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Supplementary Table S1. Criteria and data sources for the BC Hepatitis Testers Cohort (BC-HTC)**Criteria for Inclusion in BC-HTC**

All individuals:

- tested at the centralized provincial laboratory for HCV or HIV OR
- reported by BC public health as a confirmed case of HCV OR
- reported in BC enhanced surveillance system as a confirmed case of HIV or AIDS (all reports) OR
- reported by BC public health as a confirmed case of HBV OR
- included in BC Enhanced Strain Surveillance System (EHSSS) as an acute HBV or HCV case
- All individuals meeting at least one the above criteria were linked internally across all their tests and case reports. Those with a valid personal health number (PHN) were then sent for deterministic linkage with province-wide Cancer and Ministry of Health (MoH) datasets

Provincial Communicable Disease Data Sources:	Data Date Ranges:
BC-PHMRL HIV laboratory testing datasets (tests: ELISA, Western blot, NAAT, p24, culture)	1988–2015
BC-PHMRL HCV laboratory tests datasets (tests: antibody, HCV RNA, genotyping)	1992–2018
HIV/AIDS Information System (HAISYS) (public health HIV/AIDS case reports)	1980–2015
Integrated Public Health Information System (iPHIS) (public health case reports of HCV, HBV, and TB)	1990–2015
Enhanced Strain Surveillance System (EHSSS) (risk factor data on a subset of acute HCV and acute HBV cases)	2000–2013
Cancer and MoH Administrative Data Sources:	Data Date Ranges:
Client Roster (CR) (Registry of enrollment in the universal public health insurance plan including residential history) ⁱ	1990–2016
BC Cancer Registry (BCCR) (primary tumour registry, excludes metastatic cancers) ⁱⁱ	1970–2016
Discharge Abstracts Dataset (DAD) (hospitalization records) ⁱⁱⁱ	1985–2015
Medical Services Plan (MSP) (physician diagnostic and billing data) ^{iv}	1990–2015
PharmaCare/PharmaNet (Pharma) (prescription drug dispensations) ^{v,vi}	1985–2018
BC Vital Statistics (VS) (deaths registry) ^{vii}	1985–2018
National Ambulatory Care Reporting System (NACRS) (emergency department) ^{viii}	2012–2015
Chronic Disease Registry ^{ix}	1992–2015
The final BC-HTC comprises all individuals successfully linked on PHN to the MoH Client Roster (a registry of all BC residents enrolled in the publicly-funded universal healthcare system).	

Abbreviations: HCV, Hepatitis C Virus; HBV, Hepatitis B Virus; HIV/AIDS, Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome; BC-PHMRL, BC Public

Health Microbiology and Reference Laboratory; RNA, Ribonucleic Acid; PCR, Polymerase Chain Reaction.

- i. British Columbia Ministry of Health [creator]. Client Roster (Client Registry System/Enterprise Master Patient Index). British Columbia Ministry of Health [publisher]. Data Extract. MOH (2013). 2016. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- ii. BC Cancer [creator]. BC Cancer Registry. BC Cancer [publisher]. Data Extract. BC Cancer (2013). 2017. <http://www.bccancer.bc.ca/health-professionals/professional-resources/bc-cancer-registry/request-registry-data>
- iii. British Columbia Ministry of Health [creator]. Discharge Abstract Database (Hospital Separations). British Columbia Ministry of Health [publisher]. Data Extract. MOH (2013). 2016. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- iv. British Columbia Ministry of Health [creator]. Medical Services Plan (MSP) Payment Information File. British Columbia Ministry of Health [publisher]. Data Extract. MOH (2013). 2016. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- v. British Columbia Ministry of Health [creator]. PharmaCare. British Columbia Ministry of Health [publisher]. Data Extract. MOH (2013). 2019. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- vi. British Columbia Ministry of Health [creator]. PharmaNet. British Columbia Ministry of Health [publisher]. Data Extract. MOH (2013). 2019. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- vii. BC Vital Statistics Agency [creator]. Vital Statistics Deaths. BC Vital Statistics Agency [publisher]. Data Extract. BC Vital Statistics Agency (2014). 2019. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- viii. British Columbia Ministry of Health [creator]. National Ambulatory Care Reporting System. British Columbia Ministry of Health [publisher]. Data Extract. MOH (2017). 2017. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>
- ix. British Columbia Ministry of Health [creator]. Chronic Disease Registry. British Columbia Ministry of Health [publisher]. Data Extract. MOH (2017). 2017. <https://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central/health-authorities>.

Supplementary Table S2. Variables administrative code definitions in BC-HTC

Diabetes mellitus (DM)

Diabetes mellitus was defined at the occurrence of the second of 2 MSP, within one year, or 1 hospitalization diagnostic code for diabetes mellitus, or the prescription of at least two oral hypoglycemic drugs or insulin within one year.

Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 250.

Hospitalization Data: DAD1/ICD-9-CM: starting with 250; DAD2/ICD-10-CA: starting with E10, E11, E12, E13 or E14.

PharmaNet Data: DIN PIN numbers: 5894, 6009, 12556, 12564, 12599, 12602, 12610, 13730, 13889, 15598, 21350, 21849, 24708, 24716, 93033, 156663, 156728, 178543, 209872, 209937, 237000, 244449, 271330, 274119, 274127, 275409, 275417, 275425, 312711, 312762, 314552, 377937, 399302, 420336, 430986, 431168, 446564, 446572, 446580, 446599, 446602, 446610, 454753, 480290, 480304, 513644, 514535, 514551, 539201, 539244, 542911, 542938, 542946, 546348, 552259, 552267, 552275, 554820, 586714, 586773, 587737, 612162, 612170, 612189, 612197, 612200, 612219, 612227, 612235, 612243, 612251, 612278, 612359, 614416, 628301, 632651, 632678, 632686, 632694, 644358, 646148, 648094, 650935, 720933, 720941, 723789, 733075, 765996, 773654, 795879, 808733, 808741, 889091, 889105, 889113, 889121, 999717, 999814, 1900927, 1900935, 1913654, 1913662, 1913670, 1913689, 1934066, 1934074, 1934082, 1934090, 1934104, 1934112, 1959212, 1959220, 1959239, 1959352, 1959360, 1962639, 1962647, 1962655, 1962663, 1985930, 1985949, 1985957, 1985965, 1985973, 1985981, 1986085, 1986791, 1986805, 1986813, 1986821, 1987534, 1987542, 1987828, 1987836, 2020734, 2020742, 2022230, 2022249, 2024217, 2024225, 2024233, 2024241, 2024268, 2024276, 2024284, 2024292, 2024306, 2024314, 2024322, 2024403, 2024446, 2025248, 2025256, 2045710, 2084341, 2085887, 2099233, 2147521, 2147548, 2148765, 2155850, 2162822, 2162849, 2167786, 2188902, 2190885, 2190893, 2220628, 2223562, 2224550, 2224569, 2224771, 2224798, 2226804, 2226812, 2228920, 2228939, 2229516, 2229517, 2229519, 2229595, 2229596, 2229656, 2229704, 2229705, 2229785, 2229994, 2230026, 2230027, 2230036, 2230037, 2230443, 2230444, 2230475, 2230670, 2230671, 2231058, 2231095, 2231096, 2231389, 2233562, 2233999, 2234513, 2234514, 2236543, 2236548, 2236733, 2236734, 2236985, 2236986, 2237531, 2238103, 2238469, 2238470, 2238471, 2238698, 2238827, 2239081, 2239214, 2239474, 2239475, 2239476, 2239924, 2239925, 2239926, 2240294, 2240295, 2240297, 2241111, 2241112, 2241113, 2241114, 2241283, 2241310, 2242095, 2242096, 2242572, 2242573, 2242574, 2242589, 2242726, 2242783, 2242793, 2242794, 2242931, 2242974, 2242987, 2244353, 2245247, 2245272, 2245273, 2245274, 2245397, 2245438, 2245439, 2245440, 2245689, 2246820, 2246821, 2246964, 2246965, 2247085, 2247086, 2247087, 2248008, 2248009, 2248210, 2248440, 2248441, 2248453, 2251930, 2252945, 2252953, 2254719, 2257726, 2257734, 2258781, 2258803, 2258811, 2265435, 2265443, 2265575, 2265583, 2268493, 2268507, 2269031, 2269058, 2269589, 2269597, 2269600, 2269619, 2271842, 2273101, 2273128, 2273136, 2273756, 2273764, 2273772, 2274248, 2274256, 2274264, 2274272, 2274914, 2274922, 2274930, 2275864, 2275872, 2276410, 2279061, 2279088, 2279126, 2279460, 2279479, 2279487, 2284545, 2284553, 2284782, 2284790, 2287072, 2294338, 2294346, 2294400, 2295377, 2295385, 2295393, 2297795, 2297906, 2297914, 2297922, 2298279, 2298287, 2298295, 2300451, 2301423, 2301431, 2301458, 2302861, 2302888, 2302896, 2302942, 2302950, 2302977, 2303124, 2303132, 2303140, 2303442, 2303450, 2303469, 2303922, 2305062, 2306166,

<p>2306174, 2306182, 2307170, 2307189, 2307197, 2307553, 2307561, 2307588, 2307634, 2307642, 2307650, 2307669, 2307677, 2307723, 2312050, 2312069, 2312077, 2313596, 2314894, 2314908, 2316544, 2320754, 2320762, 2320770, 2321475, 2321483, 2321491, 2326329, 2326337, 2326345, 2326477, 2326485, 2326493, 2331519, 2331527, 2333554, 2333856, 2333864, 2333872, 2334437, 2334445, 2336316, 2339110, 2339129, 2339587, 2339595, 2340763, 2340771, 2341522, 2341603, 2343606, 2343614, 2345366, 2345374, 2345382, 2345854, 2345862, 2348578, 2350459, 2350467, 2351056, 2351064, 2353377, 2353385, 2354144, 2354152, 2354160, 2354349, 2354357, 2354365, 2354926, 2354934, 2354942, 2355663, 2355671, 2355698, 2356422, 2357453, 2357461, 2357488, 2357887, 2357895, 2357909, 2357917, 2357925, 2361264, 2361272, 2361809, 2361817, 2363232, 2363240, 2363259, 2363518, 2363704, 2363712, 2364506, 2364514, 2365286, 2365294, 2365529, 2365537, 2366347, 2366355, 2366363, 2370921, 2373270, 2373289, 2373297, 2374013, 2374021, 2374048, 2374587, 2374595, 2375842, 2375850, 2375869, 2375877, 2377209, 2378043, 2378051, 2378116, 2378124, 2378620, 2378639, 2378841, 2378868, 2379767, 2379775, 2380196, 2380218, 2380722, 2380730, 2384906, 2384914, 2384922, 2385341, 2385368, 2388766, 2388774, 2388839, 2388847, 2389169, 2389177, 2389185, 2389290, 2389304, 2389312, 2391600, 2397307, 2403250, 2403269, 2403277, 2403366, 2403374, 2403382, 2403412, 2403420, 2403439, 2403447, 2405067, 2406020, 2406039, 2408228, 2408236, 2409283, 2409291, 22303140, 45230001, 45230002, 45230003, 45230004, 45230005, 45230006, 45230007, 45230008, 45230009, 45230010, 47450001, 47450002, 47450003, 47450004, 47450005, 47450006, 47450007.</p>
<p>Ethnicity Ethnicity classification was based on Onomapⁱⁱⁱ name recognition software and grouped as South Asian (Pakistani, Indian, Bangladeshi, Nepalese, Sri Lankan), East Asian (Chinese, Japanese, Korean), and Other BC Residents (White, Indigenous, Black, Latin American, Pacific Islander, Central/West Asian, Filipino, South East Asian and other residents of British Columbia).</p>
<p>Material and Social Deprivation Quintiles The Québec Index of Material and Social Deprivationⁱⁱⁱ was calculated based on 6-digit postal code of individuals' residence. The deprivation index combines six indicators related to health and welfare that represent material or social deprivation and are available by enumeration area in Canadian census data: 1) proportion of persons without high-school diploma 2) ratio of employment to population 3) average income 4) proportion of persons separated, divorced, widowed 5) the proportion of single-parent families 6) proportion of people living alone.</p>
<p>Hepatitis B virus (HBV) infection HBV infection was defined at the first occurrence of a case of HBV recorded in iPHIS or PANORAMA; if none recorded, then the first occurrence of 2 MSP (2 physician visits or 2 fee items), 1 hospitalization code or 1 PharmaNet code involving acute or chronic hepatitis B diagnoses with or without hepatic coma and with or without delta agents; inactive carriers; or hepatitis B-specific treatment among those diagnosed at age 18 months or older. Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 702, 703, V0261; Fee item codes: 90675, 90690, 90831, 91765. Hospitalization Data: DAD1/ICD-9-CM: starting with 702, 703, V0261; DAD2/ICD-10-CA: starting with B16, B180, B181, Z2250. PharmaNet Data: DINPIN numbers: 02239193, 02247128, 02247823, 02282224, 02288389.</p>
<p>Human immunodeficiency virus (HIV) infection</p>

<p>HIV infection was defined at the first occurrence of 3 MSP or 1 hospitalization for HIV or a positive HIV serologic test, HAISYS or BC Vital Statistics indication (cause of death).</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 042, 043, 044, 7953, 7958, 79571, V08.</p> <p>Hospitalization Data: DAD1/ICD-9-CM: starting with 042, 043, 044, 7953, 7958, 79571, V08; NACRS/DAD2/ICD-10-CA: starting with B20-B24, B9735, F024, O987, R75, Z21.</p>
<p>Liver cirrhosis</p> <p>Liver cirrhosis was defined as the occurrence of either 1 physician visit or 1 hospitalization code relevant to decompensated cirrhosis and compensated cirrhosis including esophageal varices with or without bleeding, spontaneous bacterial peritonitis, hepatic encephalopathy, hepatorenal syndrome, ascites, and portal hypertension, chronic hepatitis failure (alcoholic/non-alcoholic), hepatic coma, unspecified hepatic failure, unspecified cirrhosis of the liver or previous cause of chronic liver disease.</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 4562; exact codes 4560, 4561, 56723, 5722, 5724, 5712, 5728, 5715, 7895, 07044, 5713.</p> <p>Hospitalization Data: NACRS/DAD1/ICD-9-CM diagnostic codes: starting with 4562; exact codes 4560, 4561, 56723, 5722, 5723, 5724, 5712, 5728, 5715, 7895, 07044, 5713.</p> <p>DAD2/ICD-10-CA diagnostic codes: starting with K703; exact codes: I850, K652, K721, K729, K766, K767, K7460, K7469, R18, I98.20, I98.3, K704.</p>
<p>Chronic kidney disease (CKD)</p> <p>Chronic kidney disease was defined at the second occurrence of 2 MSP, within one year, or 1 hospitalization diagnostic code with the following codes.</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 581, 582, 583, 585, 586, 587 or 589.</p> <p>Hospitalization Data: DAD1/ICD-9-CM: starting with 581, 582, 583, 585, 586, 587 or 589. DAD2/ICD-10-CA: starting with N01, N03, N04, N05, N06, N07, N18, N19, N26, or N27.</p>
<p>End-stage renal disease (ESRD)</p> <p>End-stage renal disease was defined at the occurrence of nine or more dialysis-related MSP fee item codes, within 90 days, or 1 hospitalization procedure code for kidney transplantation.</p> <p>Physician Billing Data: MSP fee item codes: 00308, 00323, 00350, 00351, 00352, 00355, 00356, 00358, 00359, 00361, 00390, 33708, 33723, 33750, 33751, 33752, 33755, 33756, 33758, 33759, 33761, or 33790. 77380.</p> <p>Hospitalization Data: Procedure code 675 (Canadian Classification of Diagnostic, Therapeutic and Surgical Procedures) or 1PC85 (Canadian Classification of Health Interventions).</p>
<p>Ischemic heart disease (IHD)</p> <p>Ischemic heart disease was defined as either (i) two physician visits with Angina ICD-9 code 413 plus one prescription (as specified in the PharmaNet list below) in one year, (ii) one specialist visit with Angina ICD-9 code 413 plus one prescription (as specified in the PharmaNet list below) in one year, (iii) or two physician visits with two ICD-9 410, 411, 412, 413, 414 in one year, (iv) one coronary artery bypass grafting (CABG), percutaneous coronary intervention (PCI/PCTA) procedure code specified below, or (v) one hospitalization with any IHD code specified below.</p> <p>Hospitalization Data: DAD1/ICD-9-CM: starting with 410, 411, 412, 413, 414; DAD2/ICD-10-CA: starting with I20, I21, I22, I23, I24, or I25.</p> <p>Procedural codes: ICD9 starting with 4802, 4803, 4811, 4812, 4813, 4814, 4815, 4816, 4817,</p>

<p>4819; ICD10 starting with 1IJ50, 1IJ57G, 1IJ57LA, 1IJ57VS, 1IJ76.</p> <p>PharmaNet Data: DIN PIN numbers: 3662,14214,15954, 15962, 37613, 37621, 104736, 125849, 202959, 202967, 202975, 208973, 243116, 279536, 299790, 342734, 441686, 441694, 442925, 446661, 446688, 446696, 458686, 458694, 476579, 476587, 476595, 476609, 525529, 576174, 584223, 584258, 584266, 590673, 590681, 590738, 590746, 602892, 608785, 614262, 658812, 660655, 670944, 677469, 695726, 725242, 740721, 749362, 749370, 749389, 749397, 754188, 778869, 786640, 786667, 786683, 852384, 860778, 874213, 874248, 1911902, 1911910, 1911929, 1913921, 1926454, 1926721, 1927809, 1946196, 2011271, 2041715, 2041723, 2042606, 2042614, 2042622, 2044811, 2046156, 2046164, 2058472, 2125218, 2126559, 2145294, 2145308, 2145316, 2162806, 2163527, 2163535, 2164337, 2182734, 2213370, 2230732, 2230733, 2230734, 2231441, 2238998, 2243588, 2272830, 2301288, 2393433, 2407442, 2407450, 2407469, 2407477.</p>
<p>Hypertension</p> <p>Hypertension was defined as the first occurrence of 2 MSP, within one year, or 1 hospitalization with the hypertension-related diagnostic codes shown below.</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 401, 402, 403, 404, 405.</p> <p>Hospitalization Data: DAD1/ICD-9-CM: starting with 401, 402, 403, 404, 405; DAD2/ICD-10-CA: starting with I10, I11, I12, I13, I14.</p>
<p>Statin use</p> <p>Statin use was defined as the first occurrence for any statin dispensation using the following DIN PIN numbers in PharmaNet.</p> <p>PharmaNet Data: DIN PIN numbers: 2355639, 2295261, 2391082, 2433796, 2351765, 2346494, 2396432, 2288362, 2397862, 2399385, 2230711, 2313472, 2313448, 2373238, 2302683, 2355620, 2391058, 2310902, 2295288, 2295318, 2387921, 2397897, 2392933, 2313456, 2435306, 2435314, 2454033, 2302691, 2324946, 2398141, 2364441, 2373211, 2433761, 2346516, 2422794, 2350327, 2399393, 2376326, 2384817, 2333724, 2302713, 2351773, 2407256, 2417960, 2348624, 2348721, 2324962, 2398117, 2399377, 2376288, 2389541, 2399504, 2346508, 2422778, 2348705, 2324954, 2364468, 2392976, 2230714, 2373246, 2433788, 2396440, 2422786, 2417952, 2310899, 2310910, 2411385, 2387905, 2392941, 2243097, 2384795, 2384809, 2389576, 2333759, 2399482, 2302675, 2407272, 2417936, 2288370, 2411369, 2387891, 2364476, 2364484, 2333740, 2399490, 2355612, 2346486, 2391074, 2348640, 2411377, 2398125, 2454017, 2313758, 2313723, 2350335, 2288354, 2387913, 2384787, 2351757, 2417944, 2310929, 2348659, 2350319, 2399407, 2433818, 2389568, 2396459, 2348632, 2350297, 2435322, 2333732, 2454025, 2313715, 2396424, 2407280, 2422751, 2390182, 2313707, 2348748, 2398133, 2373203, 2355647, 2407264, 2288346, 2295296, 2397870, 2313464, 2435292, 2454041, 2351781, 2391066, 2324970, 2348713, 2411350, 2397889, 2392968, 2230713, 2376318, 2376296, 2389584, 2362767, 2411261, 2427702, 2362783, 2411253, 2273314, 2362805, 2362813, 2400774, 2362821, 2273241, 2362775, 2273268, 2273306, 2400758, 2362791, 2411334, 2273284, 2400782, 2400790, 2427737, 2427710, 2400820, 2404249, 2404257, 2362759, 2411288, 2273233, 2411296, 2411318, 2411342, 2273276, 2400812, 2404230, 2411326, 2273292, 2404222, 2427729, 2400804, 2400839, 2243223, 2237326, 2237325, 2241466, 2400235, 2061562, 2061570, 2299224, 2250527, 2299232, 2400243, 2247232, 2364247, 2246014, 2239956, 2252929, 2272288, 2353229, 2220172, 795852, 2331845, 2243127, 2248572, 2246542, 2246989, 2231434, 2247056, 2344335, 2243129, 2245822, 2341476, 2312689, 2246543, 2353237, 2246013, 2312670, 2248573, 2220180, 2267969, 2272296, 2247231,</p>

2246990, 2364239, 2344343, 2245823, 2247537, 2252937, 2331837, 795860, 2267977, 2247536, 2239955, 2341484, 2247057, 2293501, 2270439, 2270447, 2270429, 2242866, 2243825, 2247858, 2430983, 2389738, 2248184, 2243506, 2317486, 2340259, 2243824, 2427257, 2440644, 2432048, 2257092, 2249731, 2265613, 2270234, 2301806, 2379791, 2310775, 2274523, 2274507, 2445379, 893757, 2257106, 2247009, 2370875, 2246932, 2340267, 2379783, 2379805, 2345757, 2345730, 2458977, 2340275, 2331586, 2364417, 2249782, 2345749, 2330962, 2243508, 2389746, 893749, 2257114, 2249758, 2237374, 2265621, 2301792, 2430975, 2432064, 2342340, 2244351, 2270242, 2364433, 2332191, 2247656, 2247010, 2256851, 2246930, 2247856, 2440652, 2249723, 2440660, 2247657, 2284448, 2222051, 2243826, 2427265, 2446286, 2243507, 2244350, 2342332, 2330970, 2301814, 2270250, 2237375, 2331594, 2356554, 2284421, 2389703, 2317451, 2242865, 2249774, 2242867, 2247857, 2274515, 2445395, 2330954, 2458985, 2256878, 2256886, 2364425, 2246931, 2310759, 2332213, 2445409, 2247008, 2247655, 2248183, 2248182, 2458993, 2370891, 2237373, 2331608, 2310767, 2332205, 2432056, 2342324, 2446251, 2356546, 2244352, 2370905, 2249766, 2265648, 2430967, 2446278, 2356562, 2284456, 2317478, 2272423, 2272431, 2272415, 2413051, 2413086, 2380064, 2338734, 2339773, 2381192, 2386739, 2444968, 2397803, 2378531, 2378566, 2380056, 2247163, 2389436, 2445441, 2411644, 2389053, 2381281, 2339781, 2337975, 2399199, 2247162, 2385538, 2385546, 2389355, 2397838, 2405628, 2382644, 2339765, 2354616, 2337991, 2438917, 2445425, 2391279, 2397781, 2354608, 2338009, 2389061, 2385511, 2389401, 2438925, 2438933, 2433141, 2381303, 2433125, 2410966, 2445417, 2391252, 2413078, 2405636, 2405644, 2442590, 2442604, 2265540, 2410958, 2390558, 2380013, 2339803, 2399180, 2442582, 2442574, 2444976, 2343533, 2381206, 2410974, 2411628, 2411652, 2378558, 2338750, 2381273, 2381184, 2385554, 2444984, 2391260, 2386712, 2382660, 2354624, 2378523, 2389428, 2343517, 2390523, 2411636, 2386720, 2382679, 2381176, 2399164, 2389037, 2247164, 2438941, 2390507, 2405652, 2399172, 2389045, 2380102, 2433133, 2433168, 2444992, 2445433, 2343525, 2390531, 2391287, 2386704, 2382652, 2338726, 2338742, 2354632, 2337983, 2410931, 2343509, 2397811, 2413108, 2381265, 2247531, 2252643, 2253747, 2338866, 2247076, 2341956, 2349949, 2349965, 2364034, 2378884, 2372967, 2250152, 2375648, 2386321, 2269287, 2248107, 884324, 2253712, 2247075, 2397668, 2397633, 2265672, 2342456, 2375044, 2376059, 2375060, 2284774, 884359, 2253739, 2281619, 2265915, 2281643, 2181562, 2341980, 2377640, 2329182, 2329174, 2331985, 2375613, 2376075, 2247068, 2331039, 2343150, 2300915, 2300907, 2247077, 2400278, 2377675, 2377284, 2246584, 2248103, 2372975, 2246737, 2248106, 2338904, 2400251, 2397684, 2374676, 2265680, 2372959, 2247299, 2376083, 2376067, 2246583, 884332, 2247012, 2253755, 2265885, 2300923, 2400286, 2400308, 2397641, 2329158, 2329166, 2246585, 2375591, 2376040, 2247070, 2386313, 2246582, 2250144, 2284758, 2240332, 2331020, 2281627, 2281635, 2364018, 2338882, 2378922, 2265664, 2379538, 2379554, 2329131, 2247069, 2405164, 2247300, 2253720, 2281570, 2265907, 2247831, 2343142, 2300974, 2247533, 2247224, 2374633, 2374625, 2342480, 2331993, 2332000, 2375052, 2386305, 2405148, 2405156, 2265893, 2247830, 2253771, 2341964, 2378892, 2253798, 2374641, 2377314, 2331969, 2247297, 2405180, 2247301, 2247222, 2247534, 2343169, 2300931, 2265877, 2341999, 2349922, 2364050, 2378906, 2377659, 2379503, 2247011, 2375605, 2375036, 2248104, 2247298, 2375621, 2284731, 2284766, 2250187, 2247220, 2252651, 2281651, 2338890, 2338874, 2400294, 2247223, 2374668, 2342464, 2247067, 2269279, 2247071, 2269252, 2247828, 2247833, 2253704, 2247221, 2253690,

2252635, 2341972, 2349930, 2281546, 2281562, 2342499, 2372940, 2332019, 2250179, 2331063, 2253763, 2364026, 2364042, 2265656, 2265699, 2375079, 2269260, 2281554, 2379511, 2331055, 2343185, 2247072, 2247535, 2252619, 2349957, 2377306, 2377292, 2342472, 2379546, 2372932, 884340, 2386291, 2405172, 2248105, 2247078, 2331047, 2281589, 2247827, 2378914, 2269295, 2386348, 2247014, 2252678, 2343177, 2377632, 2377667, 2247532, 2397676, 2377322, 2284723, 2250160, 2247015, 2247013.
<p>Mood and anxiety disorders Mood and anxiety disorders was defined at the second occurrence of 2 MSP, within one year, or 1 hospitalization diagnostic code related to mood or anxiety.</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 296, 300 or 311.</p> <p>Hospitalization Data: DAD1/ICD-9-CM: starting with 296, 300 or 311; DAD2/ICD-10-CA: starting with F30, F31, F32, F33, F34, F38, F39, F40, F41, F42, F43, F44, F45, F48, or F68.</p>
<p>Obesity Obesity was defined as at least two physician visit codes, one hospitalization code, or one NACRS code, involving obesity, obesity complicating pregnancy, screening for obesity, obese BMI, bariatric surgery, gastrectomy, or gastric partitioning surgery; or one PharmaNet code involving obesity-related prescriptions (for a prescription of 30 days and longer).</p> <p>Physician codes MSP/ICD-9 diagnostic codes starting with 2780, 6491, 6492, V853, V854; or exact codes V4586, V778.</p> <p>Hospitalization codes DAD1/DAD3/ICD-9 diagnostic codes starting with 2780, 6491, 6492, V853, V854; or exact codes V4586, V778 or exact procedure codes 558, 5693, 7652 DAD2/ICD-10 exact procedure codes: 1ZZ35CAA8, 1ZZ35HAA8, 1ZZ35YAA8 DAD2/NACRS/ICD-10 diagnostic codes starting with E66, Z683, Z684</p> <p>PharmaNet codes: exact codes: 18058, 26506, 133957, 227927, 227935, 285544, 344397, 411426, 418382, 432407, 449628, 779490, 891762, 891770, 1914057, 1916831, 2043351, 2047675, 2052490, 2235390, 2235395, 2240325, 2243163, 2243164, 2318970, 2318989, 2337614, 2337622, 2472945.</p>
<p>Alcohol use disorder Alcohol use disorder was defined at the first occurrence of 2 MSP or 1 hospitalization codes for major alcohol-related diagnoses including alcoholic mental disorders and dependence/abuse syndromes; alcoholic polyneuropathy, myopathy, cardiomyopathy; pseudo Cushing's syndrome; or discharge to alcohol rehabilitation, counselling, or surveillance</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 291, 303, 3050, 3575, 4255.</p> <p>Hospitalization Data: DAD1/ICD-9-CM: starting with 291, 303, 3050, 3575, 4255; DAD2/ICD-10-CA: starting with F10, E244, G312, G621, G721, I426, Z502, Z714.</p>
<p>Injection drug use (IDU) Injection drug use was defined at the occurrence of at least 1 MSP, 1 hospitalization, or 1 PharmaNet code for major drug-related diagnoses involving addiction, dependence, and drug-induced mental disorders; illicit drug use most likely to be injecting (e.g. excluding cannabis), or illicit use of prescribed drugs including: hallucinogens, barbiturates/tranquillizers, sedatives, hypnotics, anxiolytics, opioids, cocaine, amphetamine, volatile solvents; or discharge to drug rehabilitation, counselling, and surveillance ($11 \leq$ diagnosis age ≤ 65). Recent PWID was IDU between 2012 and 2015, while past was IDU before 2012.</p> <p>Physician Billing Data: MSP ICD-9 diagnostic codes: starting with 292, 3040, 3042, 3044, 3046-9, 3054-7, 3059, 6483, 9650, 9658, 9663-64, 9670, 9684, 9685, 9697-99, 9700-01, 9708-</p>

09, E8500, or exact codes V6542 or fee item = 39

Hospitalization Data: DAD1/ICD-9-CM: starting with 292, 3040-42, 3044-49, 3054-7, 3059, 6483, 7960, 9621, 9650, 9658, 9663-64, 9670, 9684-85, 9694, 9696-99, 970, 9700-01, 9709-09, E8500, V6542; NACRS/DAD2/ICD-10-CA: starting with F11, F13-5, F19, or exact codes R781-82, T387, T400-T406, T409, T412, T423-28, T436-439, T507; NACRS (ICD10 complaint codes): 751, 753.

Abbreviations: DAD, discharge abstracts database; DIN, drug identification number; ICD, international classification of diseases; MSP, medical services plan; PIN, product information number.

- i. Ryan R, Vernon S, Lawrence G, Wilson S. Use of name recognition software, census data and multiple imputation to predict missing data on ethnicity: application to cancer registry records. *BMC Med Inform Decis Mak* 2012; 12: 3.
- ii. Lakha F, Gorman DR, Mateos P. Name analysis to classify populations by ethnicity in public health: validation of Onomap in Scotland. *Public Health* 2011; 125(10): 688-96.
- iii. Pampalon R, Hamel D, Gamache P, Raymond G. A deprivation index for health planning in Canada. *Chronic Dis Can* 2009; 29(4): 178-91.

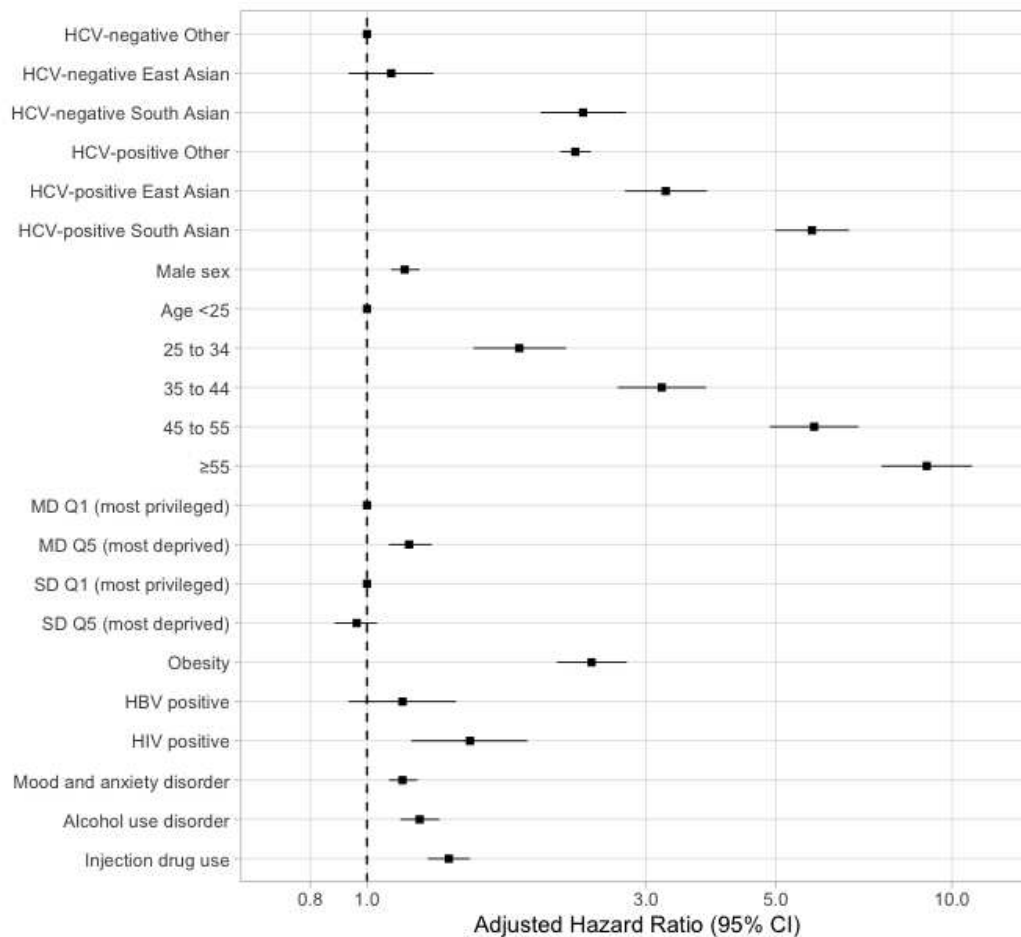
Supplementary Table S3. Incidence rates and 15-years cumulative incidences of diabetes by HCV infection and ethnicity in the British Columbia Hepatitis Testers Cohort 1990-2015

	Overall (95% CI)	East Asian (95% CI)	South Asian (95% CI)	Other (95% CI)
Incidence rate per 1,000 PYFU				
HCV negative	5.40 (5.34-5.46)	6.46 (6.25-6.67)	9.50 (9.17-9.84)	5.02 (4.96-5.08)
HCV positive	5.85 (5.68-6.03)	9.48 (8.15-11.02)	14.70 (12.87- 16.78)	5.56 (5.39-5.74)
15-year cumulative incidence per 10,000 people				
HCV negative	689.60	804.73	1194.51	645.91
HCV positive	721.72	1188.12	1755.80	684.62

Abbreviations: CI, confidence interval; HCV, hepatitis C virus; IR, incidence rate; PYFU, person-years of follow-up.

All p-values computed with Wald test comparing incidence rates in each subgroup were < 0.001.

Supplementary Figure 1. Impact of HCV infection and ethnicity on diabetes risk between 1990-2015 in British Columbia Hepatitis Testers Cohort, using multivariable Fine-Gray subdistribution proportional hazards model^a, in propensity score (PS) matched dataset



Abbreviations: CI, confidence interval; HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; MD, material deprivation; Q, quintiles; SD, social deprivation.

^aMultivariable model was adjusted with sex, age at HCV diagnosis, material and social deprivation quintiles, HBC/HIV infection, obesity, mood and anxiety disorders, alcohol use disorder and injection drug use.

Supplementary Table S4. Relationship between HCV infection and incident diabetes between 1990–2015 in British Columbia Hepatitis Testers Cohort using multivariable Fine-Gray subdistribution proportional hazards model, in propensity score (PS) matched dataset, stratified by ethnicity

Covariate	Other	East Asian	South Asian
	aHR (95% CI)	aHR (95% CI)	aHR (95% CI)
HCV positive	2.28 (2.15-2.42)	3.07 (2.43-3.88)	2.62 (2.10-3.26)
Male sex	1.17 (1.11-1.25)	1.20 (0.95-1.51)	1.07 (0.86-1.34)
Age at HCV diagnosis			
<25	1 (ref)	1 (ref)	1 (ref)
25 to 34	1.77 (1.45-2.15)	1.68 (0.55-5.17)	2.33 (1.23-4.39)
35 to 44	3.14 (2.61-3.78)	5.12 (1.87-13.98)	3.23 (1.72-6.04)
45 to 55	5.79 (4.80-6.97)	8.22 (3.02-22.36)	5.56 (2.97-10.42)
≥55	9.38 (7.76-11.35)	12.87 (4.74-34.96)	5.42 (2.88-10.18)
Material DQ			
Q1 (most privileged)	1 (ref)	1 (ref)	1 (ref)
Q2	1.07 (0.97-1.19)	1.42 (0.94-2.13)	2.64 (1.33-5.21)
Q3	1.17 (1.06-1.28)	1.21 (0.80-1.84)	2.28 (1.18-4.40)
Q4	1.11 (1.01-1.22)	1.36 (0.92-2.01)	2.34 (1.24-4.40)
Q5 (most deprived)	1.13 (1.04-1.24)	1.35 (0.93-1.97)	3.03 (1.64-5.61)
Social DQ			
Q1 (most privileged)	1 (ref)	1 (ref)	1 (ref)
Q2	1.00 (0.90-1.12)	1.45 (1.05-2.00)	1.32 (1.01-1.74)
Q3	0.96 (0.86-1.07)	1.14 (0.80-1.62)	1.02 (0.72-1.43)
Q4	0.98 (0.88-1.09)	1.21 (0.84-1.75)	1.16 (0.83-1.62)
Q5 (most deprived)	0.92 (0.83-1.01)	1.35 (0.95-1.91)	0.98 (0.69-1.37)
Obesity	2.49 (2.16-2.86)	1.17 (0.29-4.74)	1.90 (1.00-3.62)
HBV positive	1.28 (1.01-1.63)	0.88 (0.54-1.42)	0.54 (0.13-2.20)
HIV positive	1.55 (1.23-1.96)	0.92 (0.13-6.65)	0.68 (0.17-2.77)
Mood and anxiety disorder	1.15 (1.08-1.22)	1.02 (0.74-1.40)	1.35 (1.08-1.70)
Alcohol use disorder	1.25 (1.15-1.35)	0.41 (0.06-3.01)	1.10 (0.76-1.59)
Injection drug use	1.43 (1.31-1.56)	0.32 (0.04-2.30)	0.70 (0.43-1.13)

Abbreviations: aHR, adjusted hazard ratios; CI, confidence interval; DQ, deprivation quintiles; HBV, hepatitis B virus; HCV, hepatitis C virus; Q, quintiles.

Supplementary Table S5. Relationship between HCV infection and incident diabetes between 1990-2015 in British Columbia Hepatitis Testers Cohort using multivariable Fine-Gray subdistribution proportional hazards model, in propensity score (PS) matched dataset, PS estimated in each subgroup separately and matched

Covariate	Other	East Asian	South Asian
	aHR (95% CI)	aHR (95% CI)	aHR (95% CI)
HCV positive	2.24 (2.11-2.37)	3.37 (2.46-4.61)	1.98 (1.58-2.49)
Male sex	1.18 (1.12-1.26)	1.15 (0.88-1.51)	1.09 (0.87-1.36)
Age at HCV diagnosis			
<25	1 (ref)	1 (ref)	1 (ref)
25 to 34	1.72 (1.42-2.08)	1.60 (0.31-8.28)	1.97 (1.06-3.66)
35 to 44	3.07 (2.56-3.68)	6.63 (1.60-27.43)	2.80 (1.50-5.23)
45 to 55	5.67 (4.73-6.80)	12.95 (3.17-52.96)	4.98 (2.70-9.18)
≥55	9.07 (7.53-10.92)	18.31 (4.50-74.44)	5.34 (2.93-9.70)
Material DQ			
Q1 (most privileged)	1 (ref)	1 (ref)	1 (ref)
Q2	1.12 (1.02-1.24)	1.62 (1.03-2.52)	7.66 (2.30-25.49)
Q3	1.19 (1.08-1.31)	0.95 (0.58-1.56)	7.18 (2.23-23.17)
Q4	1.11 (1.01-1.22)	1.39 (0.90-2.16)	7.39 (2.33-23.47)
Q5 (most deprived)	1.21 (1.11-1.32)	1.27 (0.83-1.95)	9.03 (2.86-28.45)
Social DQ			
Q1 (most privileged)	1 (ref)	1 (ref)	1 (ref)
Q2	0.97 (0.87-1.09)	1.63 (1.12-2.36)	1.23 (0.93-1.63)
Q3	0.91 (0.82-1.02)	1.00 (0.64-1.56)	1.05 (0.74-1.49)
Q4	0.95 (0.86-1.05)	1.39 (0.91-2.14)	1.16 (0.81-1.64)
Q5 (most deprived)	0.91 (0.83-1.00)	1.69 (1.12-2.57)	1.01 (0.69-1.47)
Obesity	2.49 (2.16-2.87)	1.67 (0.41-6.81)	1.40 (0.62-3.17)
HBV positive	1.35 (1.07-1.69)	0.59 (0.28-1.26)	0.60 (0.15-2.44)
HIV positive	1.49 (1.17-1.89)	Not calculated ^a	0.53 (0.07-3.78)
Mood and anxiety disorder	1.16 (1.09-1.23)	1.12 (0.77-1.63)	1.13 (0.88-1.46)
Alcohol use disorder	1.24 (1.15-1.34)	0.56 (0.08-4.12)	0.87 (0.54-1.42)
Injection drug use	1.44 (1.33-1.57)	0.37 (0.05-2.72)	0.48 (0.25-0.94)

Abbreviations: aHR, adjusted hazard ratios; CI, confidence interval; DQ, deprivation quintiles; HBV, hepatitis B virus; HCV, hepatitis C virus; Q, quintiles.

^aNot calculated due to low number of individuals

Supplementary Table S6. Baseline characteristics of HCV negative and positive individuals in the propensity score matched dataset from the British Columbia Hepatitis Testers Cohort 1990-2015, stratified by ethnicity

Covariate	Other ^a			East Asian			South Asian		
	HCV negative (n=51,401)	HCV positive (n=55,197)	SMD	HCV negative (n=4,465)	HCV positive (n=1,602)	SMD	HCV negative (n=2,726)	HCV positive (n=1,793)	SMD
Male (%)	33,234 (64.7)	35,658 (64.6)	0.001	2,811 (63.0)	793 (49.5)	0.274	1,882 (69.0)	1,087 (60.6)	0.177
Age at HCV diagnosis (%)			0.067			0.417			0.52
<25	3,920 (7.6)	4,031 (7.3)		319 (7.1)	133 (8.3)		246 (9.0)	162 (9.0)	
25 to 34	10,606 (20.6)	12,031 (21.8)		769 (17.2)	209 (13.0)		734 (26.9)	509 (28.4)	
35 to 44	15,849 (30.8)	17,922 (32.5)		1,499 (33.6)	417 (26.0)		954 (35.0)	335 (18.7)	
45 to 54	13,229 (25.7)	13,928 (25.2)		1,292 (28.9)	375 (23.4)		511 (18.7)	301 (16.8)	
≥55	7,797 (15.2)	7,285 (13.2)		586 (13.1)	468 (29.2)		281 (10.3)	486 (27.1)	
Follow-up duration, mean years (SD)	11.30 (5.98)	11.54 (6.42)	0.039	11.47 (5.77)	10.90 (6.35)	0.094	9.82 (5.81)	8.10 (5.40)	0.308
Material DQ (%)			0.004			0.216			0.21
Q1 (most privileged)	7,185 (14.0)	7,670 (13.9)		567 (12.7)	289 (18.0)		252 (9.2)	93 (5.2)	
Q2	8,399 (16.3)	9,024 (16.3)		658 (14.7)	286 (17.9)		300 (11.0)	135 (7.5)	
Q3	9,256 (18.0)	9,983 (18.1)		792 (17.7)	308 (19.2)		395 (14.5)	276 (15.4)	
Q4	11,784 (22.9)	12,607 (22.8)		1,042 (23.3)	320 (20.0)		665 (24.4)	505 (28.2)	
Q5 (most deprived)	14,777 (28.7)	15,913 (28.8)		1,406 (31.5)	399 (24.9)		1114 (40.9)	784 (43.7)	
Social DQ (%)			0.026			0.184			0.337
Q1 (most privileged)	4,531 (8.8)	4,990 (9.0)		935 (20.9)	449 (28.0)		837 (30.7)	797 (44.5)	
Q2	6,131 (11.9)	6,886 (12.5)		890 (19.9)	309 (19.3)		517 (19.0)	365 (20.4)	
Q3	8,530 (16.6)	9,326 (16.9)		787 (17.6)	286 (17.9)		403 (14.8)	214 (11.9)	
Q4	11,175 (21.7)	12,051 (21.8)		802 (18.0)	258 (16.1)		410 (15.0)	194 (10.8)	
Q5 (most deprived)	21,034 (40.9)	21,944 (39.8)		1,051 (23.5)	300 (18.7)		559 (20.5)	223 (12.4)	
HBV infection (%)	361 (0.7)	721 (1.3)	0.061	359 (8.0)	89 (5.6)	0.099	24 (0.9)	11 (0.6)	0.031
HIV infection (%)	873 (1.7)	907 (1.6)	0.004	16 (0.4)	20 (1.2)	0.1	28 (1.0)	12 (0.7)	0.039
Cirrhosis (%)	473 (0.9)	781 (1.4)	0.046	13 (0.3)	16 (1.0)	0.088	28 (1.0)	20 (1.1)	0.009
CKD (%)	710 (1.4)	456 (0.8)	0.053	49 (1.1)	14 (0.9)	0.023	42 (1.5)	27 (1.5)	0.003

ESRD (%)	375 (0.7)	277 (0.5)	0.029	13 (0.3)	8 (0.5)	0.033	17 (0.6)	19 (1.1)	0.048
IHD (%)	2,249 (4.4)	1,431 (2.6)	0.097	79 (1.8)	31 (1.9)	0.012	102 (3.7)	56 (3.1)	0.034
Hypertension (%)	5,629 (11.0)	3,719 (6.7)	0.149	393 (8.8)	175 (10.9)	0.071	337 (12.4)	196 (10.9)	0.045
Statin use (%)	2,743 (5.3)	1,048 (1.9)	0.185	186 (4.2)	30 (1.9)	0.134	220 (8.1)	64 (3.6)	0.193
Mood and anxiety disorder (%)	20,567 (40.0)	20,911 (37.9)	0.044	647 (14.5)	241 (15.0)	0.016	945 (34.7)	442 (24.7)	0.221
Obesity (%)	909 (1.8)	918 (1.7)	0.008	30 (0.7)	11 (0.7)	0.002	51 (1.9)	21 (1.2)	0.057
Alcohol use disorder (%)	8,535 (16.6)	8,311 (15.1)	0.042	61 (1.4)	23 (1.4)	0.006	347 (12.7)	124 (6.9)	0.196
Injection drug use (%)	8,393 (16.3)	8,375 (15.2)	0.032	76 (1.7)	46 (2.9)	0.078	311 (11.4)	108 (6.0)	0.192

Abbreviations: CKD, chronic kidney disease; DQ, deprivation quintiles; ESRD, end-stage renal disease; HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; IHD, ischemic heart disease; IQR, interquartile range; SD, standard deviation; SMD, standardized mean difference; Q, quintiles.

^aOther included White, Indigenous, Black, Latin American, Pacific Islander, Central/West Asian, Filipino, Southeast Asian and other residents of British Columbia.