

## Appendix 1 (as supplied by the authors): Supplemental material

**Table S1: Definition of Alcohol Use Disorder – Cases**

We used ICD-9-CM, ICD-10-CA, and ATC codes to identify individuals with alcohol use disorder, as follows:

	ICD-9-CM Diagnosis Code	ICD-10-CA Diagnosis Code
Mental Health Diagnoses	291 Alcohol-induced mental disorders	F10 Mental and behavioural disorders due to use of alcohol
	303 Alcohol dependence syndrome	
	305.0 Alcohol abuse	
Physical Health Diagnoses	571.0 Alcoholic fatty liver	K70 Alcoholic Liver Disease
	571.1 Acute alcoholic hepatitis	
	571.2 Alcoholic cirrhosis	
	571.3 Alcoholic liver damage unspecified	
	425.5 Alcoholic Cardiomyopathy	I42.6 Alcoholic Cardiomyopathy
	535.5 Alcoholic Gastritis	K29.2 Alcoholic Gastritis
	357.5 Alcoholic Polyneuropathy	G62.1 Alcoholic Polyneuropathy
	760.71 FASD (for mothers of children with diagnosis)	Q86.0 FASD (for mothers of children with diagnosis)
	977.3 Poisoning by Alcohol Deterrents	X45 Accidental poisoning by and exposure to alcohol
	E86.00 Accidental poisoning by Alcoholic Beverages	X65 Intentional self-poisoning by and exposure to alcohol
		Y15 Poisoning by and exposure to alcohol, undetermined intent
	980.0 Toxic effect of alcohol (ethanol)	T51.0 Toxic effect of alcohol (ethanol)
	V11.3 Alcoholism	Y90 Evidence of alcohol involvement determined by blood alcohol level
		Y91 Evidence of alcohol involvement determined by level of intoxication
		Z50.2 Alcohol rehabilitation
		Z71.4 Alcohol abuse counselling and surveillance
		Z72.1 Problems related to lifestyle, Alcohol use
		E24.4 Alcohol-induced pseudo-Cushing's syndrome

		G31.2 Degeneration of nervous system due to alcohol
		G72.1 Alcoholic Myopathy
		K85.2 Alcohol-induced acute pancreatitis
		K86.0 Alcohol-induced chronic pancreatitis
		O35.4 Maternal care for (suspected) damage to fetus from alcohol
Prescription medications	<b>ATC Code</b>	<b>Generic Drug Name</b>
	N07BB01	Disulfiram
	N07BB02	Calcium Carbimide
	N07BB03	Acamprosate Calcium

**Notes:** For evidence of the validity of these codes in defining AUD, please see:

Kim HM, Smith EG, Stano CM, Ganoczy D, Zivin K, Walters H, Valenstein M. Validation of key behaviourally based mental health diagnoses in administrative data: suicide attempt, alcohol abuse, illicit drug abuse and tobacco use. *BMC Health Serv Res.* 2012 Jan 23;12:18. doi: 10.1186/1472-6963-12-18.

For readers interested in the correlation between ICD codes and the DSM: While ICD codes do not correspond directly with DSM codes, there is evidence that they align well with each other. Please see:

Hoffmann NG, Kopak AM. How well do the DSM-5 alcohol use disorder designations map to the ICD-10 disorders? *Alcohol Clin Exp Res.* 2015 Apr;39(4):697-701. doi: 10.1111/acer.12685.

**Table S2: Inclusion and Exclusion Criteria for Control Group**

To create the control group, we identified individuals from the general Manitoba population with at least five years of continuous health coverage prior to index date. We then excluded individuals if they met the criteria for AUD during the study or washout period, if they had ever had a substance use disorder diagnosis of any kind, had ever been accused of driving while intoxicated, had ever reported that they drank during their pregnancy, or were mothers of children with fetal alcohol spectrum disorder. In addition, we used data from the Canadian Community Health Survey (CCHS) to identify people to be removed from the control group (see the table below for the relevant survey variables).

Survey Variable	Survey(s) in which Variable Appeared
5+ drinks in one sitting (at least once a month for past year)	CCHS: 1.1, 1.2, 2.1, 2.2, 3.1, 2007, 2008, Healthy Aging, 2009, 2010, 2011, 2012, 2013
5+ drinks in one sitting (at least once a month for 1 year)	CCHS: 1.2
Daily alcohol consumption in past week (exceeds daily limits)	CCHS: 1.1, 1.2, 2.1, 3.1, 2011, 2012, 2013
Number of drinks in past week (exceeds weekly limits)	CCHS: 1.1, 1.2, 2.1, 3.1, 2011, 2012, 2013
Ever regularly drank >12 drinks/week	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - drinking problem	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - affected work/studies	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - interfered with family or home life	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - affected physical health	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - affected social relationships	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - affected financial position	CCHS: 1.1, 1.2, 2.1, 3.1
Reason reduced drinking - affected outlook on life, happiness	CCHS: 1.1, 1.2, 2.1, 3.1
Drank while pregnant	CCHS: 1.1, 2.1, 3.1
Frequency of drinks while pregnant	CCHS: 1.1, 2.1, 3.1
Alcohol dependence (yes to any question in module)	CCHS: 1.1, 1.2
Drove motor vehicle after drinking 2+ drinks in hour before	CCHS: 2.1, 2007, 2008, 2011, 2012
Frequency of driving after 2+ drinks in past year	CCHS: 2.1, 2007, 2008, 2011, 2012
Drove boat, ATV, snowmobile, etc. after drinking 2+ drinks in hour before	CCHS: 2.1, 2007, 2008, 2011, 2012
Frequency of driving boat, ATV, snowmobile after 2+ drinks in past year	CCHS: 2.1, 2007, 2008, 2011, 2012
Cause of health problems - alcohol or drugs	CCHS: 1.2, 2.1, 3.1, 2007, 2008, 2009, 2010, 2012, 2013

Cause of poor ADLs or social difficulties - alcohol or drugs	CCHS: 1.2, 2.1, 3.1,
Barrier to improving health - addiction to drugs or alcohol	CCHS: 3.1, 2007, 2008, Healthy Aging, 2011, 2012, 2013
Frequency of coping with stress by drinking alcohol	CCHS: 1.2
Depressive episodes due to alcohol	CCHS: 1.2
Manic episodes due to alcohol	CCHS: 1.2
Panic attacks due to alcohol	CCHS: 1.2
Not currently working due to use of alcohol or drugs	CCHS: 2.1
Not looking for work due to use of alcohol or drugs	CCHS: 2.1, Healthy Aging
Reason retired - use of alcohol or drugs	CCHS: Healthy Aging

## **Box S1: Definitions of Health Services Use Outcomes**

### ***Inpatient Hospitalizations***

Hospitalizations in which patients were formally admitted to the hospital for diagnostic, medical, or surgical treatment and typically stayed for one or more days. Multiple admissions of the same person were counted as separate events. All Manitoba hospitals were included, but personal care homes, nursing stations, federal hospitals, and long-term care facilities were excluded (Deer Lodge Centre, Manitoba Adolescent Treatment Centre, Rehabilitation Centre for Children, and Riverview Health Centre). Out-of-province hospitalizations for Manitoba residents were also included.

### ***Days Spent in Hospital***

The total number of days spent as an inpatient in a hospital. The total number of days in hospital takes into account transfers, so as to not double-count any days. All Manitoba hospitals were included; personal care homes, nursing stations, federal hospitals, and long-term care facilities were excluded. Out-of-province hospitalizations for Manitoba residents were also included.

### ***Outpatient Physician Visits***

Almost all contacts with physicians (family practitioners and specialists): office visits, walk-in clinic visits, home visits, visits to personal care homes, and visits to outpatient departments. Prenatal visits were included. Services provided to patients while admitted to hospital and emergency department visits were excluded.

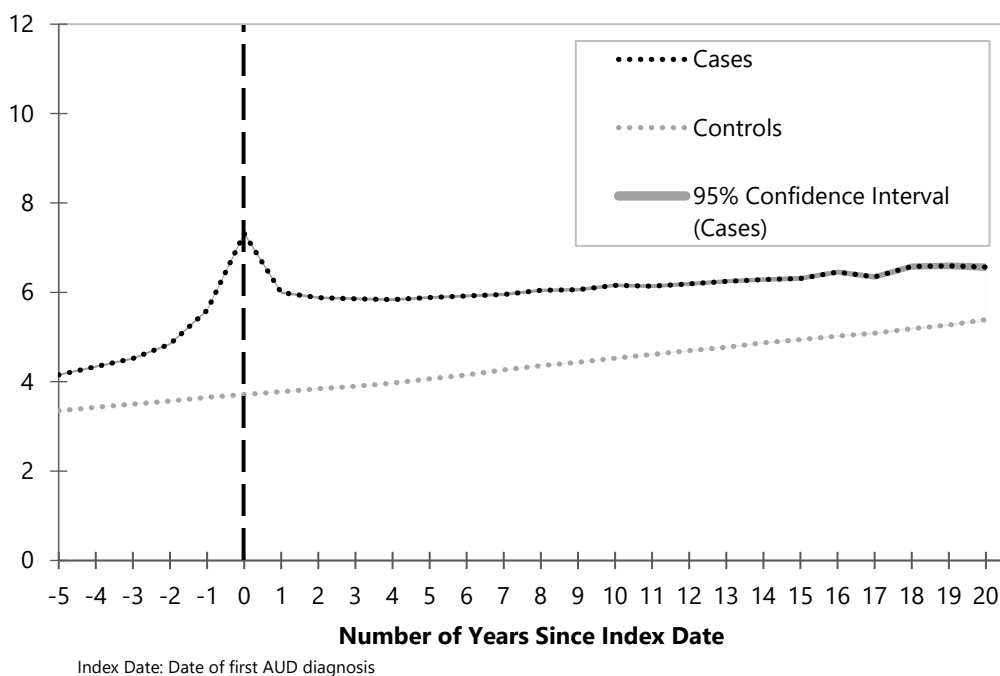
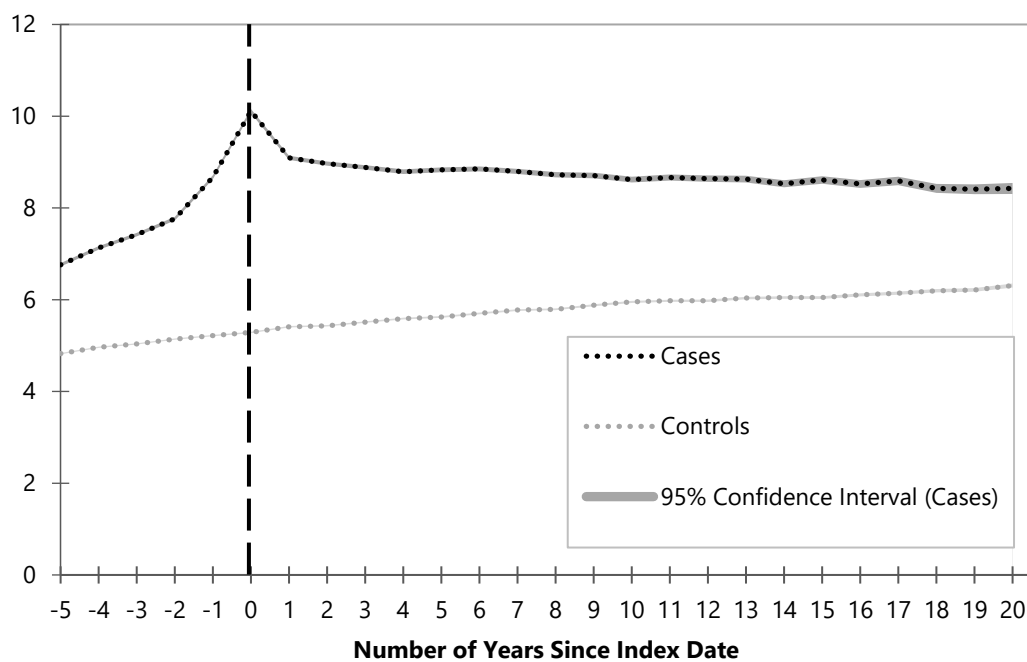
### ***Emergency Department Visits***

The Emergency Department Information System (EDIS) contains information on a patient's experience as they progress through the Emergency Department from their first point of entry at the triage desk through to their discharge. EDIS captures ED data from the following Winnipeg hospitals: Concordia Hospital, Grace Hospital, Health Sciences Centre Adult, Seven Oaks General Hospital, St. Boniface General Hospital, and Victoria General Hospital. ED data was available for fiscal years 2008/09 to 2014/15. The emergency department visits to these hospitals were counted and a rate per 100 person-years was calculated for alcohol-related cases and their matches.

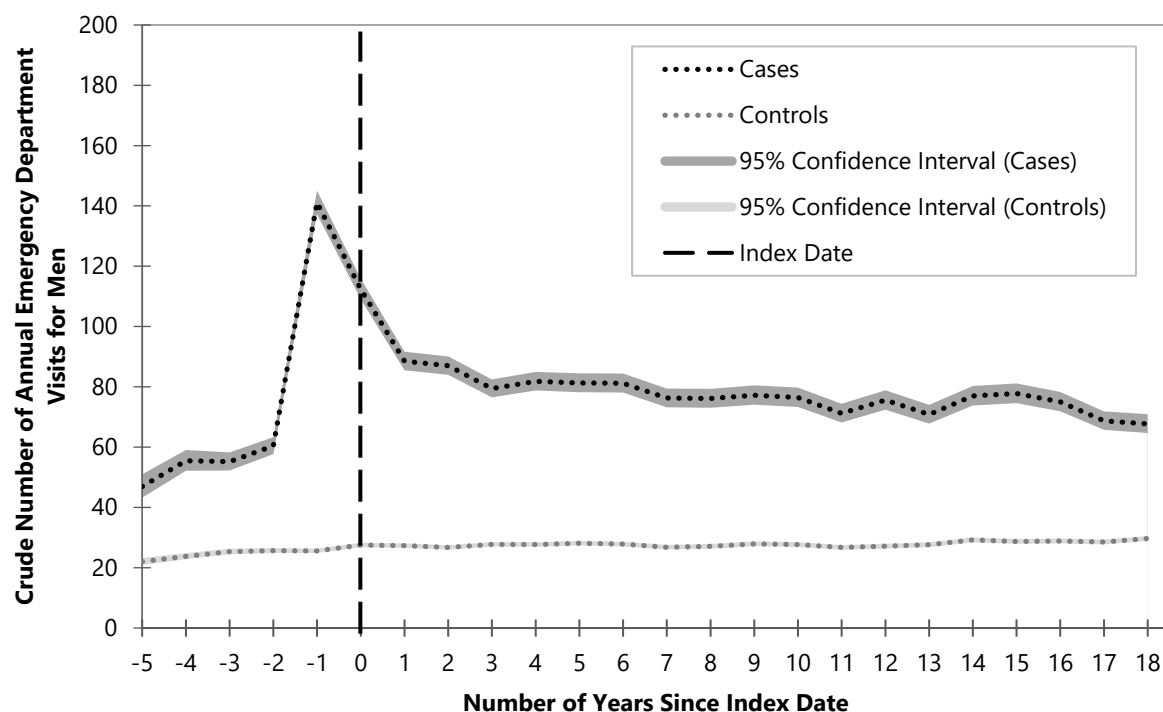
### ***Prescription Drugs***

The average number of different types of prescription drugs dispensed to each case and match. Each pharmaceutical agent that falls under a different fourth-level ATC class was counted as a new drug for each person. A person could have several prescriptions for drugs in the same fourth-level ATC class, but this only counted as one drug type. This essentially separated drugs used for different health problems and avoided double-counting prescriptions for drugs in the same group. Nearly all prescriptions dispensed from community-based pharmacies across the province were included; prescription drugs given to hospitalized patients and some residents in personal care homes with hospital-based pharmacies were not included. Prescriptions were limited to those covered by Manitoba Health's Pharmacare program; prescriptions for over-the-counter drugs were excluded to ensure a common set of drugs that could be compared fairly across the province.

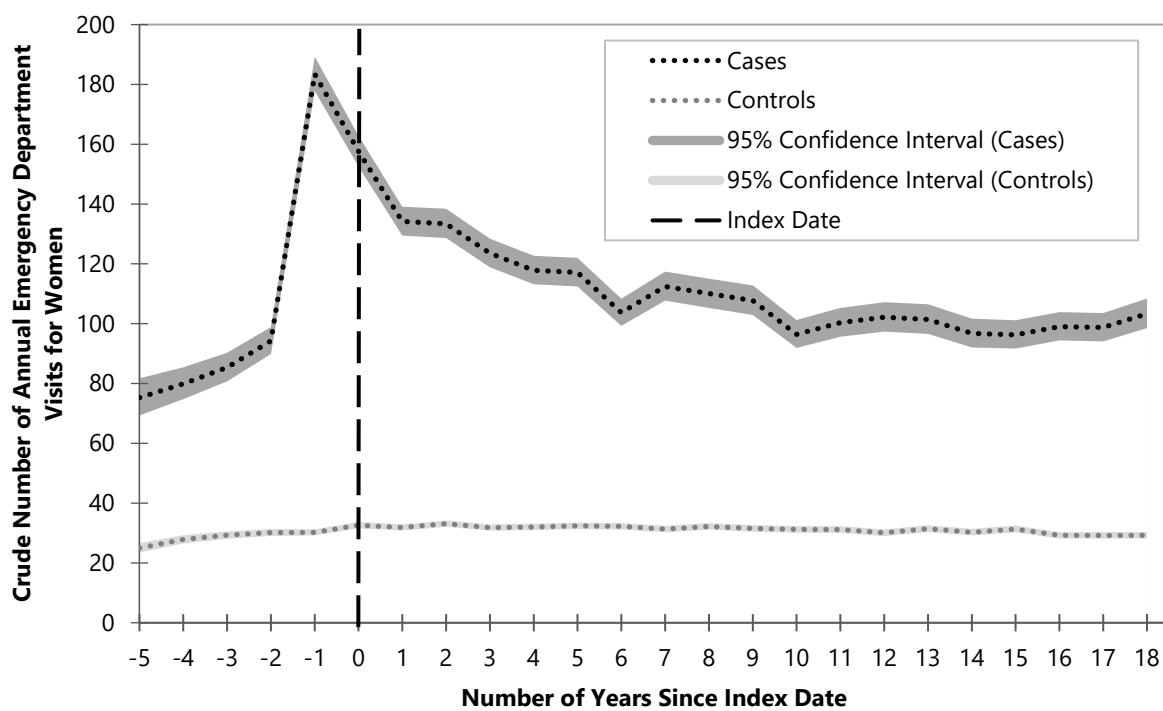
**Figure S1.** Crude number of annual outpatient visits for women (top) and men (bottom) with AUD (cases) and without AUD (controls), before and after index date.



**Figure S2.** Crude number of annual emergency department visits for women (top) and men (bottom) with AUD (cases) and without AUD (controls), before and after index date.



Index Date: Date of first AUD diagnosis



Index Date: Date of first diagnosis of AUD