)
Mental health record, N (% of total in stage)		
Substance use and addictive disorders		
Prior to treatment start	155 (74.9%)	840 (83.8%)
Prior to Dec 31, 2013/2018	163 (78.7%)	858 (85.6%)
Mood disorders		
Prior to treatment start	98 (47.3%)	499 (49.8%)
Prior to Dec 31, 2013/2018	108 (52.2%)	539 (53.8%)
Personality disorders		
Prior to treatment start	47 (22.7%)	221 (22.1%)
Prior to Dec 31, 2013/2018	52 (25.1%)	232 (23.2%)
Schizophrenia spectrum and other psychotic disorders		
Prior to treatment start	30 (14.5%)	192 (19.2%)
Prior to Dec 31, 2013/2018	38 (18.4%)	213 (21.3%)
Anxiety disorders		
Prior to treatment start	181 (87.4%)	855 (85.3%)
Prior to Dec 31, 2013/2018	187 (90.3%)	875 (87.3%)
Trauma/stressor-related disorders		
Prior to treatment start	55 (26.6%)	346 (34.5%)
Prior to Dec 31, 2013/2018	64 (30.9%)	379 (37.8%)
Deliberate self harm		
Prior to treatment start	29 (14.0%)	215 (21.5%)
Prior to Dec 31, 2013/2018	41 (19.8%)	236 (23.6%)
Disease-Specific records, N (% of total in stage)		
Genotype of Infection		
Genotype 1	123 (59.4%)	665 (66.4%)
Genotype 2	28 (13.5%)	70 (7.0%)
Genotype 3	46 (22.2%)	217 (21.7%)
Genotype 4	0 (0.0%)	\leq 5
Multiple Genotypes	\leq 5	\leq 5
Missing/Unknown Result	\leq 9	43 (4.3%)
Hepatitis B record		
Prior to treatment start	\leq 5	31 (3.1%)
Prior to Dec 31, 2013/2018	7 (3.4%)	32 (3.2%)
HIV record		
Prior to treatment start	10 (4.8%)	44 (4.4%)
Prior to Dec 31, 2013/2018	10 (4.8%)	47 (4.7%)
Cirrhosis record		
Prior to treatment start	22 (10.6%)	94 (9.4%)
Prior to Dec 31, 2013/2018	29 (14.0%)	119 (11.9%)
Decompensated cirrhosis		
Prior to treatment start	15 (7.2%)	61 (6.1%)
Prior to Dec 31, 2013/2018	16 (7.7%)	67 (6.7%)
Hepatocellular carcinoma		
Prior to treatment start	\leq 5	6 (0.6%)
Prior to Dec 31, 2013/2018	\leq 5	9 (0.9%)
Liver transplant		

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Prior to treatment start	<=5	6 (0.6%)
Prior to Dec 31, 2013/2018	<=5	10 (1.0%)

Notes: Individuals who initiated treatment by December 31, 2013 were also included in the group that initiated treatment by December 31, 2018. Cell sizes <=5 cannot be reported or able to be recalculated to comply with ICES privacy rules. ADG score was derived using the John Hopkins ACG® system [Johns Hopkins ACG® System [Internet]. Johns Hopkins ACG® System. [cited 2019 Feb 7]. Available from: <https://www.hopkinsacg.org/>].

*Includes individuals for whom this variable indicated residence outside of Ontario during year of assessment. Ontario residence for the initial exclusion criteria was determined using the registered persons database (RPDB) rather than the residence within/outside of First Nations community database.

†Categories do not add up to total because a few individuals had both an interferon and DAA treatment claim at first treatment dispensation date.

‡Includes individuals who were backfilled into the treatment stage.

Abbreviations: ADG, aggregated diagnosis groups; DAA, direct-acting antiviral; HBV, hepatitis B virus; HIV, human immunodeficiency virus; IQR, interquartile range; LHIN, local health integration network; SD, standard deviation.

Table S11. Demographic and clinical characteristics of Status First Nations people in Ontario for each cascade of care stage on December 31, 2013.

Characteristic	Antibody Positive	HCV RNA Tested	HCV RNA Positive	Genotyped	Initiated Treatment	Achieved SVR
Total, N	N=3,146	N=2,196	N=1,406	N=1,344	N=207	N=162
Age at index date, years (Mean ± SD)	36.4 ± 11.7	36.9 ± 11.7	37.4 ± 10.7	37.4 ± 10.6	39.3 ± 9.6	39.1 ± 9.5
Age at index date, years (Median (IQR))	36 (28-44)	37 (28-45)	38 (29-45)	38 (29-45)	40 (32-46)	40 (31-46)
Age at index date, years, N (% of total in stage)						
0-24	489 (15.5%)	334 (15.2%)	178 (12.7%)	170 (12.6%)	16 (7.7%)	<=13
25-29	417 (13.3%)	280 (12.8%)	193 (13.7%)	183 (13.6%)	20 (9.7%)	19 (11.7%)
30-34	449 (14.3%)	289 (13.2%)	195 (13.9%)	188 (14.0%)	26 (12.6%)	22 (13.6%)
35-39	506 (16.1%)	339 (15.4%)	224 (15.9%)	210 (15.6%)	35 (16.9%)	25 (15.4%)
40-44	507 (16.1%)	362 (16.5%)	242 (17.2%)	234 (17.4%)	44 (21.3%)	36 (22.2%)
45-49	376 (12.0%)	284 (12.9%)	187 (13.3%)	181 (13.5%)	36 (17.4%)	27 (16.7%)
50-54	234 (7.4%)	177 (8.1%)	115 (8.2%)	112 (8.3%)	23 (11.1%)	19 (11.7%)
55+	168 (5.3%)	131 (6.0%)	72 (5.1%)	66 (4.9%)	7 (3.4%)	<=5
Birth Cohort N (% of total in stage)						
<1945	34 (1.1%)	25 (1.1%)	16 (1.1%)	13 (1.0%)	<=5	<=5
1945 to 1964	1,080 (34.3%)	814 (37.1%)	547 (38.9%)	529 (39.4%)	110 (53.1%)	84 (51.9%)
1965 to 1975	970 (30.8%)	669 (30.5%)	431 (30.7%)	410 (30.5%)	59 (28.5%)	47 (29.0%)
>1975	1,062 (33.8%)	688 (31.3%)	412 (29.3%)	392 (29.2%)	<=37	<=30
Sex, N (% of total in stage)						
Female	1,448 (46.0%)	1,047 (47.7%)	588 (41.8%)	553 (41.1%)	98 (47.3%)	74 (45.7%)
Male	1,698 (54.0%)	1,149 (52.3%)	818 (58.2%)	791 (58.9%)	109 (52.7%)	88 (54.3%)
Urbanicity at index date, N (% of total in stage)						
Missing/Unknown	32 (1.0%)	15 (0.7%)	10 (0.7%)	10 (0.7%)	0 (0.0%)	0 (0.0%)
Urban	2,366 (75.2%)	1,632 (74.3%)	1,065 (75.7%)	1,019 (75.8%)	174 (84.1%)	135 (83.3%)
Rural	748 (23.8%)	549 (25.0%)	331 (23.5%)	315 (23.4%)	33 (15.9%)	27 (16.7%)
Community status at index date, N (% of total in stage)*						
Missing/Unknown	324 (10.3%)	243 (11.1%)	172 (12.2%)	167 (12.4%)	43 (20.8%)	30 (18.5%)
Outside of First Nations community	2,436 (77.4%)	1,671 (76.1%)	1,057 (75.2%)	1,012 (75.3%)	155 (74.9%)	124 (76.5%)
Within First Nations community	386 (12.3%)	282 (12.8%)	177 (12.6%)	165 (12.3%)	9 (4.3%)	8 (4.9%)
LHIN at index date, N (% of total in stage)						
Missing/Unknown	30 (1.0%)	13 (0.6%)	9 (0.6%)	9 (0.7%)	0 (0.0%)	0 (0.0%)
1. Erie St Clair	191 (6.1%)	121 (5.5%)	70 (5.0%)	68 (5.1%)	12 (5.8%)	10 (6.2%)
2. South West	274 (8.7%)	180 (8.2%)	115 (8.2%)	110 (8.2%)	22 (10.6%)	17 (10.5%)
3. Waterloo Wellington	43 (1.4%)	36 (1.6%)	26 (1.8%)	24 (1.8%)	7 (3.4%)	<=5
4. Hamilton Niagara Haldimand Brant	342 (10.9%)	250 (11.4%)	177 (12.6%)	164 (12.2%)	20 (9.7%)	16 (9.9%)
5. Central West	32 (1.0%)	27 (1.2%)	15 (1.1%)	14 (1.0%)	<=5	<=5
6. Mississauga Halton	28 (0.9%)	21 (1.0%)	14 (1.0%)	12 (0.9%)	<=5	<=5

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7. Toronto Central	297 (9.4%)	201 (9.2%)	130 (9.2%)	127 (9.4%)	29 (14.0%)	24 (14.8%)
8. Central	42 (1.3%)	36 (1.6%)	22 (1.6%)	21 (1.6%)	7 (3.4%)	<=5
9. Central East	115 (3.7%)	83 (3.8%)	50 (3.6%)	48 (3.6%)	16 (7.7%)	11 (6.8%)
10. South East	90 (2.9%)	63 (2.9%)	44 (3.1%)	44 (3.3%)	11 (5.3%)	7 (4.3%)
11. Champlain	170 (5.4%)	107 (4.9%)	70 (5.0%)	66 (4.9%)	<=5	<=5
12. North Simcoe Muskoka	81 (2.6%)	53 (2.4%)	33 (2.3%)	30 (2.2%)	<=5	<=5
13. North East	618 (19.6%)	461 (21.0%)	299 (21.3%)	289 (21.5%)	44 (21.3%)	36 (22.2%)
14. North West	793 (25.2%)	544 (24.8%)	332 (23.6%)	318 (23.7%)	28 (13.5%)	23 (14.2%)
Comorbidities						
ADG score up to one year prior to index date, mean \pm SD	5.4 \pm 3.8	5.3 \pm 3.7	5.4 \pm 3.7	5.3 \pm 3.6	5.3 \pm 3.6	5.3 \pm 3.8
ADG score up to one year prior to index date, median (IQR)	5 (2-8)	5 (2-8)	5 (2-8)	5 (2-8)	5 (3-7)	5 (2-7)
Number of ADG categories up to one year prior to index date, N (% of total in stage)						
0	251 (8.0%)	173 (7.9%)	106 (7.5%)	100 (7.4%)	14 (6.8%)	13 (8.0%)
1-4	1,204 (38.3%)	835 (38.0%)	524 (37.3%)	509 (37.9%)	77 (37.2%)	60 (37.0%)
5-9	1,219 (38.7%)	870 (39.6%)	579 (41.2%)	549 (40.8%)	89 (43.0%)	67 (41.4%)
10+	472 (15.0%)	318 (14.5%)	197 (14.0%)	186 (13.8%)	27 (13.0%)	22 (13.6%)
Mental health record, N (% of total in stage)						
Substance use and addictive disorders						
Prior to index date	2,194 (69.7%)	1,474 (67.1%)	978 (69.6%)	936 (69.6%)	136 (65.7%)	101 (62.3%)
Prior to Dec 31, 2013	2,530 (80.4%)	1,718 (78.2%)	1,141 (81.2%)	1,094 (81.4%)	163 (78.7%)	123 (75.9%)
Mood disorders						
Prior to index date	1,064 (33.8%)	741 (33.7%)	466 (33.1%)	446 (33.2%)	66 (31.9%)	47 (29.0%)
Prior to Dec 31, 2013	1,482 (47.1%)	1,040 (47.4%)	674 (47.9%)	646 (48.1%)	108 (52.2%)	80 (49.4%)
Personality disorders						
Prior to index date	542 (17.2%)	366 (16.7%)	253 (18.0%)	241 (17.9%)	34 (16.4%)	26 (16.0%)
Prior to Dec 31, 2013	723 (23.0%)	494 (22.5%)	343 (24.4%)	330 (24.6%)	52 (25.1%)	41 (25.3%)
Schizophrenia spectrum and other psychotic disorders						
Prior to index date	340 (10.8%)	228 (10.4%)	161 (11.5%)	154 (11.5%)	18 (8.7%)	14 (8.6%)
Prior to Dec 31, 2013	544 (17.3%)	368 (16.8%)	259 (18.4%)	248 (18.5%)	38 (18.4%)	29 (17.9%)
Anxiety disorders						
Prior to index date	2,394 (76.1%)	1,680 (76.5%)	1,098 (78.1%)	1,050 (78.1%)	169 (81.6%)	127 (78.4%)
Prior to Dec 31, 2013	2,672 (84.9%)	1,870 (85.2%)	1,225 (87.1%)	1,173 (87.3%)	187 (90.3%)	144 (88.9%)
Trauma/stressor-related disorders						
Prior to index date	668 (21.2%)	461 (21.0%)	299 (21.3%)	291 (21.7%)	41 (19.8%)	36 (22.2%)
Prior to Dec 31, 2013	972 (30.9%)	679 (30.9%)	459 (32.6%)	443 (33.0%)	64 (30.9%)	54 (33.3%)
Deliberate self harm						
Prior to index date	399 (12.7%)	265 (12.1%)	185 (13.2%)	172 (12.8%)	17 (8.2%)	15 (9.3%)
Prior to Dec 31, 2013	671 (21.3%)	457 (20.8%)	331 (23.5%)	316 (23.5%)	41 (19.8%)	31 (19.1%)

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Disease-Specific records, N (% of total in stage)						
Genotype of Infection						
Genotype 1	950 (30.2%)	950 (43.3%)	923 (65.6%)	923 (68.7%)	123 (59.4%)	94 (58.0%)
Genotype 2	118 (3.8%)	118 (5.4%)	109 (7.8%)	109 (8.1%)	28 (13.5%)	26 (16.0%)
Genotype 3	301 (9.6%)	301 (13.7%)	289 (20.6%)	289 (21.5%)	46 (22.2%)	34 (21.0%)
Genotype 4	<=5	<=5	<=5	<=5	0 (0.0%)	0 (0.0%)
Multiple Genotypes	<=16	<=16	<=13	11 (0.8%)	<=5	<=5
Missing/Unknown Result	1760 (55.9%)	810 (36.9%)	71 (5.0%)	<=11	<=9	<=7
Hepatitis B						
Prior to index date	49 (1.6%)	38 (1.7%)	26 (1.8%)	24 (1.8%)	<=5	0 (0.0%)
Prior to Dec 31, 2013	92 (2.9%)	70 (3.2%)	48 (3.4%)	46 (3.4%)	7 (3.4%)	<=5
HIV						
Prior to index date	77 (2.4%)	64 (2.9%)	36 (2.6%)	34 (2.5%)	7 (3.4%)	<=5
Prior to Dec 31, 2013	145 (4.6%)	119 (5.4%)	78 (5.5%)	75 (5.6%)	10 (4.8%)	6 (3.7%)
Cirrhosis						
Prior to index date	77 (2.4%)	64 (2.9%)	41 (2.9%)	40 (3.0%)	8 (3.9%)	7 (4.3%)
Prior to Dec 31, 2013	178 (5.7%)	158 (7.2%)	123 (8.7%)	121 (9.0%)	29 (14.0%)	22 (13.6%)
Decompensated cirrhosis						
Prior to index date	53 (1.7%)	48 (2.2%)	30 (2.1%)	29 (2.2%)	<=5	<=5
Prior to Dec 31, 2013	109 (3.5%)	102 (4.6%)	77 (5.5%)	76 (5.7%)	16 (7.7%)	11 (6.8%)
Hepatocellular carcinoma						
Prior to index date	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Prior to Dec 31, 2013	11 (0.3%)	10 (0.5%)	8 (0.6%)	8 (0.6%)	<=5	<=5
Liver transplant						
Prior to index date	<=5	<=5	<=5	<=5	0 (0.0%)	0 (0.0%)
Prior to Dec 31, 2013	14 (0.4%)	14 (0.6%)	11 (0.8%)	11 (0.8%)	<=5	<=5

Notes: Cell sizes <=5 cannot be reported or able to be recalculated to comply with ICES privacy rules.

*Includes individuals for whom this variable indicated residence outside of Ontario during year of assessment. Ontario residence for the initial exclusion criteria was determined using the registered persons database (RPDB) rather than the residence within/outside of First Nations community database. ADG score was derived using the John Hopkins ACG® system [Johns Hopkins ACG® System [Internet]. Johns Hopkins ACG® System. [cited 2019 Feb 7]. Available from: <https://www.hopkinsacg.org/>]

Abbreviations: ADG, aggregated diagnosis groups; HBV, hepatitis B virus; HIV, human immunodeficiency virus; LHIN, local health integration network; RNA, ribonucleic acid; SVR, sustained virologic response.

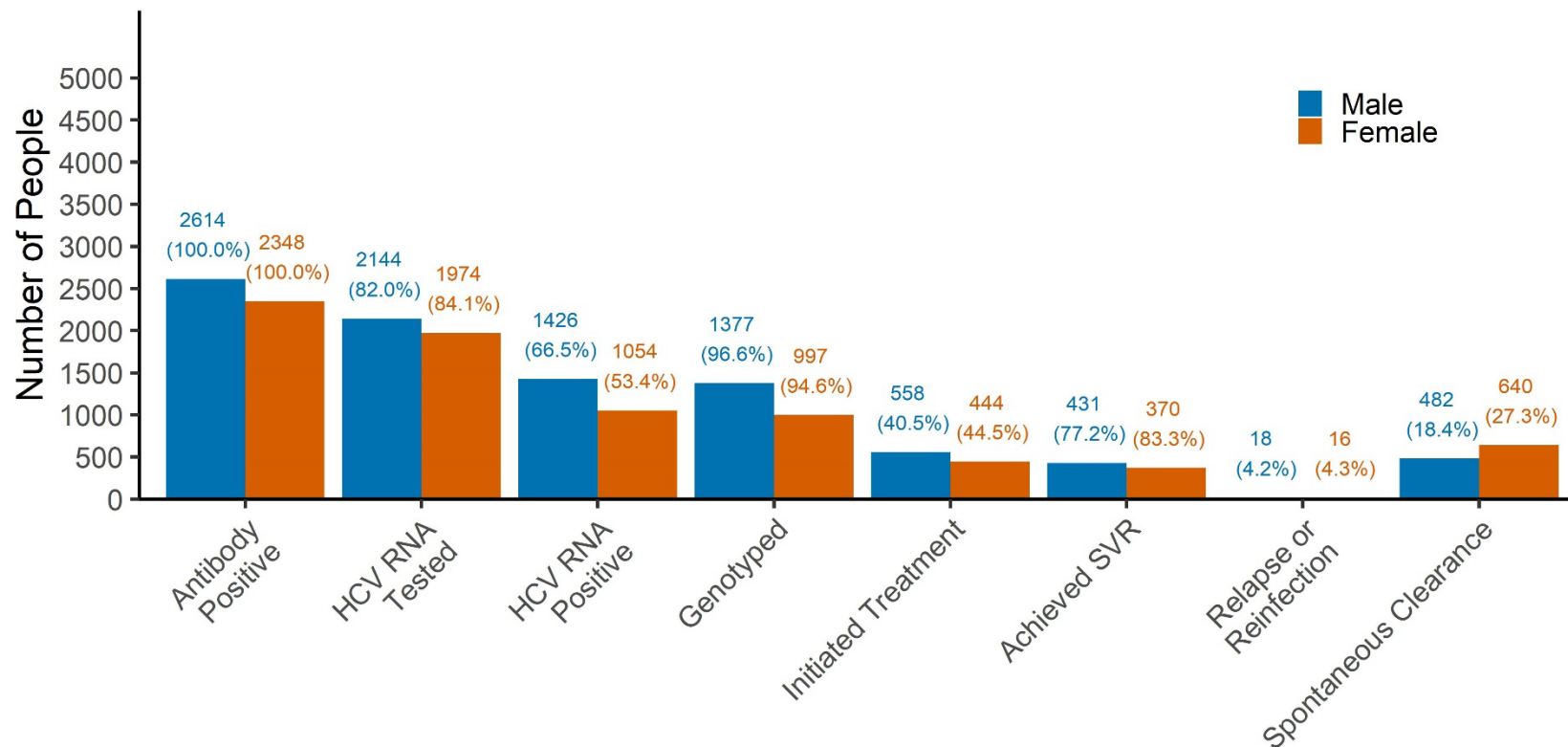


Figure S1. Cascade of care stratified by sex on December 31, 2018. The annotation above each bar describes the number of individuals and percentages of previous stage. For the spontaneous clearance stage, the annotation above the bar describes the percentage of the antibody positive stage.

Abbreviations: HCV, hepatitis C virus; RNA, ribonucleic acid; SVR, sustained virologic response.

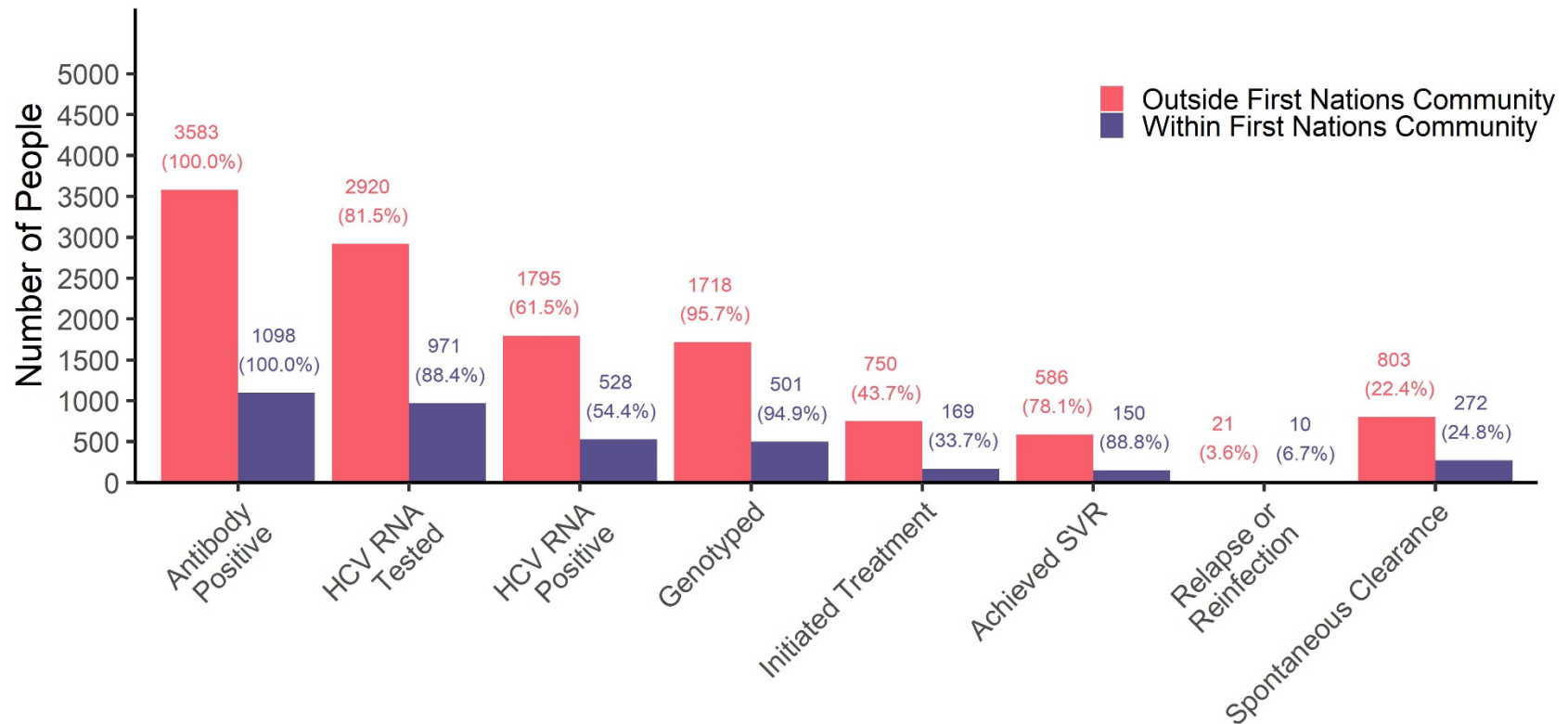


Figure S2. Cascade of care stratified by residence within or outside of a First Nations community at first positive date, measured as of December 31, 2018. The annotation above each bar describes the number of individuals and percentages of previous stage. For the spontaneous clearance stage, the annotation above the bar describes the percentage of the antibody positive stage. Abbreviations: HCV, hepatitis C virus; RNA, ribonucleic acid; SVR, sustained virologic response.

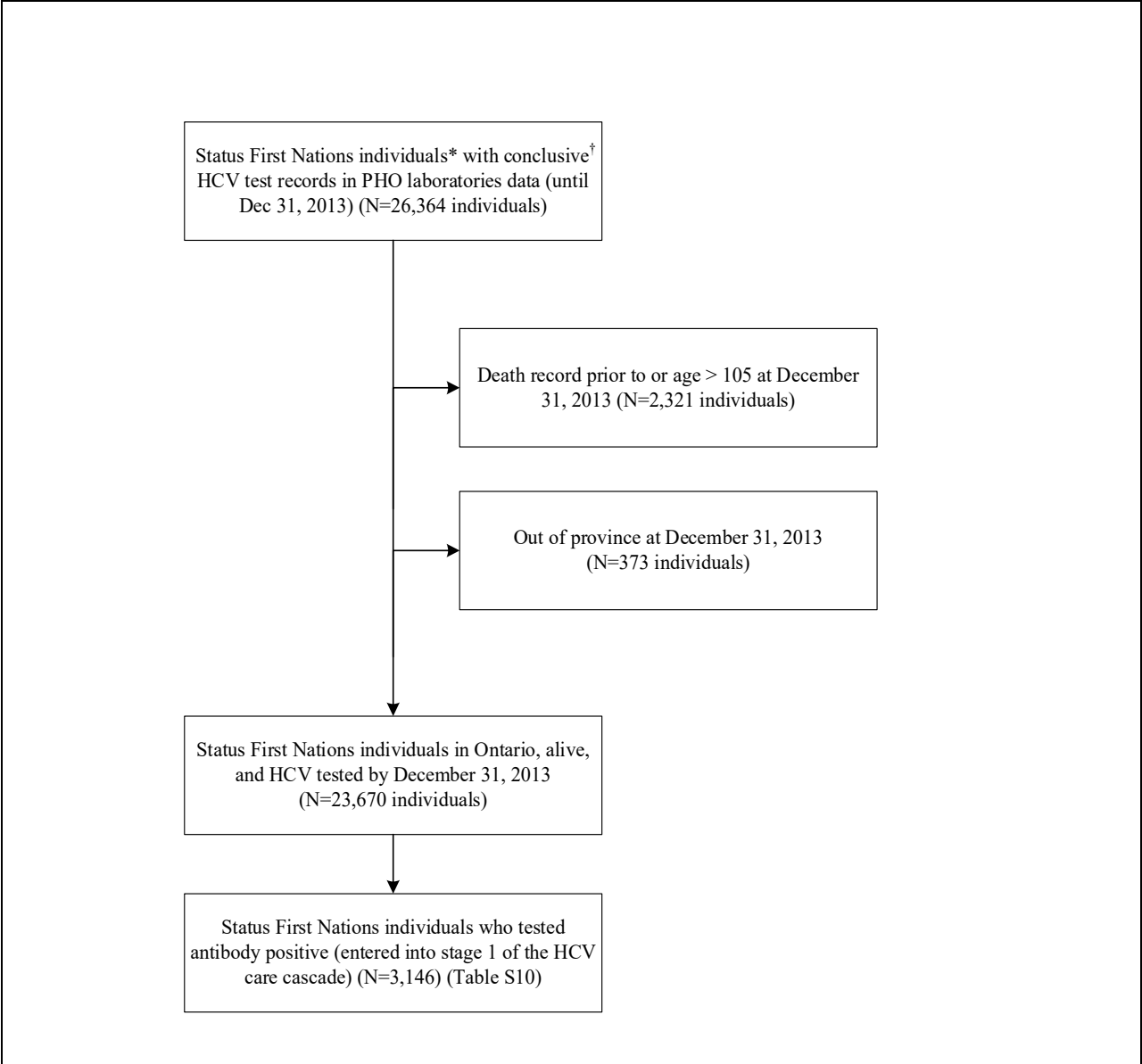


Figure S3. Flow diagram showing cohort selection for cascade of care analysis on December 31, 2013.

*Members of the Kenora Chiefs Advisory were excluded from the analyses

†138 individuals had only inconclusive HCV antibody test results and no HCV RNA test record by December 31, 2013

Abbreviations: HCV, hepatitis C virus; PHO, Public Health Ontario

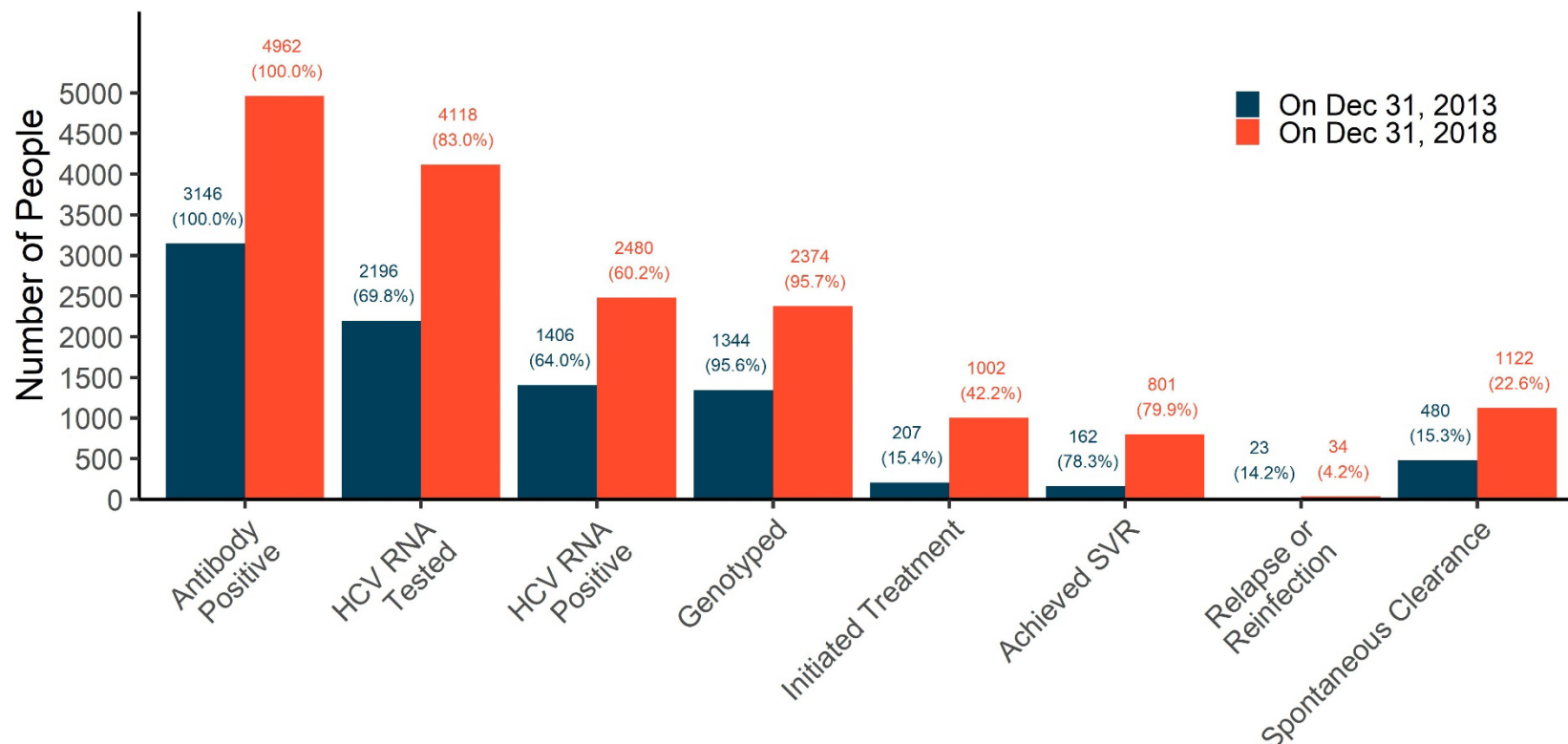


Figure S4. Cascade of care measured on December 31, 2013 (pre-DAA treatment era) compared to on December 31, 2018. The annotation above each bar describes the number of individuals and percentages of previous stage. For the spontaneous clearance stage, the annotation above the bar describes the percentage of the antibody positive stage. Cohort selection and demographics for the cascade on December 31, 2013 can be found in Appendix 6 Figure S3 and Table S11.

Abbreviations: HCV, hepatitis C virus; RNA, ribonucleic acid; SVR, sustained virologic response.

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