Supplemental file

ICES administrative data linkage procedures

<u>**Encrypted data linking**</u>:

Several linking variables will be collected, including name, date of birth, sex, and Ontario Health Insurance Plan (OHIP) number. At the time of data collection, these variables will be entered (by the study interviewer or participant) into a "black box" software program at the venue. When linking to an external data source, the Ontario HIV Treatment Network (OHTN) will provide an encrypted file containing A/C Study participant pseudo-IDs along with a system generated identifier for that study. This will be used by the "black box" program which has the capacity to decrypt the file directly into memory for the execution of the program - and being purged from memory on completion of the program. In order for the encryption process developed by the OHTN to selectively extract data pertaining to A/C Study participants using the unique encrypted identifiers (rather than using identifying information such as a health card number), the OHTN must run its "black box" over the entire external linkage dataset. This necessary step in the process assigns unique encrypted identifiers to all individuals with data in the external database of interest, so that the external data for those individuals with unique encrypted identifiers that match those of the A/C Study (stored in memory) can then be selectively extracted for inclusion and linkage in the A/C Study database. The "black box" identifies the candidates and outputs the provided system generated identifier for the study and a corresponding system generated identifier from the site - no personal information nor is the A/C pseudo-ID exposed in the resulting output file. This means that identifying information pertaining to all individuals with data in the external database is only made available (or, in Personal Health Information Protection Act (PHIPA) terms, "disclosed") to the OHTN "black box" as a necessary step in the data encryption and extraction

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process, but is maintained exclusively in memory and purged from memory on completion of the task.

Databases:

Databases relevant to this study within the ICES data holdings include:

- ***Ontario Health Insurance Plan Claims Database (OHIP)***: includes data on claims for physician visits, including ambulatory and emergency department visits, physicians' services code and diagnostic code (a version of the corresponding ICD-9 code).

- ***National Ambulatory Care Reporting System (NACRS)***: captures information on visits to hospital and community-based outpatient clinics and emergency departments and diagnoses.

- ***Discharge Abstract Database (DAD)***: contains hospital discharge information obtained from all acute care hospital separations including the diagnosis. It also includes OHIP number, dates of admission and discharge, transfer to different facility, death and day surgeries in Ontario.

- ***Registered Person's Database (RPDB)***: an electronic registry of all individuals who are eligible for provincial health insurance for a given year and includes demographic information such as age, sex and postal code. The RPDB also indicates which patients have died.

- ***Corporate Provider Database (CPD)***: includes physician characteristics (such as age, gender, specialty and practice location).

- ***Immigration, Refugees and Citizenship Canada (IRCC) Permanent Residents database (CIC)***: includes information on migrant status.