Appendix 1: Diagnostic codes used for data extraction

A) ICD codes

The codes on the following sheet will be used to identify people in the Admitted Patients Data Collection and Emergency Department Data Collection (cases). Codes were selected based on identification by NSW Health as reflective of an acute alcohol problem¹ or, where indicated (*) from Turning Point Alcohol and Drug Centre guidance for calculating alcohol and other drug statistics ². Where indicated (~), additional codes are included on the basis of discussion between investigators and specialists in the field. ICD-9-CM and ICD-10-AM codes were mapped using the Australian Consortium for Classification Development mapping tables, with backwards mapping from ICD-10-AM to ICD-9-CM³, and alcohol-specific code mapping developed by Chikritzhs et al.⁴.

ICD-10-AM	Conditions	ICD-9-CM	Conditions
E24.4	*Alcohol-induced pseudo- Cushing's syndrome	No alcohol-s	pecific code available
E51.2	~Wernicke encephalopathy	291.1	Alcohol-induced persisting amnestic disorder
F10	Mental and behavioural disorders due to use of	291	Alcohol-induced mental disorders
	alcohol	303	Alcohol dependence syndrome
		305.0	Nondependent alcohol abuse
G31.2	*Degeneration of nervous system due to alcohol	303	Alcohol dependence syndrome
G62.1	*Alcoholic polyneuropathy	357.5	*Alcoholic polyneuropathy
G72.1	*Alcoholic myopathy	No alcohol-s	pecific code available
142.6	*Alcoholic cardiomyopathy	425.5	*Alcoholic cardiomyopathy
K29.2	*Alcoholic gastritis	535.3	*Alcoholic gastritis
K70.0	Alcoholic fatty liver	571.0	*Alcoholic fatty liver
K70.1	Alcoholic hepatitis	571.1	Acute alcoholic hepatitis
K70.2	Alcoholic fibrosis and sclerosis of liver		
K70.3	Alcoholic cirrhosis of liver	571.2	Alcoholic cirrhosis of liver
K70.4	Alcoholic hepatic failure		
K70.9	Alcoholic liver disease, unspecified	571.3	Alcoholic liver damage, unspecified
K85.2	*Alcohol-induced acute pancreatitis	No alcohol-s	pecific code available
K86.0	*Alcohol-induced chronic pancreatitis	No alcohol-s	pecific code available
O35.4	*Maternal care for suspected damage to foetus from alcohol	No alcohol-s	pecific code available
P04.3	*Foetus and newborn affected by maternal use of alcohol	760.71	Alcohol affecting fetus or newborn via placenta or breast milk

Q86.0	*Foetal alcohol syndrome (dysmorphic)		
R78.0	Finding of alcohol in blood	790.3	Excessive blood level of alcohol
T51	Toxic effect of alcohol	980	Toxic effect of alcohol
X45	Accidental poisoning by and exposure to alcohol	E860	Accidental poisoning by alcohol not elsewhere classified
X65 [^]	Intentional self-poisoning by and exposure to alcohol	No alcohol-s _i	pecific code available
Y15	Poisoning by and exposure to alcohol, undetermined intent	E860	Accidental poisoning by alcohol not elsewhere classified
		980	Toxic effect of alcohol
Y90^^	Evidence of alcohol involvement determined by blood alcohol level	No alcohol-s _i	pecific code available
Y91^^^	Evidence of alcohol involvement determined by level of intoxication	No alcohol-specific code available	

[^]note that no generalised mapping matches were available with SNO-MED although lexical matching suggest use of the above codes

^{^^}note that no generalised mapping matches were available with SNO-MED although lexical matching suggest use of the 'Finding of alcohol in blood' code

^{^^}note that generalised mapping matches were only available for Y91.1 and Y91.9 with SNO-MED although lexical matching suggest use of 'Alcohol intoxication' code∞

B) SNOMED codes

The following codes will be used to identify people in the Emergency Department Data Collection (cases). Emergency departments may use either or a combination of ICD-9, ICD-10 (see above) or SNOMED. Codes were mapped in consultation with the Clinical Terminology Team at the National E-Health Transition Authority (now Australian Digital Health Agency) to approximate ICD-10-AM codes using lexical and generalised mapping (the latter comprising the International SCT-ICD map) for SCT-AU (v20160430 April 2016). A number of codes were only found in ICD-10 and not ICD-10-CM (F10 K29.20 K29.21 T51 X45 X65 Y90 Y91), and thus these codes were searched with a wildcard for the last character, yielding hits for the following codes (F10.0 F10.1 F10.2 F10.3 F10.4 F10.5 F10.6 F10.7 F10.8 F10.9 K29.2 T51.0 T51.1 T51.2 T51.3 T51.9 X45 X45.99 Y91.1 Y91.9). Lexical mapping (i.e., synonym with a lexical match) was used for those codes where a hit was not identified with the International SCT-ICD map. Note that those variables flagged with a # were added following review of NSW Health codes for acute emergency department presentation data; the same applies where flagged with a ^, with the exception that these terms are now deprecated.

ICD-10-AM	ICD-9-CM	SNOMED-CT-AU	CONDITIONS
E24.4	No alcohol- specific code available	237738005	Pseudo-Cushing's syndrome due to alcohol
E51.2	291.1	21007002	Wernicke's disease
F10	291	191477001	Pathological alcohol intoxication
	303	42344001	Alcohol-induced psychosis
	305.0	25702006	Alcohol intoxication
		228315001	Binge drinker
		18653004	Alcohol intoxication delirium
		21000000	Idiosyncratic intoxication
		228341007	Unable to abstain from drinking
		32553006	Hangover
		228357007	Persistent effect of alcohol
		228316000	Alcoholic binges exceeding sensible amounts
		268645007	Nondependent alcohol abuse
		228354000	Drink driving
		228317009	Alcoholic binges exceeding safe amounts
		191883007	Nondependent alcohol abuse, episodic
		169942003	Maternal alcohol abuse
		304605000	Methanol abuse
		288021000119107	Disorder due to alcohol abuse
		191882002	Nondependent alcohol abuse, continuous
		15167005	Alcohol abuse
		284591009	Persistent alcohol abuse

220240225	Dainly in many in the second of
228310006	Drinks in morning to get rid of hangover
41083005	Alcohol-induced sleep disorder
191884001	Nondependent alcohol abuse in remission
86325007	Non megaloblastic anaemia due to alcoholism
191805002	Episodic acute alcoholic intoxication in alcoholism
191802004	Acute alcoholic intoxication in alcoholism
7200002	Alcoholism
235955000	Drug-induced chronic pancreatitis
66590003	Alcohol dependence
713583005	Mild alcohol dependence
2403008	Psychoactive substance dependence
25702006	Alcohol intoxication
7200002	Alcoholism
308742005	Alcohol withdrawal-induced convulsion
713862009	Severe alcohol dependence
10755041000119100	Alcohol dependence in childbirth
191812006	Episodic chronic alcoholism
2403008	Psychoactive substance dependence
154211000119108	Chronic pancreatitis due to chronic alcoholism
191804003	Continuous acute alcoholic intoxication in alcoholism
191813001	Chronic alcoholism in remission
7200002	Alcoholism
87810006	Megaloblastic anaemia due to alcoholism
66590003	Alcohol dependence
231467000	Absinthe addiction
300939009	Abstinent alcoholic
191811004	Continuous chronic alcoholism
714829008	Moderate alcohol dependence
235952002	Chronic pancreatitis due to acute alcohol intoxication
97571000119109	Thrombocytopenia co-occurrent and due to alcoholism
66590003	Alcohol dependence
10741871000119101	Alcohol dependence in pregnancy
288041000119101	Perceptual disturbance due to alcohol withdrawal

191480000	Alcohol withdrawal syndrome
85561006	Uncomplicated alcohol withdrawal
191480000	Alcohol withdrawal syndrome
8635005	Alcohol withdrawal delirium
79578000	Alcohol paranoia
61144001	Alcohol-induced psychotic disorder with delusions
191476005	Alcohol withdrawal hallucinosis
7052005	Alcohol hallucinosis
42344001	Alcohol-induced psychosis
191480000	Alcohol withdrawal syndrome
191478006	Alcoholic paranoia
191471000	Korsakov's alcoholic psychosis with
	peripheral neuritis
73097000	Alcohol amnestic disorder
192811002	Alcoholic encephalopathy
69482004	Korsakoff's psychosis
42344001	Alcohol-induced psychosis
281004	Dementia associated with
	alcoholism
231463001	^Alcoholic dementia NOS (disorder)
191475009	Chronic alcoholic brain syndrome
78524005	Alcohol-induced sexual dysfunction
34938008	Alcohol-induced anxiety disorder
228353006	Reverse tolerance to alcohol
228351008	Physical tolerance to alcohol
228350009	Behavioural tolerance to alcohol
53936005	Alcohol-induced mood disorder
228323004	Drinking bout
29212009	Alcohol-induced organic mental disorder
228322009	Drinking episode
192206005	^Mental and behavioral disorders due to use of alcohol (disorder)
192207001	^Mental and behavioral disorders due to use of alcohol: acute intoxication (disorder)
192208006	^Mental and behavioral disorders due to use of alcohol: harmful use (disorder)
192209003	^Mental and behavioural disorders due to use of alcohol: dependence syndrome) or (chronic alcoholism [& (addiction) or (dipsomania)]) (disorder)

		102210000	^Mental and behavioral disorders
		192210008	due to use of alcohol: withdrawal state (disorder)
		192211007	^Mental and behavioral disorders due to use of alcohol: withdrawal state with delirium (disorder)
		192212000	^Mental and behavioural disorders due to use of alcohol: psychotic disorder (& [hallucinosis] or [jealousy] or [paranoia] or [psychosis NOS]
		192213005	^Mental and behavioral disorders due to use of alcohol: amnesic syndrome (disorder)
		192214004	^Mental and behavioural disorders due to use of alcohol: residual and late-onset psychotic disorder) or (chronic alcoholic brain syndrome [& dementia NOS]
		192215003	^Mental and behavioral disorders due to use of alcohol: other mental and behavioral disorders (disorder)
		268639004	^Chronic alcoholism (disorder)
		268683008	^Mental and behavioral disorders due to use of alcohol: dependence syndrome (disorder)
		268684002	^Mental and behavioral disorders due to use of alcohol: psychotic disorder (disorder)
		304606004	^Ethanol abuse (finding)
		268685001	^Mental and behavioral disorders due to use of alcohol: residual and late-onset psychotic disorder (disorder)
		192216002	^Mental and behavioral disorders due to use of alcohol: unspecified mental and behavioral disorder (disorder)
G31.2	303	192811002	Alcoholic encephalopathy
		133301000119102	Degenerative brain disorder due to alcohol
		300992002	Alcohol-induced cerebellar ataxia
		361272001	Cerebellar ataxia due to alcoholism
		135761000119101	Cerebral degeneration due to alcoholism
		230353003	Morel laminar sclerosis
		361273006	Alcoholic cerebellar degeneration
G62.1	357.5	192811002	Alcoholic encephalopathy

		69482004	Korsakoff's psychosis
		191471000	Korsakov's alcoholic psychosis with peripheral neuritis
		7916009	Alcoholic polyneuropathy
		191472007	#Wernicke-Korsakov syndrome (disorder)
G72.1	No alcohol- specific code available	19303008	Alcohol myopathy
142.6	425.5	83521008	Dilated cardiomyopathy caused by alcohol
K29.2	535.3	2043009	Alcoholic gastritis
		40241000119109	Gastric haemorrhage due to alcoholic gastritis
K70.0	571.0	41309000	Alcoholic liver damage
K70.1	571.1	50325005	Alcoholic fatty liver
K70.2	571.2	235875008	Alcoholic hepatitis
K70.3	571.3	9953008	Acute alcoholic liver disease
K70.4		1085021000119106	Hepatic ascites due to chronic alcoholic hepatitis
K70.9		1082611000119101	Ascites due to alcoholic hepatitis
		41309000	Alcoholic liver damage
		307757001	Chronic alcoholic hepatitis
		235880004	Alcoholic fibrosis and sclerosis of liver
		420054005	Alcoholic cirrhosis
		309783001	Oesophageal varices in alcoholic cirrhosis of the liver
		1082601000119104	Ascites due to alcoholic cirrhosis
		235881000	Alcoholic hepatic failure
		1082621000119108	Hepatic coma due to alcoholic liver failure
		713370005	Acute on chronic alcoholic liver disease
		713181003	Chronic alcoholic liver disease
K85.2	No alcohol- specific code available	235942001	Alcohol-induced acute pancreatitis
		445507008	Alcohol-induced pancreatitis
K86.0	No alcohol- specific code available	235952002	Chronic pancreatitis due to acute alcohol intoxication
		154211000119108	Chronic pancreatitis due to chronic alcoholism
O35.4	No alcohol- specific code available	199551008	Maternal care for (suspected) damage to fetus from alcohol

P04.3	760.71	36558000	Fetal or neonatal effect of alcohol
	700.72		transmitted via placenta and/or
			breast milk
		268796000	Fetal or neonatal effect of placental
			or breast transfer of alcohol
		698321001	Neonatal effect of alcohol
			transmitted via breast milk
		205791004	Fetal or neonatal effect of maternal
			use of alcohol
		609438005	Fetal or neonatal effect of maternal
			alcohol addiction
Q86.0	Alcohol affecting	609437000	Fetal Alcohol Spectrum Disorder
	fetus or newborn		
	via placenta or		
	breast milk		
		205788004	Fetal alcohol syndrome
		205791004	Fetal or neonatal effect of maternal
			use of alcohol
		36558000	Fetal or neonatal effect of alcohol
			transmitted via placenta and/or
			breast milk
R78.0	790.3	442766007	Alcohol in blood specimen above
			reference range
		442669008	Ethanol in blood specimen above
			legal threshold for operating vehicle
		441685000	Ethanol in blood specimen above
			reference range
		274776000	Finding of alcohol in blood
		207273009	^Alcohol blood level excessive
			(situation)
		160592001	Alcohol intake above recommended
TEA	000	24.5522005	sensible limits
T51	980	216633005	Accidental poisoning by alcoholic
		246625002	beverage
		216635003	Accidental poisoning by denatured alcohol
		95906008	Drug interaction with alcohol
		287166006	-
		28/100000	Accidental poisoning with ethyl alcohol
		442764005	Poisoning by benzene
		82782008	<u> </u>
			Alcohol poisoning
		212807002	Grain alcohol causing toxic effect
		216636002	Accidental poisoning by methylated spirit
		315226008	Pain in lymph nodes after alcohol consumption
		89507002	Toxic effect of denatured alcohol
		25966003	Metabolic acidosis due to methanol
		212809004	Methyl alcohol causing toxic effect

		216640006	Accidental poisoning by methanol
		212813006	Toxic effect of isopropyl alcohol
		6749002	Toxic effect of propyl alcohol
		216645001	Accidental poisoning by isopropyl alcohol
		216648004	Accidental poisoning by rubbing alcohol substitute
		4953006	Toxic effect of butyl alcohol
		6749002	Toxic effect of propyl alcohol
		57346004	Toxic effect of fusel oil
		216651006	Accidental poisoning by fusel oil
		87460008	Toxic effect of amyl alcohol
		67426006	Toxic effect of alcohol
		82047000	Diarrhoea due to alcohol intake
		314539001	Alcohol related optic neuropathy
		269765000	Accidental poisoning by alcohol
		212816003	^Rubbing alcohol causing toxic effect (disorder)
		212817007	^Isopropyl alcohol causing toxic effect NOS (disorder)
		212818002	^Fusel oil causing toxic effect NOS (disorder)
		212819005	^Other alcohol causing toxic effect (disorder)
		212820004	^Alcohol causing toxic effect NOS (disorder)
		213687005	^Toxic effect of other alcohols (disorder)
		212815004	^Isopropanol causing toxic effect (disorder)
		212814000	^Dimethyl carbinol causing toxic effect (disorder)
		212811008	^Wood alcohol causing toxic effect (disorder)
		212808007	^Ethyl alcohol causing toxic effect NOS (disorder)
		212806006	^Ethyl alcohol causing toxic effect (disorder)
		699208000	Thrombocytopenia due to alcohol
X45	E860	212813006	Toxic effect of isopropyl alcohol
		216640006	Accidental poisoning by methanol
		82782008	Alcohol poisoning
		216635003	Accidental poisoning by denatured alcohol
		6749002	Toxic effect of propyl alcohol
		212809004	Methyl alcohol causing toxic effect
		242263000	Accidental exposure to alcohol

216633005	Accidental poisoning by alcoholic beverage
212813006	Toxic effect of isopropyl alcohol
242265007	Accidental exposure to ethanol
278363000	Alcoholic macrocytosis
442764005	Poisoning by benzene
4953006	Toxic effect of butyl alcohol
287166006	Accidental poisoning with ethyl alcohol
699208000	Thrombocytopenia due to alcohol
212809004	Methyl alcohol causing toxic effect
67426006	Toxic effect of alcohol
6749002	Toxic effect of propyl alcohol
216645001	Accidental poisoning by isopropyl alcohol
89507002	Toxic effect of denatured alcohol
212807002	Grain alcohol causing toxic effect
216648004	Accidental poisoning by rubbing
210040004	alcohol substitute
216651006	Accidental poisoning by fusel oil
216636002	Accidental poisoning by methylated
	spirit
89507002	Toxic effect of denatured alcohol
442764005	Poisoning by benzene
87460008	Toxic effect of amyl alcohol
269765000	Accidental poisoning by alcohol
57346004	Toxic effect of fusel oil
221843007	^Accidental poisoning by and exposure to alcohol, occurrence at home (event)
221844001	^Accidental poisoning by and exposure to alcohol, occurrence in residential institution (event)
221845000	^Accidental poisoning by and exposure to alcohol, occurrence at school, other institution and public administrative area (event)
221846004	^Accidental poisoning by and exposure to alcohol, occurrence at sports and athletics area (event)
221847008	^Accidental poisoning by and exposure to alcohol, occurrence on street and highway (event)
221848003	^Accidental poisoning by and exposure to alcohol, occurrence at trade and service area (event)

		22404020	
		221849006	^Accidental poisoning by and
			exposure to alcohol, occurrence at
			industrial and construction area
			(event)
		221850006	^Accidental poisoning by and
			exposure to alcohol, occurrence on
			farm (event)
		221851005	^Accidental poisoning by and
			exposure to alcohol, occurrence at
			other specified place (event)
		221852003	^Accidental poisoning by and
			exposure to alcohol, occurrence at
			unspecified place (event)
		57346004	Toxic effect of fusel oil
VCE In at a that	No alookal		
X65 (note that	No alcohol-	222103001	^Intentional self-poisoning by and
no generalised	specific code		exposure to alcohol (event)
mapping	available		
matches were			
available with			
SNO-MED			
although			
lexical			
matching			
suggest use of			
the above			
codes)			
		222104007	^Intentional self-poisoning by and
			exposure to alcohol, occurrence at
			home (event)
		222105008	^Intentional self-poisoning by and
			exposure to alcohol, occurrence in
			residential institution (event)
		222106009	^Intentional self-poisoning by and
			exposure to alcohol, occurrence at
			school, other institution and public
			administrative area (event)
		222107000	^Intentional self-poisoning by and
			exposure to alcohol, occurrence at
			sports and athletics area (event)
		22242225	
		222108005	^Intentional self-poisoning by and
			exposure to alcohol, occurrence on
			street and highway (event)
		222110007	^Intentional self-poisoning by and
			exposure to alcohol, occurrence at
			trade and service area (event)
		222111006	^Intentional self-poisoning by and
			exposure to alcohol, occurrence at
			industrial and construction area
			(event)

		222112004	^Intentional self-poisoning by and
			exposure to alcohol, occurrence on farm (event)
		222113009	^Intentional self-poisoning by and exposure to alcohol, occurrence at other specified place (event)
		222114003	^Intentional self-poisoning by and exposure to alcohol, occurrence at unspecified place (event)
		312963001	Methanol retinopathy
Y15	E860	222702003	^Poisoning by and exposure to alcohol, undetermined intent (event)
	980	222703008	^Poisoning by and exposure to alcohol, occurrence at home, undetermined intent (event)
		222704002	^Poisoning by and exposure to alcohol, occurrence in residential institution, undetermined intent (event)
		222705001	^Poisoning by and exposure to alcohol, occurrence at school, other institution and public administrative area, undetermined intent (event)
		222706000	^Poisoning by and exposure to alcohol, occurrence at sports and athletics area, undetermined intent (event)
		222707009	^Poisoning by and exposure to alcohol, occurrence on street and highway, undetermined intent (event)
		222708004	^Poisoning by and exposure to alcohol, occurrence at trade and service area, undetermined intent (event)
		222709007	^Poisoning by and exposure to alcohol, occurrence at industrial and construction area, undetermined intent (event)
		222710002	^Poisoning by and exposure to alcohol, occurrence on farm, undetermined intent (event)
		222711003	^Poisoning by and exposure to alcohol, occurrence at other specified place, undetermined intent (event)

	T	1	, , , , , , , , , , , , , , , , , , ,
		222713000	^Poisoning by and exposure to alcohol, occurrence at unspecified place, undetermined intent (event)
		274776000	Finding of alcohol in blood
Y90 (note that no generalised mapping matches were available with SNO-MED although lexical matching suggest use of the 'Finding of alcohol in blood' code)	No alcohol- specific code available	223333005	^Evidence of alcohol involvement determined by blood alcohol level (navigational concept)
		223334004	^Evidence of alcohol involvement determined by blood alcohol level of less than 20 mg/100 ml (navigational concept)
		223335003	^Evidence of alcohol involvement determined by blood alcohol level of 20-39 mg/100 ml (navigational concept)
		223336002	^Evidence of alcohol involvement determined by blood alcohol level of 40-59 mg/100 ml (navigational concept)
		223337006	^Evidence of alcohol involvement determined by blood alcohol level of 60-79 mg/100 ml (navigational concept)
		223338001	^Evidence of alcohol involvement determined by blood alcohol level of 80-99 mg/100 ml (navigational concept)
		223339009	^Evidence of alcohol involvement determined by blood alcohol level of 100-119 mg/100 ml (navigational concept)
		223340006	^Evidence of alcohol involvement determined by blood alcohol level of 120-199 mg/100 ml (navigational concept)
		223341005	^Evidence of alcohol involvement determined by blood alcohol level

			of 200-239 mg/100 ml (navigational concept)
		223342003	^Evidence of alcohol involvement determined by blood alcohol level of 240 mg/100 ml or more (navigational concept)
		223343008	^Evidence of alcohol involvement determined by presence of alcohol in blood, level not specified (navigational concept)
		25702006	Alcohol intoxication
Y91 (note that generalised mapping matches were only available for Y91.1 and Y91.9 with SNO-MED although lexical matching suggest use of 'Alcohol intoxication' code)	No alcohol- specific code available	230800004	Alcoholic coma
		82047000	Diarrhoea due to alcohol intake
		361267005	Alcohol-related fit
		223344002	^Evidence of alcohol involvement determined by level of intoxication (navigational concept)
		223345001	^Evidence of alcohol involvement determined by level of intoxication, mild alcohol intoxication (navigational concept)
		223346000	^Evidence of alcohol involvement determined by level of intoxication, moderate alcohol intoxication (navigational concept)
		223347009	^Evidence of alcohol involvement determined by level of intoxication, severe alcohol intoxication (navigational concept)
		223348004	^Evidence of alcohol involvement determined by level of intoxication, very severe alcohol intoxication (navigational concept)

	223349007	^Evidence of alcohol involvement
		determined by level of intoxication,
		alcohol involvement, not otherwise
		specified (navigational concept)

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