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## **Supplementary Material**

**Article Title:** Positive Urine Drug Screens and External Mortality in Teenagers Who Present for Medical Care

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### **List of Supplementary Material for the article**

1. [Table 1](#) Frequency of positive results on urine drug screen (UDS) by specific substance
2. [Table 2](#) ICD-9 and ICD-10 diagnosis codes used to define psychiatric diagnoses
3. [Table 3](#) Demographic and psychiatric history data for cocaine positive and negative cohort members
4. [Table 4](#) Demographic and psychiatric history data for cannabis positive and negative cohort members

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**Supplementary Table 1. Frequency of positive results on urine drug screen (UDS) by specific substance**

	<b>Cohort members with positive UDS</b>	
	<b>N</b>	<b>%</b>
Tetrahydrocannabinol	1,019	36.8
Amphetamine		
Any Amphetamine	209	7.5
Non-prescribed amphetamine	116	4.1
Opiate		
Any opiate	102	3.7
Non-prescribed opiate	81	2.9
Benzodiazepine		
Any benzodiazepine	66	2.4
Non-prescribed benzodiazepine	60	2.2
Cocaine	58	2.1
Phencyclidine	9	0.3
Barbiturates		
Any barbiturate	7	0.3
Non-prescribed barbiturate	5	0.2

**Supplementary Table 2. ICD-9 and ICD-10 diagnosis codes used to define psychiatric diagnoses**

	N (%) of cohort members with ICD (n= 2,772)
<b>ICD-9 Diagnosis Codes</b>	
Dementias (290.20)	1 (0.04)
Transient mental disorders due to conditions classified elsewhere (293.0, 293.83, 293.84, 293.89, 293.9)	18 (0.6)
Persistent mental disorders due to conditions classified elsewhere (294.0, 294.11, 294.8, 294.9)	40 (1.4)
Schizophrenic Disorders (295.02, 295.10, 295.20, 295.30, 295.32, 295.40, 295.70, 295.80, 295.90, 295.92)	25 (0.9)
Episodic mood disorders (296.00, 296.02, 296.04, 296.05, 296.06, 296.10, 296.11, 296.12, 296.2, 296.20, 296.21, 296.22, 296.23, 296.24, 296.25, 296.26, 296.3, 296.30, 296.31, 296.32, 296.33, 296.34, 296.35, 296.36, 296.4, 296.40, 296.41, 296.42, 296.44, 296.45, 296.46, 296.50, 296.51, 296.52, 296.53, 296.54, 296.55, 296.56, 296.60, 296.61, 296.62, 296.63, 296.64, 296.65, 296.66, 296.7, 296.80, 296.81, 296.82, 296.89, 296.9, 296.90, 296.99)	1,272 (45.9)
Delusional disorders (297.1, 297.9)	19 (0.7)
Other non-organic psychoses (298.0, 298.1, 298.8, 298.9)	104 (3.8)
Pervasive developmental disorders (299.00, 299.01, 299.80, 299.81, 299.90, 299.91)	42 (1.5)
Anxiety, dissociative, and somatoform disorders (300.0, 300.10, 300.11, 300.14, 300.15, 300.2, 300.20, 300.21, 300.22, 300.23, 300.29, 300.3, 300.4, 300.5, 300.6, 300.7, 300.81, 300.89, 300.9)	1,188 (42.9)
Personality disorders (301.13, 301.20, 301.22, 301.3, 301.4, 301.51, 301.59, 301.6, 301.7, 301.81, 301.82, 301.83, 301.89, 301.9)	142 (5.1)
Sexual and gender identity disorders (302.0, 302.2, 302.50, 302.6, 302.71, 302.72, 302.75, 302.85, 302.9)	19 (0.7)
Physiological malfunction arising from mental factors (306.1, 306.4, 306.50, 306.8, 306.9)	16 (0.6)
Special symptoms or syndromes not elsewhere classified (307.0, 307.1, 307.2, 307.20, 307.21, 307.22, 307.23, 307.3, 307.40, 307.41, 307.42, 307.44, 307.45, 307.46, 307.47, 307.49, 307.5, 307.50, 307.51, 307.52, 307.53, 307.54, 307.59, 307.6, 307.7, 307.8, 307.80, 307.81, 307.89, 307.9)	355 (12.8)
Acute reaction to stress (308.0, 308.2, 308.3, 308.4, 308.9)	83 (3.0)
Adjustment reaction (309.0, 309.1, 309.2, 309.21, 309.22, 309.23, 309.24, 309.28, 309.29, 309.3, 309.4, 309.81, 309.82, 309.83, 309.89, 309.9)	1,370 (0.49)
Specific nonpsychotic mental disorders due to brain damage (310.1, 310.2, 310.9)	63 (2.3)
Depressive disorder, not elsewhere classified (311)	1,430 (51.6)
Disturbance of conduct, not elsewhere classified (312.00, 312.10,	561 (20.2)

312.20, 312.30, 312.34, 312.39, 312.4, 312.8, 312.81, 312.82, 312.89, 312.9)	
Disturbance of emotions specific to childhood and adolescence (313.0, 313.1, 313.22, 313.23, 313.3, 313.8, 313.81, 313.82, 313.83, 313.89, 313.9)	460 (16.6)
Hyperkinetic syndrome of childhood (314.0, 314.1, 314.9)	813 (29.3)
Specific delays in development (315.00, 315.01, 315.02, 315.09, 315.1, 315.2, 315.31, 315.32, 315.39, 315.4, 315.5, 315.8, 315.9)	351 (12.7)
Psychic factors associated with diseases classified elsewhere (316)	20 (0.7)
Intellectual disabilities (317, 318, 319)	30 (1.1)
<b>ICD-10 Diagnosis Codes</b>	
Mental disorders due to known physiological conditions (F06.8, F09)	2 (0.07)
Schizophrenia, delusional disorders, brief psychotic disorder (F20.9, F22, F23)	2 (0.07)
Unspecified psychosis not due to a substance or known physiological condition (F29)	4 (0.1)
Bipolar disorder (F31.81, F31.9)	3 (0.1)
Major depressive disorder, single episode (F32.0, F32.1, F32.4, F32.5, F32.8, F32.81, F32.9)	26 (0.9)
Major depressive disorder, recurrent (F33.0, F33.1, F33.2, F33.3, F33.41, F33.42, F33.9)	28 (1.0)
Dysthymic disorder (F34.1)	5 (0.2)
Unspecified mood disorder (F39)	3 (0.1)
Phobic and other anxiety disorder (F40.10, F41.0, F41.1, F41.8, F41.9)	33 (1.2)
Reaction to severe stress, and adjustment disorder (F43.10, F43.12, F43.21, F43.23, F43.8, F43.9)	10 (0.4)
Dissociative and conversion disorders (F44.9)	1 (0.04)
Eating disorders (F50.00, F50.01, F50.02, F50.2, F50.9)	4 (0.1)
Puerperal psychosis (F53)	1 (0.04)
Specific personality disorders (F60.3, F60.9)	4 (0.1)
Impulse disorders (F63.81, F63.9)	2 (0.07)
Gender identity disorders (F64.1, F64.2)	2 (0.07)
Unspecified disorder of adult personality and behavior (F69)	2 (0.07)
Severe intellectual disabilities (F72)	1 (0.04)
Developmental disorder of scholastic skills, unspecified (F81.9)	2 (0.07)
Pervasive developmental disorders (F84.0, F84.5)	5 (0.2)
Attention-deficit hyperactivity disorders (F90.0, F90.1, F90.2, F90.9)	13 (0.5)
Conduct disorders (F91.1, F91.2, F91.3, F91.9)	8 (0.3)
Other childhood emotional disorders (F93.8)	1 (0.04)
Frequencies and percentages are based on a denominator of 2,772 cohort members. The total count exceeds 2,772 because cohort members may have diagnosis codes for more than one group of conditions.	

**Supplementary Table 3. Demographic and psychiatric history data for cocaine positive and negative cohort members**

	<b>Cocaine positive</b>	<b>UDS negative</b>	<b>p-value</b>
N	58	1,646	
Male sex, n (%)	31 (53.5)	667 (40.5)	0.05
White race, n (%)	53 (91.4)	1,276 (77.5)	0.006
Alcohol positive results, n (%)*	10 (17.5)	116 (7.5)	0.01
Age at first UDS, mean (SD), yrs.	16.5 (1.6)	16.2 (1.6)	0.2
Number of UDS, mean (SD)	8.3 (9.6)	1.8 (1.6)	<0.0001
Index UDS ordered at an academic center, n (%)	54 (93.1)	1,444 (87.7)	0.2
Any psychiatric diagnosis by 18 years of age, n (%) yes	54 (93.1)	1,399 (85.0)	0.06
<p>Statistical comparisons (and p-values) were made between positive UDS and pan-negative UDS groups. Group differences were tested using chi-square/Fisher exact tests for categorical variables and two-tailed t-tests for continuous variables.</p> <p>* Alcohol testing results were available for 2,641 (95%) cohort member. Row percentages are based on only the cohort members with available alcohol results.</p>			

**Supplementary Table 4. Demographic and psychiatric history data for cannabis positive and negative cohort members**

	<b>THC positive</b>	<b>THC negative</b>	<b>p value</b>
N	1,019	1,753	
Male sex, n (%)	602 (59.1)	705 (40.2)	<0.0001
White race, n (%)	847 (83.1)	1,361 (77.6)	0.005
Alcohol positive results, n (%)*	130 (13.1)	1246 (7.5)	<0.0001
Cocaine positive results, n (%)	48 (4.7)	10 (0.6)	<0.0001
Age at first UDS, mean (SD), yrs.	16.4 (1.5)	16.2 (1.6)	0.04
Number of UDS, mean (SD)	5.5 (6.3)	1.9 (1.7)	<0.0001
Index UDS ordered at an academic center, n (%)	937 (92.0)	1,536 (87.6)	0.0003
Any psychiatric diagnosis by 18 years of age, n (%) yes	866 (85.0)	1,491 (85.1)	0.9
Statistical comparisons (and p-values) were made between THC positive and THC negative UDS groups. Group differences were tested using chi-square/Fisher exact tests for categorical variables and two-tailed t-tests for continuous variables. * Alcohol testing results were available for 2,641 (95%) cohort members.			