

Supplementary Appendix

Changes in Inpatient Healthcare Utilization after Legalization of Recreational Cannabis

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This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods. Cost Analysis

Cost Estimations

The inpatient cost for each hospitalization in New York and Colorado was estimated by multiplying the total charges (TOTCHG) obtained from HCUP State Inpatient Database with the institution-specific all-payer cost-to-charge ratio (APICC) obtained from the Cost-to-Charge Ratio file. Hospital ID was used as a linkage to merge both files. Total inpatient costs were calculated as the sum of the cost for all hospitalizations in a given state for a particular year. The databases contained 186,226 (8.7%) encounters with non-matched/missing hospital ID for NY and 1,132,696 (9.6%) encounters with non-matched/missing hospital ID for Colorado; for these encounters. In order to estimate the cost of these hospitalizations (for which we had charges but no cost-to-charge ratio) we applied the average cost-to-charge ratio for that state-year. This was estimated by dividing the sum of costs for all hospitalizations for which cost-to-charge ratios were available by the sum of charges for all hospitalizations for which cost-to-charge ratios were available in a given state-year (**eTable 2**).

Oklahoma Total Cost Estimate

HCUP does not produce SID and CCR file for Oklahoma. We obtained these data from Oklahoma State Department of Health – this dataset contains information about total charges but not cost-to-charge ratios. We estimated total inpatient costs in Oklahoma in two ways. First, we used a state-wide constant cost-to-charge ratio (0.3119) to estimate the total cost (ratio derived from the Institute for Health and Socio-Economic Policy calculations of federal cost reports). We then conducted a sensitivity analysis in which we used the average of the cost-to-charge ratios of New York and Colorado for any given state-year (**eTable 2**).

eTable 1. Yearly costs and charges for the 3 study states

Colorado	2010	2011	2012	2013	2014	2010 to 2014
Total hospitalizations, n	397,505	428,912	424,640	418,952	418,900	2,088,909
Hospitalizations for which CCR is available, n (%)	396,433 (99.7%)	301,586 (70.3%)	382,021 (90.0%)	412,483 (98.5%)	413,160 (98.6%)	1,905,683 (91.2%)
Total charges for hospitalizations for which CCR is available	\$14,382,791,648	\$11,170,040,412	\$15,821,232,608	\$19,349,895,615	\$20,370,018,114	\$81,093,978,397
Total costs for hospitalizations for which CCR is available	\$4,104,443,164	\$3,033,915,324	\$3,963,892,093	\$4,619,884,886	\$4,700,380,255	\$20,422,515,722
Average CCR*	0.2854	0.2716	0.2505	0.2388	0.2309	
Hospitalizations for which CCR is not available, n (%)	1,072 (0.3%)	127,326 (29.7%)	42,619 (10.0%)	6,469 (1.5%)	5,740 (1.4%)	183,226 (8.8%)
Total charges for hospitalizations for which CCR is not available	\$55,039,614	\$5,704,285,087	\$2,494,379,901	\$241,011,451	\$211,228,665	\$8,705,944,718
Total costs for hospitalizations for which CCR is not available†	\$15,708,306	\$1,549,283,830	\$624,842,165	\$57,553,535	\$48,772,699	\$2,296,160,534
Total inpatient costs	\$4,120,151,470	\$4,583,199,154	\$4,588,734,258	\$4,677,438,421	\$4,749,152,954	\$22,718,676,256

*Average CCR was estimated by dividing the total of costs for all hospitalizations for which cost-to-charge ratios were available by the total charges for hospitalizations for which cost-to-charge ratios were available in a given state-year.

†Total charges for hospitalization for which CCR is not available multiplied by Average CCR in a given state-year.

New York	2010	2011	2012	2013	2014	2010 to 2014
Total hospitalizations, n	2,417,298	2,414,985	2,389,701	2,290,502	2,213,797	11,726,283
Hospitalizations for which CCR is available, n (%)	2,189,513 (90.6%)	2,157,629 (89.3%)	2,168,880 (90.8%)	2,056,367 (89.8%)	2,021,199 (91.3%)	10,593,588 (90.3%)
Total charges for hospitalizations for which CCR is available	\$66,303,900,691	\$69,885,515,755	\$74,728,795,811	\$77,680,292,105	\$79,252,368,106	\$367,850,872,468
Total costs for hospitalizations for which CCR is available	\$22,376,381,374	\$23,448,311,348	\$24,539,963,919	\$24,331,920,273	\$23,892,478,440	\$118,589,055,354
Average CCR*	0.3375	0.3355	0.3283	0.3132	0.3014	
Hospitalizations for which CCR is not available, n (%)	227,785 (9.4%)	257,356 (10.7%)	220,821 (9.2%)	234,135 (10.2%)	192,598 (8.7%)	1,132,695 (9.7%)
Total charges for hospitalizations for which CCR is not available	\$4,168,104,163	\$4,821,903,339	\$4,088,909,686	\$5,687,320,556	\$5,336,461,039	\$24,102,698,783
Total costs for hospitalizations for which CCR is not available†	\$1,406,735,155	\$1,617,748,571	\$1,342,797,941	\$1,781,268,798	\$1,608,409,357	\$7,756,959,821
Total inpatient costs	\$23,783,116,529	\$25,066,059,919	\$25,882,761,860	\$26,113,189,071	\$25,500,887,797	\$126,346,015,175

*Average CCR was estimated by dividing the total of costs for all hospitalizations for which cost-to-charge ratios were available by the total charges for hospitalizations for which cost-to-charge ratios were available in a given state-year.

†Total charges for hospitalization for which CCR is not available multiplied by Average CCR in a given state-year.

Oklahoma	2010	2011	2012	2013	2014	2010 to 2014
Total hospitalizations, n	489,724	476,605	476,728	452,724	439,207	2,334,988
Hospitalizations for which CCR is available, n (%)	489724 (100%)	476605 (100%)	476728 (100%)	452724 (100%)	439207 (100%)	2334988 (100%)
Total charges for hospitalizations for which CCR is available	\$13,927,214,520	\$14,645,751,657	\$15,247,598,300	\$15,596,643,583	\$15,003,967,132	\$74,421,175,192
Total costs for hospitalizations for which CCR is available	\$4,343,898,209	\$4,568,009,942	\$4,755,725,910	\$4,864,593,134	\$5,001,131,977	\$23,533,359,171
Average CCR*	0.3119	0.3119	0.3119	0.3119	0.3119	

*Statewide constant CCR (0.3119) used to estimate the total cost across years.

Oklahoma (sensitivity analysis)	2010	2011	2012	2013	2014	2010 to 2014
Total hospitalization, n	489,724	476,605	476,728	452,724	439,207	2,334,988
Hospitalization for which CCR is available, n (%)	489724 (100%)	476605 (100%)	476728 (100%)	452724 (100%)	439207 (100%)	2334988 (100%)
Total charges for hospitalization for which CCR is available	\$13,927,214,520	\$14,645,751,657	\$15,247,598,300	\$15,596,643,583	\$15,003,967,132	\$74,421,175,192
Total costs for hospitalization for which CCR is available	\$4,337,630,962	\$4,445,717,915	\$4,413,417,328	\$4,304,673,629	\$4,267,557,794	\$21,768,997,628
Average CCR*	0.3114	0.3036	0.2895	0.276	0.2662	

*Average of the CCRs of New York and Colorado for any given state-year.

eTable 2. International Classification of Diseases-9th Edition (ICD-9) codes defining each medical diagnosis.

Chronic pain

ICD-9 Code	Short Description	Long Description
338.21	Chronic pain d/t trauma	Chronic pain due to trauma
338.22	Chron post-thoracot pain	Chronic post-thoracotomy pain
338.28	Chronic postop pain NEC	Other chronic postoperative pain
338.29	Chronic pain NEC	Other chronic pain
338.4	Chronic pain syndrome	Chronic pain syndrome

Nausea or vomiting

ICD-9 Code	Short Description	Long Description
787.03	Vomiting alone	Vomiting alone
787.02	Nausea alone	Nausea alone
787.01	Nausea with vomiting	Nausea with vomiting

Spasticity

ICD-9 Code	Short Description	Long Description
728.85	Spasm of muscle	Spasm of muscle

Short-term sleep disorders

ICD-9 Code	Short Description	Long Description
307.4	Nonorganic sleep dis NOS	Nonorganic sleep disorder, unspecified
307.41	Transient insomnia	Transient disorder of initiating or maintaining sleep
307.42	Persistent insomnia	Persistent disorder of initiating or maintaining sleep
307.45	Nonorganic circadian rhy	Circadian rhythm sleep disorder of nonorganic origin
307.47	Sleep stage dysfunc NEC	Other dysfunctions of sleep stages or arousal from sleep
307.49	Nonorganic sleep dis NEC	Other specific disorders of sleep of nonorganic origin

Increased appetite and weight gain

ICD-9 Code	Short Description	Long Description
783.1	Abnormal weight gain	Abnormal weight gain
783.6	Polyphagia	Polyphagia

Tourette's syndrome

ICD-9 Code	Short Description	Long Description
307.23	Tourette's disorder	Tourette's disorder

Posttraumatic stress disorder

ICD-9 Code	Short Description	Long Description
309.81	Posttraumatic stress dis	Posttraumatic stress disorder

Non-seminoma-type testicular germ cell cancer

ICD-9 Code	Short Description	Long Description
186.9	Malig neo testis NEC	Malignant neoplasm of other and unspecified testis

Acute myocardial infarction

ICD-9 Code	Short Description	Long Description
410	AMI anterolateral,unspec	Acute myocardial infarction of anterolateral wall, episode of care unspecified
410.01	AMI anterolateral, init	Acute myocardial infarction of anterolateral wall, initial episode of care
410.02	AMI anterolateral,subseq	Acute myocardial infarction of anterolateral wall, subsequent episode of care
410.1	AMI anterior wall,unspec	Acute myocardial infarction of other anterior wall, episode of care unspecified
410.11	AMI anterior wall, init	Acute myocardial infarction of other anterior wall, initial episode of care
410.12	AMI anterior wall,subseq	Acute myocardial infarction of other anterior wall, subsequent episode of care
410.2	AMI inferolateral,unspec	Acute myocardial infarction of inferolateral wall, episode of care unspecified
410.21	AMI inferolateral, init	Acute myocardial infarction of inferolateral wall, initial episode of care
410.22	AMI inferolateral,subseq	Acute myocardial infarction of inferolateral wall, subsequent episode of care
410.3	AMI inferopost, unspec	Acute myocardial infarction of inferoposterior wall, episode of care unspecified
410.31	AMI inferopost, initial	Acute myocardial infarction of inferoposterior wall, initial episode of care
410.32	AMI inferopost, subseq	Acute myocardial infarction of inferoposterior wall, subsequent episode of care
410.4	AMI inferior wall,unspec	Acute myocardial infarction of other inferior wall, episode of care unspecified
410.41	AMI inferior wall, init	Acute myocardial infarction of other inferior wall, initial episode of care
410.42	AMI inferior wall,subseq	Acute myocardial infarction of other inferior wall, subsequent episode of care
410.5	AMI lateral NEC, unspec	Acute myocardial infarction of other lateral wall, episode of care unspecified
410.51	AMI lateral NEC, initial	Acute myocardial infarction of other lateral wall, initial episode of care
410.52	AMI lateral NEC, subseq	Acute myocardial infarction of other lateral wall, subsequent episode of care
410.6	True post infarct,unspec	True posterior wall infarction, episode of care unspecified
410.61	True post infarct, init	True posterior wall infarction, initial episode of care

410.62	True post infarct,subseq	True posterior wall infarction, subsequent episode of care
410.7	Subendo infarct, unspec	Subendocardial infarction, episode of care unspecified
410.71	Subendo infarct, initial	Subendocardial infarction, initial episode of care
410.72	Subendo infarct, subseq	Subendocardial infarction, subsequent episode of care
410.8	AMI NEC, unspecified	Acute myocardial infarction of other specified sites, episode of care unspecified
410.81	AMI NEC, initial	Acute myocardial infarction of other specified sites, initial episode of care
410.82	AMI NEC, subsequent	Acute myocardial infarction of other specified sites, subsequent episode of care
410.9	AMI NOS, unspecified	Acute myocardial infarction of unspecified site, episode of care unspecified
410.91	AMI NOS, initial	Acute myocardial infarction of unspecified site, initial episode of care
410.92	AMI NOS, subsequent	Acute myocardial infarction of unspecified site, subsequent episode of care

Ischemic stroke

ICD-9 Code	Short Description	Long Description
435.8	Trans cereb ischemia NEC	Other specified transient cerebral ischemias
435.9	Trans cereb ischemia NOS	Unspecified transient cerebral ischemia
433.01	Ocl bslr art w infrc	Occlusion and stenosis of basilar artery with cerebral infarction
433.11	Ocl crtd art w infrc	Occlusion and stenosis of carotid artery with cerebral infarction
433.21	Ocl vrtb art w infrc	Occlusion and stenosis of vertebral artery with cerebral infarction
433.31	Ocl mlt bi art w infrc	Occlusion and stenosis of multiple and bilateral precerebral arteries with cerebral infarction
433.81	Ocl spcf art w infrc	Occlusion and stenosis of other specified precerebral artery with cerebral infarction
433.91	Ocl art NOS w infrc	Occlusion and stenosis of unspecified precerebral artery with cerebral infarction
434.91	Crbl art ocl NOS w infrc	Cerebral artery occlusion, unspecified with cerebral infarction

Brain hemorrhage

ICD-9 Code	Short Description	Long Description
430	Subarachnoid hemorrhage	Subarachnoid hemorrhage
431	Intracerebral hemorrhage	Intracerebral hemorrhage
432	Nontraum extradural hem	Nontraumatic extradural hemorrhage
432.1	Subdural hemorrhage	Subdural hemorrhage
432.9	Intracranial hemorr NOS	Unspecified intracranial hemorrhage

Metabolic syndrome and diabetes

ICD-9 Code	Short Description	Long Description
277.7	Dysmetabolic syndrome x	Dysmetabolic syndrome X
250	DMII wo cmp nt st uncntr	Diabetes mellitus without mention of complication, type II or unspecified type, not stated as uncontrolled
250.02	DMII wo cmp uncntrld	Diabetes mellitus without mention of complication, type II or unspecified type, uncontrolled
250.1	DMII keto nt st uncntrld	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled
250.12	DMII ketoacd uncontrold	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled
250.2	DMII hprsm nt st uncntrl	Diabetes with hyperosmolarity, type II or unspecified type, not stated as uncontrolled
250.22	DMII hprosmlr uncontrold	Diabetes with hyperosmolarity, type II or unspecified type, uncontrolled
250.3	DMII o cm nt st uncntrld	Diabetes with other coma, type II or unspecified type, not stated as uncontrolled
250.32	DMII oth coma uncontrold	Diabetes with other coma, type II or unspecified type, uncontrolled
250.4	DMII renl nt st uncntrld	Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled
250.42	DMII renal uncntrld	Diabetes with renal manifestations, type II or unspecified type, uncontrolled
250.5	DMII ophth nt st uncntrl	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled
250.52	DMII ophth uncntrld	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled
250.6	DMII neuro nt st uncntrl	Diabetes with neurological manifestations, type II or unspecified type, not stated as uncontrolled
250.62	DMII neuro uncntrld	Diabetes with neurological manifestations, type II or unspecified type, uncontrolled
250.7	DMII circ nt st uncntrld	Diabetes with peripheral circulatory disorders, type II or unspecified type, not stated as uncontrolled
250.72	DMII circ uncntrld	Diabetes with peripheral circulatory disorders, type II or unspecified type, uncontrolled
250.8	DMII oth nt st uncntrld	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled
250.82	DMII oth uncntrld	Diabetes with other specified manifestations, type II or unspecified type, uncontrolled
250.9	DMII unspf nt st uncntrl	Diabetes with unspecified complication, type II or unspecified type, not stated as uncontrolled

250.92	DMII unspf uncntrld	Diabetes with unspecified complication, type II or unspecified type, uncontrolled
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Prediabetes

ICD-9 Code	Short Description	Long Description
790.29	Abnormal glucose NEC	Other abnormal glucose

Bronchitis

ICD-9 Code	Short Description	Long Description
466	Acute bronchitis	Acute bronchitis
490	Bronchitis NOS	Bronchitis, not specified as acute or chronic
491	Simple chr bronchitis	Simple chronic bronchitis
491.1	Mucopurul chr bronchitis	Mucopurulent chronic bronchitis
491.2	Obst chr bronc w/o exac	Obstructive chronic bronchitis without exacerbation
491.21	Obs chr bronc w(ac) exac	Obstructive chronic bronchitis with (acute) exacerbation
491.22	Obs chr bronc w ac bronc	Obstructive chronic bronchitis with acute bronchitis
491.8	Chronic bronchitis NEC	Other chronic bronchitis
491.9	Chronic bronchitis NOS	Unspecified chronic bronchitis

Motor vehicle accidents

ICD-9 Code	Short Description	Long Description
E812.0	Mv collision NOS-driver	Other motor vehicle traffic accident involving collision with motor vehicle injuring driver of motor vehicle other than motorcycle
E812.1	Mv collision NOS-pasngr	Other motor vehicle traffic accident involving collision with motor vehicle injuring passenger in motor vehicle other than motorcycle
E812.2	Mv collis NOS-motorcycl	Other motor vehicle traffic accident involving collision with motor vehicle injuring motorcyclist
E812.3	Mv coll NOS-mcycl psngr	Other motor vehicle traffic accident involving collision with motor vehicle injuring passenger on motorcycle
E812.4	Mv collision NOS-st car	Other motor vehicle traffic accident involving collision with motor vehicle injuring occupant of streetcar
E812.5	Mv coll NOS-anim rid	Other motor vehicle traffic accident involving collision with motor vehicle injuring rider of animal; occupant of animal-drawn vehicle
E812.6	Mv coll NOS-ped cycl	Other motor vehicle traffic accident involving collision with motor vehicle injuring pedal cyclist
E812.7	Mv collision NOS-pedest	Other motor vehicle traffic accident involving collision with motor vehicle injuring pedestrian

E812.8	Mv collis NOS-pers NEC	Other motor vehicle traffic accident involving collision with motor vehicle injuring other specified person
E812.9	Mv collis NOS-pers NOS	Other motor vehicle traffic accident involving collision with motor vehicle injuring unspecified person
E813.0	Mv-oth veh coll-driver	Motor vehicle traffic accident involving collision with other vehicle injuring driver of motor vehicle other than motorcycle
E813.1	Mv-oth veh coll-pasngr	Motor vehicle traffic accident involving collision with other vehicle injuring passenger in motor vehicle other than motorcycle
E813.2	Mv-oth veh coll-motcycl	Motor vehicle traffic accident involving collision with other vehicle injuring motorcyclist
E813.3	Mv-oth veh coll-mcyc psg	Motor vehicle traffic accident involving collision with other vehicle injuring passenger on motorcycle
E813.4	Mv-oth veh coll-st car	Motor vehicle traffic accident involving collision with other vehicle injuring occupant of streetcar
E813.5	Mv-oth veh coll-anim rid	Motor vehicle traffic accident involving collision with other vehicle injuring rider of animal; occupant of animal-drawn vehicle
E813.6	Mv-oth veh coll-ped cycl	Motor vehicle traffic accident involving collision with other vehicle injuring pedal cyclist
E813.7	Mv-oth veh coll-pedest	Motor vehicle traffic accident involving collision with other vehicle injuring pedestrian
E813.8	Mv-oth veh coll-pers NEC	Motor vehicle traffic accident involving collision with other vehicle injuring other specified person
E813.9	Mv-oth veh coll-pers NOS	Motor vehicle traffic accident involving collision with other vehicle injuring unspecified person
E814.0	Mv coll w pedest-driver	Motor vehicle traffic accident involving collision with pedestrian injuring driver of motor vehicle other than motorcycle
E814.1	Mv coll w pedest-pasngr	Motor vehicle traffic accident involving collision with pedestrian injuring passenger in motor vehicle other than motorcycle
E814.2	Mv coll w pedest-motcycl	Motor vehicle traffic accident involving collision with pedestrian injuring motorcyclist
E814.3	Mv coll w ped-mcycl psgr	Motor vehicle traffic accident involving collision with pedestrian injuring passenger on motorcycle
E814.4	Mv coll w pedest-st car	Motor vehicle traffic accident involving collision with pedestrian injuring occupant of streetcar
E814.5	Mv coll w ped-anim rid	Motor vehicle traffic accident involving collision with pedestrian injuring rider of animal; occupant of animal drawn vehicle
E814.6	Mv coll w ped-ped cycl	Motor vehicle traffic accident involving collision with pedestrian injuring pedal cyclist

E814.7	Mv coll w pedest-pedest	Motor vehicle traffic accident involving collision with pedestrian injuring pedestrian
E814.8	Mv coll w pedes-pers NEC	Motor vehicle traffic accident involving collision with pedestrian injuring other specified person
E814.9	Mv coll w pedes-pers NOS	Motor vehicle traffic accident involving collision with pedestrian injuring unspecified person
E815.0	Mv coll w oth obj-driver	Other motor vehicle traffic accident involving collision on the highway injuring driver of motor vehicle other than motorcycle
E815.1	Mv coll w oth obj-pasngr	Other motor vehicle traffic accident involving collision on the highway injuring passenger in motor vehicle other than motorcycle
E815.2	Mv coll w oth obj-mocycl	Other motor vehicle traffic accident involving collision on the highway injuring motorcyclist
E815.3	Mv coll w obj-mcycl psgr	Other motor vehicle traffic accident involving collision on the highway injuring passenger on motorcycle
E815.4	Mv coll w obj-st car	Other motor vehicle traffic accident involving collision on the highway injuring occupant of streetcar
E815.5	Mv coll w obj-anim rider	Other motor vehicle traffic accident involving collision on the highway injuring rider of animal; occupant of animal-drawn vehicle
E815.6	Mv coll w obj-ped cycl	Other motor vehicle traffic accident involving collision on the highway injuring pedal cyclist
E815.7	Mv coll w obj-pedest	Other motor vehicle traffic accident involving collision on the highway injuring pedestrian
E815.8	Mv coll w obj-pers NEC	Other motor vehicle traffic accident involving collision on the highway injuring other specified person
E815.9	Mv coll w obj-pers NOS	Other motor vehicle traffic accident involving collision on the highway injuring unspecified person
E816.0	Loss control mv acc-driv	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring driver of motor vehicle other than motorcycle
E816.1	Loss control mv acc-psgr	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring passenger in motor vehicle other than motorcycle
E816.2	Loss control mv-mocycl	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring motorcyclist
E816.3	Loss control mv-mcyc psg	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring passenger on motorcycle

E816.4	Loss cont mv acc-st car	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring occupant of streetcar
E816.5	Loss cont mv-anim rider	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring rider of animal; occupant of animal-drawn vehicle
E816.6	Loss control mv-ped cycl	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring pedal cyclist
E816.7	Loss control mv-pedest	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring pedestrian
E816.8	Loss control mv-pers NEC	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring other specified person
E816.9	Loss control mv-pers NOS	Motor vehicle traffic accident due to loss of control, without collision on the highway, injuring unspecified person
E819.0	Traffic acc NOS-driver	Motor vehicle traffic accident of unspecified nature injuring driver of motor vehicle other than motorcycle
E819.1	Traffic acc NOS-pasngr	Motor vehicle traffic accident of unspecified nature injuring passenger in motor vehicle other than motorcycle
E819.2	Traffic acc NOS-motcycl	Motor vehicle traffic accident of unspecified nature injuring motorcyclist
E819.3	Traff acc NOS-mcycl psgr	Motor vehicle traffic accident of unspecified nature injuring passenger on motorcycle
E819.4	Traffic acc NOS-st car	Motor vehicle traffic accident of unspecified nature injuring occupant of streetcar
E819.5	Traff acc NOS-anim rider	Motor vehicle traffic accident of unspecified nature injuring rider of animal; occupant of animal-drawn vehicle
E819.6	Traffic acc NOS-ped cycl	Motor vehicle traffic accident of unspecified nature injuring pedal cyclist
E819.7	Traffic acc NOS-pedest	Motor vehicle traffic accident of unspecified nature injuring pedestrian
E819.8	Traffic acc NOS-pers NEC	Motor vehicle traffic accident of unspecified nature injuring other specified person
E819.9	Traffic acc NOS-pers NOS	Motor vehicle traffic accident of unspecified nature injuring unspecified person

Overdose injuries

ICD-9 Code	Short Description	Long Description
E950.0	Poison-analgesics	Suicide and self-inflicted poisoning by analgesics, antipyretics, and antirheumatics

E950.1	Poison-barbiturates	Suicide and self-inflicted poisoning by barbiturates
E950.2	Poison-sedat/hypnotic	Suicide and self-inflicted poisoning by other sedatives and hypnotics
E950.3	Poison-psychotropic agt	Suicide and self-inflicted poisoning by tranquilizers and other psychotropic agents
E950.4	Poison-drug/medicin NEC	Suicide and self-inflicted poisoning by other specified drugs and medicinal substances
E950.5	Poison-drug/medicin NOS	Suicide and self-inflicted poisoning by unspecified drug or medicinal substance

Assault-based gunshot injuries

ICD-9 Code	Short Description	Long Description
E965.0	Assault-handgun	Assault by handgun
E965.1	Assault-shotgun	Assault by shotgun
E965.2	Assault-hunting rifle	Assault by hunting rifle
E965.3	Assault-military weapon	Assault by military firearms
E965.4	Assault-firearm NEC	Assault by other and unspecified firearm

Low offspring birthweight

ICD-9 Code	Short Description	Long Description
764.9	Fet growth retard wtNOS	Fetal growth retardation, unspecified, unspecified [weight]
764.91	Fet growth retard <500g	Fetal growth retardation, unspecified, less than 500 grams
764.92	Fet growth ret 500-749g	Fetal growth retardation, unspecified, 500-749 grams
764.93	Fet growth ret 750-999g	Fetal growth retardation, unspecified, 750-999 grams
764.94	Fet grwth ret 1000-1249g	Fetal growth retardation, unspecified, 1,000-1,249 grams
764.95	Fet grwth ret 1250-1499g	Fetal growth retardation, unspecified, 1,250-1,499 grams
764.96	Fet grwth ret 1500-1749g	Fetal growth retardation, unspecified, 1,500-1,749 grams
764.97	Fet grwth ret 1750-1999g	Fetal growth retardation, unspecified, 1,750-1,999 grams
764.98	Fet grwth ret 2000-2499g	Fetal growth retardation, unspecified, 2,000-2,499 grams
764.99	Fet growth ret 2500+g	Fetal growth retardation, unspecified, 2,500 grams and over

Maternal pregnancy complications

ICD-9 Code	Short Description	Long Description
640.8	Hem early preg NEC-unsp	Other specified hemorrhage in early pregnancy, unspecified as to episode of care or not applicable

640.81	Hem early preg NEC-deliv	Other specified hemorrhage in early pregnancy, delivered, with or without mention of antepartum condition
640.83	Hem early pg NEC-anteapar	Other specified hemorrhage in early pregnancy, antepartum condition or complication
640.9	Hemorr early preg-unspec	Unspecified hemorrhage in early pregnancy, unspecified as to episode of care or not applicable
640.91	Hem early preg-delivered	Unspecified hemorrhage in early pregnancy, delivered, with or without mention of antepartum condition
640.93	Hem early preg-anteapart	Unspecified hemorrhage in early pregnancy, antepartum condition or complication
641	Placenta previa-unspec	Placenta previa without hemorrhage, unspecified as to episode of care or not applicable
641.01	Placenta previa-deliver	Placenta previa without hemorrhage, delivered, with or without mention of antepartum condition
641.03	Placenta previa-anteapart	Placenta previa without hemorrhage, antepartum condition or complication
641.1	Placenta prev hem-unspec	Hemorrhage from placenta previa, unspecified as to episode of care or not applicable
641.11	Placenta prev hem-deliv	Hemorrhage from placenta previa, delivered, with or without mention of antepartum condition
641.13	Placen prev hem-anteapart	Hemorrhage from placenta previa, antepartum condition or complication
641.2	Prem separ placen-unspec	Premature separation of placenta, unspecified as to episode of care or not applicable
641.21	Prem separ placen-deliv	Premature separation of placenta, delivered, with or without mention of antepartum condition
641.23	Prem separ plac-anteapart	Premature separation of placenta, antepartum condition or complication
642	Essen hyperten preg-unsp	Benign essential hypertension complicating pregnancy, childbirth, and the puerperium, unspecified as to episode of care or not applicable
642.01	Essen hyperten-delivered	Benign essential hypertension complicating pregnancy, childbirth, and the puerperium, delivered, with or without mention of antepartum condition
642.02	Essen hyperten-del w p/p	Benign essential hypertension, complicating pregnancy, childbirth, and the puerperium, delivered, with mention of postpartum complication
642.03	Essen hyperten-anteapart	Benign essential hypertension complicating pregnancy, childbirth, and the puerperium, antepartum condition or complication

642.04	Essen hyperten-postpart	Benign essential hypertension complicating pregnancy, childbirth, and the puerperium, postpartum condition or complication
642.3	Trans hyperten preg-unsp	Transient hypertension of pregnancy, unspecified as to episode of care or not applicable
642.31	Trans hyperten-delivered	Transient hypertension of pregnancy, delivered , with or without mention of antepartum condition
642.32	Trans hyperten-del w p/p	Transient hypertension of pregnancy, delivered, with mention of postpartum complication
642.33	Trans hyperten-antepart	Transient hypertension of pregnancy, antepartum condition or complication
642.34	Trans hyperten-postpart	Transient hypertension of pregnancy, postpartum condition or complication
642.4	Mild/NOS preeclamp-unsp	Mild or unspecified pre-eclampsia, unspecified as to episode of care or not applicable
642.41	Mild/NOS preeclamp-deliv	Mild or unspecified pre-eclampsia, delivered, with or without mention of antepartum condition
642.42	Mild preeclamp-del w p/p	Mild or unspecified pre-eclampsia, delivered, with mention of postpartum complication
642.43	Mild/NOS preeclamp-antep	Mild or unspecified pre-eclampsia, antepartum condition or complication
642.44	Mild/NOS preeclamp-p/p	Mild or unspecified pre-eclampsia, postpartum condition or complication
642.5	Severe preeclamp-unspec	Severe pre-eclampsia, unspecified as to episode of care or not applicable
642.51	Severe preeclamp-deliver	Severe pre-eclampsia, delivered, with or without mention of antepartum condition
642.52	Sev preeclamp-del w p/p	Severe pre-eclampsia, delivered, with mention of postpartum complication
642.53	Sev preeclamp-antepartum	Severe pre-eclampsia, antepartum condition or complication
642.54	Sev preeclamp-postpartum	Severe pre-eclampsia, postpartum condition or complication
642.6	Eclampsia-unspecified	Eclampsia, unspecified as to episode of care or not applicable
642.61	Eclampsia-delivered	Eclampsia, delivered, with or without mention of antepartum condition
642.62	Eclampsia-deliv w p/p	Eclampsia, delivered, with mention of postpartum complication
642.63	Eclampsia-antepartum	Eclampsia, antepartum condition or complication
642.64	Eclampsia-postpartum	Eclampsia, postpartum condition or complication
642.7	Tox w old hyperten-unsp	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, unspecified as to episode of care or not applicable
642.71	Tox w old hyperten-deliv	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, delivered, with or without mention of antepartum condition

642.72	Tox w old hyp-del w p/p	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, delivered, with mention of postpartum complication
642.73	Tox w old hyper-ante part	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, antepartum condition or complication
642.74	Tox w old hyper-postpart	Pre-eclampsia or eclampsia superimposed on pre-existing hypertension, postpartum condition or complication
642.9	Hyperten preg NOS-unspec	Unspecified hypertension complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable
642.91	Hypertens NOS-delivered	Unspecified hypertension complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition
642.92	Hypertens NOS-del w p/p	Unspecified hypertension complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication
642.93	Hypertens NOS-ante partum	Unspecified hypertension complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication
642.94	Hypertens NOS-postpartum	Unspecified hypertension complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication
646.8	Preg compl NEC-unspec	Other specified complications of pregnancy, unspecified as to episode of care or not applicable
646.81	Preg compl NEC-delivered	Other specified complications of pregnancy, delivered, with or without mention of antepartum condition
646.82	Preg compl NEC-del w p/p	Other specified complications of pregnancy, delivered, with mention of postpartum complication
646.83	Preg compl NEC-ante part	Other specified complications of pregnancy, antepartum condition or complication
646.84	Preg compl NEC-postpart	Other specified complications of pregnancy, postpartum condition or complication
646.9	Preg compl NOS-unspec	Unspecified complication of pregnancy, unspecified as to episode of care or not applicable

Unemployment or low income

ICD-9 Code	Short Description	Long Description
V62.0	Unemployment	Unemployment

Schizophrenia or other psychoses

ICD-9 Code	Short Description	Long Description
295	Simpl schizophren-unspec	Simple type schizophrenia, unspecified
295.01	Simpl schizophren-subchr	Simple type schizophrenia, subchronic
295.02	Simple schizophren-chr	Simple type schizophrenia, chronic
295.03	Simp schiz-subchr/exacer	Simple type schizophrenia, subchronic with acute exacerbation
295.04	Simpl schizo-chr/exacerb	Simple type schizophrenia, chronic with acute exacerbation
295.05	Simpl schizophren-remiss	Simple type schizophrenia, in remission
295.1	Hebephrenia-unspec	Disorganized type schizophrenia, unspecified
295.11	Hebephrenia-subchronic	Disorganized type schizophrenia, subchronic
295.12	Hebephrenia-chronic	Disorganized type schizophrenia, chronic
295.13	Hebephren-subchr/exacerb	Disorganized type schizophrenia, subchronic with acute exacerbation
295.14	Hebephrenia-chr/exacerb	Disorganized type schizophrenia, chronic with acute exacerbation
295.15	Hebephrenia-remission	Disorganized type schizophrenia, in remission
295.2	Catatonia-unspec	Catatonic type schizophrenia, unspecified
295.21	Catatonia-subchronic	Catatonic type schizophrenia, subchronic
295.22	Catatonia-chronic	Catatonic type schizophrenia, chronic
295.23	Catatonia-subchr/exacerb	Catatonic type schizophrenia, subchronic with acute exacerbation
295.24	Catatonia-chr/exacerb	Catatonic type schizophrenia, chronic with acute exacerbation
295.25	Catatonia-remission	Catatonic type schizophrenia, in remission
295.3	Paranoid schizo-unspec	Paranoid type schizophrenia, unspecified
295.31	Paranoid schizo-subchr	Paranoid type schizophrenia, subchronic
295.32	Paranoid schizo-chronic	Paranoid type schizophrenia, chronic
295.33	Paran schizo-subchr/exac	Paranoid type schizophrenia, subchronic with acute exacerbation
295.34	Paran schizo-chr/exacerb	Paranoid type schizophrenia, chronic with acute exacerbation
295.35	Paranoid schizo-remiss	Paranoid type schizophrenia, in remission
295.4	Schizophreniform dis NOS	Schizophreniform disorder, unspecified
295.41	Schizophrenic dis-subchr	Schizophreniform disorder, subchronic
295.42	Schizophren dis-chronic	Schizophreniform disorder, chronic
295.43	Schizo dis-subchr/exacer	Schizophreniform disorder, subchronic with acute exacerbation
295.44	Schizophr dis-chr/exacer	Schizophreniform disorder, chronic with acute exacerbation
295.45	Schizophrenic dis-remiss	Schizophreniform disorder, in remission
295.5	Latent schizophren-unsp	Latent schizophrenia, unspecified
295.51	Lat schizophren-subchr	Latent schizophrenia, subchronic
295.52	Latent schizophren-chr	Latent schizophrenia, chronic

295.53	Lat schizo-subchr/exacer	Latent schizophrenia, subchronic with acute exacerbation
295.54	Latent schizo-chr/exacer	Latent schizophrenia, chronic with acute exacerbation
295.55	Lat schizophren-remiss	Latent schizophrenia, in remission
295.6	Schizophr dis resid NOS	Schizophrenic disorders, residual type, unspecified
295.61	Schizophr dis resid-subch	Schizophrenic disorders, residual type, subchronic
295.62	Schizophr dis resid-chr	Schizophrenic disorders, residual type, chronic
295.63	Schizo resid subchr/exac	Schizophrenic disorders, residual type, subchronic with acute exacerbation
295.64	Schizophr resid-chro/exac	Schizophrenic disorders, residual type, chronic with acute exacerbation
295.65	Schizophr dis resid-remis	Schizophrenic disorders, residual type, in remission
296.2	Depress psychosis-unspec	Major depressive affective disorder, single episode, unspecified
296.21	Depress psychosis-mild	Major depressive affective disorder, single episode, mild
296.22	Depressive psychosis-mod	Major depressive affective disorder, single episode, moderate
296.23	Depress psychosis-severe	Major depressive affective disorder, single episode, severe, without mention of psychotic behavior
296.24	Depr psychos-sev w psych	Major depressive affective disorder, single episode, severe, specified as with psychotic behavior
296.25	Depr psychos-part remiss	Major depressive affective disorder, single episode, in partial or unspecified remission
296.26	Depr psychos-full remiss	Major depressive affective disorder, single episode, in full remission
296.3	Recurr depr psychos-unsp	Major depressive affective disorder, recurrent episode, unspecified
296.31	Recurr depr psychos-mild	Major depressive affective disorder, recurrent episode, mild
296.32	Recurr depr psychos-mod	Major depressive affective disorder, recurrent episode, moderate
296.33	Recur depr psych-severe	Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior
296.34	Rec depr psych-psychotic	Major depressive affective disorder, recurrent episode, severe, specified as with psychotic behavior
296.35	Recur depr psyc-part rem	Major depressive affective disorder, recurrent episode, in partial or unspecified remission

296.36	Recur depr psyc-full rem	Major depressive affective disorder, recurrent episode, in full remission
298	React depress psychosis	Depressive type psychosis
298.1	Excitativ type psychosis	Excitative type psychosis
298.4	Psychogen paranoid psych	Psychogenic paranoid psychosis
298.8	React psychosis NEC/NOS	Other and unspecified reactive psychosis
298.9	Psychosis NOS	Unspecified psychosis

Depressive disorders

ICD-9 Code	Short Description	Long Description
296.82	Atypical depressive dis	Atypical depressive disorder
311	Depressive disorder NEC	Depressive disorder, not elsewhere classified

Suicide

ICD-9 Code	Short Description	Long Description
E950.6	Poison-agricult agent	Suicide and self-inflicted poisoning by agricultural and horticultural chemical and pharmaceutical preparations other than plant foods and fertilizers
E950.7	Poison-corrosiv/caustic	Suicide and self-inflicted poisoning by corrosive and caustic substances
E950.8	Poison-arsenic	Suicide and self-inflicted poisoning by arsenic and its compounds
E950.9	Poison-solid/liquid NEC	Suicide and self-inflicted poisoning by other and unspecified solid and liquid substances
E951.0	Poison-piped gas	Suicide and self-inflicted poisoning by gas distributed by pipeline
E951.1	Poison-gas in container	Suicide and self-inflicted poisoning by liquefied petroleum gas distributed in mobile containers
E951.8	Poison-utility gas NEC	Suicide and self-inflicted poisoning by other utility gas
E952.0	Poison-exhaust gas	Suicide and self-inflicted poisoning by motor vehicle exhaust gas
E952.1	Poison-co NEC	Suicide and self-inflicted poisoning by other carbon monoxide
E952.8	Poison-gas/vapor NEC	Suicide and self-inflicted poisoning by other specified gases and vapors
E952.9	Poison-gas/vapor NOS	Suicide and self-inflicted poisoning by unspecified gases and vapors
E953.0	Injury-hanging	Suicide and self-inflicted injury by hanging
E953.1	Injury-suff w plas bag	Suicide and self-inflicted injury by suffocation by plastic bag
E953.8	Injury-strang/suff NEC	Suicide and self-inflicted injury by other specified means
E953.9	Injury-strang/suff NOS	Suicide and self-inflicted injury by unspecified means

E954.	Injury-submersion	Suicide and self-inflicted injury by submersion [drowning]
E955.0	Injury-handgun	Suicide and self-inflicted injury by handgun
E955.1	Injury-shotgun	Suicide and self-inflicted injury by shotgun
E955.2	Injury-hunting rifle	Suicide and self-inflicted injury by hunting rifle
E955.3	Injury-military firearm	Suicide and self-inflicted injury by military firearms
E955.4	Injury-firearm NEC	Suicide and self-inflicted injury by other and unspecified firearm
E955.5	Injury-explosives	Suicide and self-inflicted injury by explosives
E955.6	Self inflict acc-air gun	Suicide and self-inflicted injury by air gun
E955.7	Self inj-paintball gun	Suicide and self-inflicted injury by paintball gun
E955.9	Injury-firearm/expl NOS	Suicide and self-inflicted injury by firearms and explosives, unspecified
E956.	Injury-cut instrument	Suicide and self-inflicted injury by cutting and piercing instrument
E957.0	Injury-jump fm residence	Suicide and self-inflicted injuries by jumping from residential premises
E957.1	Injury-jump fm struc NEC	Suicide and self-inflicted injuries by jumping from other man-made structures
E957.2	Injury-jump fm natur sit	Suicide and self-inflicted injuries by jumping from natural sites
E957.9	Injury-jump NEC	Suicide and self-inflicted injuries by jumping from unspecified site
E958.0	Injury-moving object	Suicide and self-inflicted injury by jumping or lying before moving object
E958.1	Injury-burn, fire	Suicide and self-inflicted injury by burns, fire
E958.2	Injury-scald	Suicide and self-inflicted injury by scald
E958.3	Injury-extreme cold	Suicide and self-inflicted injury by extremes of cold
E958.4	Injury-electrocution	Suicide and self-inflicted injury by electrocution
E958.5	Injury-motor veh crash	Suicide and self-inflicted injury by crashing of motor vehicle
E958.6	Injury-aircraft crash	Suicide and self-inflicted injury by crashing of aircraft
E958.7	Injury-caustic substance	Suicide and self-inflicted injury by caustic substances, except poisoning
E958.8	Injury-NEC	Suicide and self-inflicted injury by other specified means
E958.9	Injury-NOS	Suicide and self-inflicted injury by unspecified means

Social anxiety disorder

ICD-9 Code	Short Description	Long Description
300.23	Social phobia	Social phobia

Anxiety disorders

ICD-9 Code	Short Description	Long Description
293.84	Anxiety disorder oth dis	Anxiety disorder in conditions classified elsewhere
300	Anxiety state NOS	Anxiety state, unspecified

Anxiety disorders (except social anxiety)

ICD-9 Code	Short Description	Long Description
300.01	Panic dis w/o agorophobia	Panic disorder without agoraphobia
300.02	Generalized anxiety dis	Generalized anxiety disorder
300.09	Anxiety state NEC	Other anxiety states
300.1	Hysteria NOS	Hysteria, unspecified
300.11	Conversion disorder	Conversion disorder
300.12	Dissociative amnesia	Dissociative amnesia
300.13	Dissociative fugue	Dissociative fugue
300.14	Dissociative identity dis	Dissociative identity disorder
300.15	Dissociative react NOS	Dissociative disorder or reaction, unspecified
300.16	Factitious dis w symptom	Factitious disorder with predominantly psychological signs and symptoms
300.19	Factitious ill NEC/NOS	Other and unspecified factitious illness
300.2	Phobia NOS	Phobia, unspecified
300.21	Agoraphobia w panic dis	Agoraphobia with panic disorder
300.22	Agoraphobia w/o panic	Agoraphobia without mention of panic attacks
300.29	Isolated/spec phobia NEC	Other isolated or specific phobias
300.3	Obsessive-compulsive dis	Obsessive-compulsive disorders
300.4	Dysthymic disorder	Dysthymic disorder
300.5	Neurasthenia	Neurasthenia
300.6	Depersonalization disord	Depersonalization disorder
300.7	Hypochondriasis	Hypochondriasis
300.81	Somatization disorder	Somatization disorder
300.82	Undiff somatoform disrd	Undifferentiated somatoform disorder
300.89	Somatoform disorders NEC	Other somatoform disorders
300.9	Nonpsychotic disord NOS	Unspecified nonpsychotic mental disorder

Positive symptoms of schizophrenia (i.e., hallucinations)

ICD-9 Code	Short Description	Long Description
780.1	Hallucinations	
293.81	Psy dis w delus oth dis	Psychotic disorder with delusions in conditions classified elsewhere
333.99	Extrapyramidal dis NEC	Other extrapyramidal diseases and abnormal movement disorders

Bipolar disorders

ICD-9 Code	Short Description	Long Description
296.5	Bipol I cur depres NOS	Bipolar I disorder, most recent episode (or current) depressed, unspecified

296.51	Bipol I cur depress-mild	Bipolar I disorder, most recent episode (or current) depressed, mild
296.52	Bipol I cur depress-mod	Bipolar I disorder, most recent episode (or current) depressed, moderate
296.53	Bipol I curr dep w/o psy	Bipolar I disorder, most recent episode (or current) depressed, severe, without mention of psychotic behavior
296.54	Bipol I currnt dep w psy	Bipolar I disorder, most recent episode (or current) depressed, severe, specified as with psychotic behavior
296.55	Bipol I cur dep rem NOS	Bipolar I disorder, most recent episode (or current) depressed, in partial or unspecified remission
296.56	Bipol I currnt dep remis	Bipolar I disorder, most recent episode (or current) depressed, in full remission
296.6	Bipol I currnt mixed NOS	Bipolar I disorder, most recent episode (or current) mixed, unspecified
296.61	Bipol I currnt mix-mild	Bipolar I disorder, most recent episode (or current) mixed, mild
296.62	Bipol I currnt mixed-mod	Bipolar I disorder, most recent episode (or current) mixed, moderate
296.63	Bipol I cur mix w/o psy	Bipolar I disorder, most recent episode (or current) mixed, severe, without mention of psychotic behavior
296.64	Bipol I cur mixed w psy	Bipolar I disorder, most recent episode (or current) mixed, severe, specified as with psychotic behavior
296.65	Bipol I cur mix-part rem	Bipolar I disorder, most recent episode (or current) mixed, in partial or unspecified remission
296.66	Bipol I cur mixed remiss	Bipolar I disorder, most recent episode (or current) mixed, in full remission
296.7	Bipolar I current NOS	Bipolar I disorder, most recent episode (or current) unspecified
296.8	Bipolar disorder NOS	Bipolar disorder, unspecified
296	Bipol I single manic NOS	Bipolar I disorder, single manic episode, unspecified
296.01	Bipol I single manc-mild	Bipolar I disorder, single manic episode, mild
296.02	Bipol I single manic-mod	Bipolar I disorder, single manic episode, moderate
296.03	Bipol I sing-sev w/o psy	Bipolar I disorder, single manic episode, severe, without mention of psychotic behavior
296.04	Bipo I sin man-sev w psy	Bipolar I disorder, single manic episode, severe, specified as with psychotic behavior
296.05	Bipol I sing man rem NOS	Bipolar I disorder, single manic episode, in partial or unspecified remission
296.06	Bipol I single manic rem	Bipolar I disorder, single manic episode, in full remission

296.4	Bipol I currnt manic NOS	Bipolar I disorder, most recent episode (or current) manic, unspecified
296.41	Bipol I curnt manic-mild	Bipolar I disorder, most recent episode (or current) manic, mild
296.42	Bipol I currnt manic-mod	Bipolar I disorder, most recent episode (or current) manic, moderate
296.43	Bipol I manc-sev w/o psy	Bipolar I disorder, most recent episode (or current) manic, severe, without mention of psychotic behavior
296.44	Bipol I manic-sev w psy	Bipolar I disorder, most recent episode (or current) manic, severe, specified as with psychotic behavior
296.45	Bipol I cur man part rem	Bipolar I disorder, most recent episode (or current) manic, in partial or unspecified remission
296.46	Bipol I cur man full rem	Bipolar I disorder, most recent episode (or current) manic, in full remission

Substance dependence or abuse of alcohol, tobacco, and other illicit drugs

ICD-9 Code	Short Description	Long Description
303.9	Alcoh dep NEC/NOS-unspec	Other and unspecified alcohol dependence, unspecified
303.91	Alcoh dep NEC/NOS-contin	Other and unspecified alcohol dependence, continuous
303.92	Alcoh dep NEC/NOS-episod	Other and unspecified alcohol dependence, episodic
303.93	Alcoh dep NEC/NOS-remiss	Other and unspecified alcohol dependence, in remission
304	Opioid dependence-unspec	Opioid type dependence, unspecified
304.01	Opioid dependence-contin	Opioid type dependence, continuous
304.02	Opioid dependence-episod	Opioid type dependence, episodic
304.03	Opioid dependence-remiss	Opioid type dependence, in remission
304.1	Sed,hyp,anxiolyt dep-NOS	Sedative, hypnotic or anxiolytic dependence, unspecified
304.11	Sed,hyp,anxiolyt dep-con	Sedative, hypnotic or anxiolytic dependence, continuous
304.12	Sed,hyp,anxiolyt dep-epi	Sedative, hypnotic or anxiolytic dependence, episodic
304.13	Sed,hyp,anxiolyt dep-rem	Sedative, hypnotic or anxiolytic dependence, in remission
304.2	Cocaine depend-unspec	Cocaine dependence, unspecified
304.21	Cocaine depend-contin	Cocaine dependence, continuous
304.22	Cocaine depend-episodic	Cocaine dependence, episodic
304.23	Cocaine depend-remiss	Cocaine dependence, in remission
304.3	Cannabis depend-unspec	Cannabis dependence, unspecified
304.31	Cannabis depend-contin	Cannabis dependence, continuous
304.32	Cannabis depend-episodic	Cannabis dependence, episodic

304.33	Cannabis depend-remiss	Cannabis dependence, in remission
304.4	Amphetamin depend-unspec	Amphetamine and other psychostimulant dependence, unspecified
304.41	Amphetamin depend-contin	Amphetamine and other psychostimulant dependence, continuous
304.42	Amphetamin depend-episod	Amphetamine and other psychostimulant dependence, episodic
304.43	Amphetamin depend-remiss	Amphetamine and other psychostimulant dependence, in remission
304.5	Hallucinogen dep-unspec	Hallucinogen dependence, unspecified
304.51	Hallucinogen dep-contin	Hallucinogen dependence, continuous
304.52	Hallucinogen dep-episod	Hallucinogen dependence, episodic
304.53	Hallucinogen dep-remiss	Hallucinogen dependence, in remission
304.6	Drug depend NEC-unspec	Other specified drug dependence, unspecified
304.61	Drug depend NEC-contin	Other specified drug dependence, continuous
304.62	Drug depend NEC-episodic	Other specified drug dependence, episodic
304.63	Drug depend NEC-in rem	Other specified drug dependence, in remission
304.7	Opioid/other dep-unspec	Combinations of opioid type drug with any other drug dependence, unspecified
304.71	Opioid/other dep-contin	Combinations of opioid type drug with any other drug dependence, continuous
304.72	Opioid/other dep-episod	Combinations of opioid type drug with any other drug dependence, episodic
304.73	Opioid/other dep-remiss	Combinations of opioid type drug with any other drug dependence, in remission
304.8	Comb drug dep NEC-unspec	Combinations of drug dependence excluding opioid type drug, unspecified
304.81	Comb drug dep NEC-contin	Combinations of drug dependence excluding opioid type drug, continuous
304.82	Comb drug dep NEC-episod	Combinations of drug dependence excluding opioid type drug, episodic
304.83	Comb drug dep NEC-remiss	Combinations of drug dependence excluding opioid type drug, in remission
304.9	Drug depend NOS-unspec	Unspecified drug dependence, unspecified
304.91	Drug depend NOS-contin	Unspecified drug dependence, continuous
304.92	Drug depend NOS-episodic	Unspecified drug dependence, episodic
304.93	Drug depend NOS-remiss	Unspecified drug dependence, in remission
305	Alcohol abuse-unspec	Alcohol abuse, unspecified
305.01	Alcohol abuse-continuous	Alcohol abuse, continuous
305.02	Alcohol abuse-episodic	Alcohol abuse, episodic
305.03	Alcohol abuse-in remiss	Alcohol abuse, in remission
305.3	Hallucinog abuse-unspec	Hallucinogen abuse, unspecified
305.31	Hallucinog abuse-contin	Hallucinogen abuse, continuous
305.32	Hallucinog abuse-episod	Hallucinogen abuse, episodic
305.33	Hallucinog abuse-remiss	Hallucinogen abuse, in remission

305.4	Sed,hyp,anxiolytc ab-NOS	Sedative, hypnotic or anxiolytic abuse, unspecified
305.41	Sed,hyp,anxiolytc ab-con	Sedative, hypnotic or anxiolytic abuse, continuous
305.42	Sed,hyp,anxiolytc ab-epi	Sedative, hypnotic or anxiolytic abuse, episodic
305.43	Sed,hyp,anxiolytc ab-rem	Sedative, hypnotic or anxiolytic abuse, in remission
305.5	Opioid abuse-unspec	Opioid abuse, unspecified
305.51	Opioid abuse-continuous	Opioid abuse, continuous
305.52	Opioid abuse-episodic	Opioid abuse, episodic
305.53	Opioid abuse-in remiss	Opioid abuse, in remission
305.6	Cocaine abuse-unspec	Cocaine abuse, unspecified
305.61	Cocaine abuse-continuous	Cocaine abuse, continuous
305.62	Cocaine abuse-episodic	Cocaine abuse, episodic
305.63	Cocaine abuse-in remiss	Cocaine abuse, in remission
305.7	Amphetamine abuse-unspec	Amphetamine or related acting sympathomimetic abuse, unspecified
305.71	Amphetamine abuse-contin	Amphetamine or related acting sympathomimetic abuse, continuous
305.72	Amphetamine abuse-episod	Amphetamine or related acting sympathomimetic abuse, episodic
305.73	Amphetamine abuse-remiss	Amphetamine or related acting sympathomimetic abuse, in remission
305.8	Antidepress abuse-unspec	Antidepressant type abuse, unspecified
305.81	Antidepress abuse-contin	Antidepressant type abuse, continuous
305.82	Antidepress abuse-episod	Antidepressant type abuse, episodic
305.83	Antidepress abuse-remiss	Antidepressant type abuse, in remission

Cannabis abuse

ICD-9 Code	Short Description	Long Description
305.2	Cannabis abuse-unspec	Cannabis abuse, unspecified
305.21	Cannabis abuse-contin	Cannabis abuse, continuous
305.22	Cannabis abuse-episodic	Cannabis abuse, episodic
305.23	Cannabis abuse-in remiss	Cannabis abuse, in remission

Tobacco use

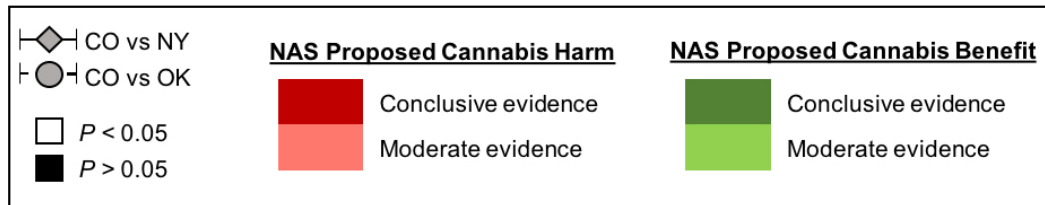
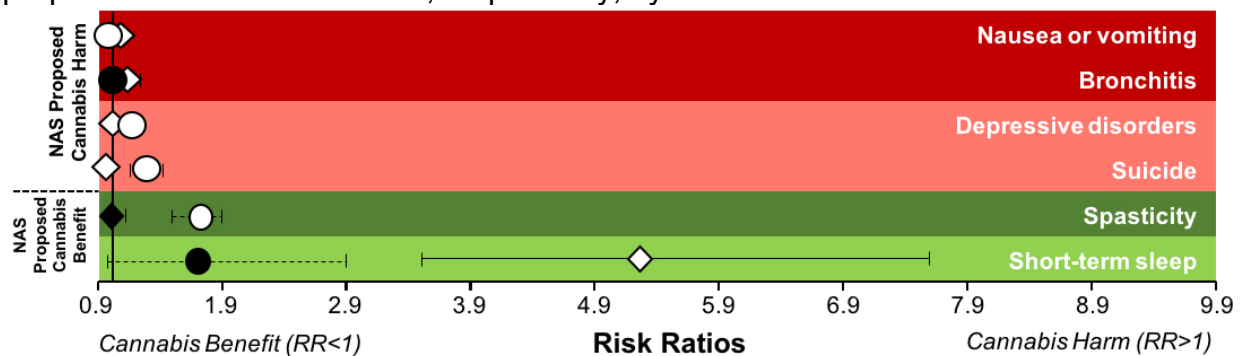
ICD-9 Code	Short Description	Long Description
305.1	Tobacco use disorder	Tobacco use disorder

Alcohol abuse

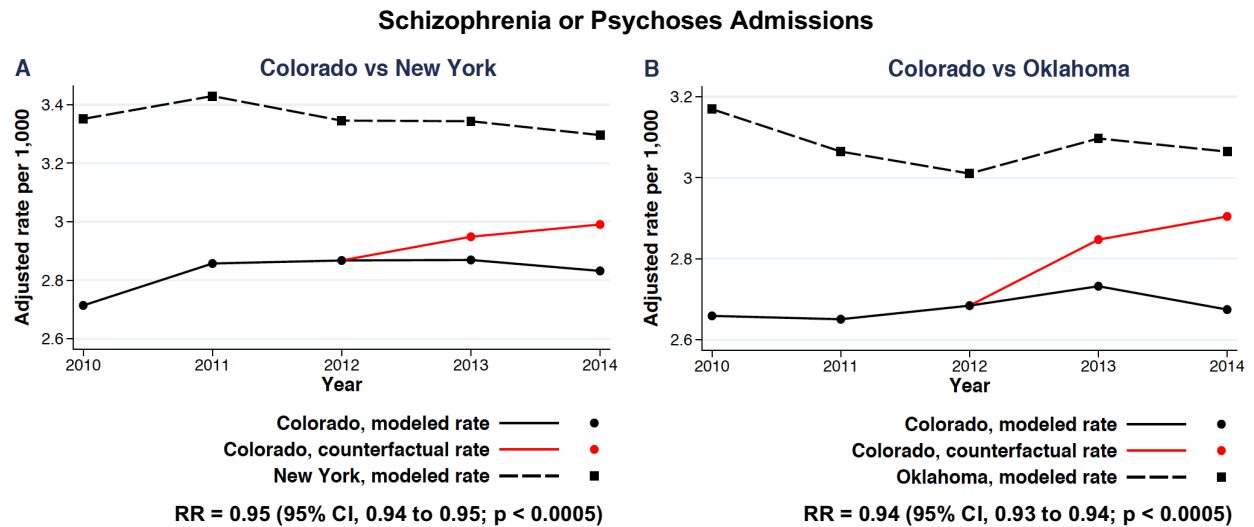
ICD-9 Code	Short Description	Long Description
303.9	Alcoh dep NEC/NOS-unspec	Other and unspecified alcohol dependence, unspecified
303.91	Alcoh dep NEC/NOS-contin	Other and unspecified alcohol dependence, continuous
303.92	Alcoh dep NEC/NOS-episod	Other and unspecified alcohol dependence, episodic

303.93	Alcoh dep NEC/NOS-remiss	Other and unspecified alcohol dependence, in remission
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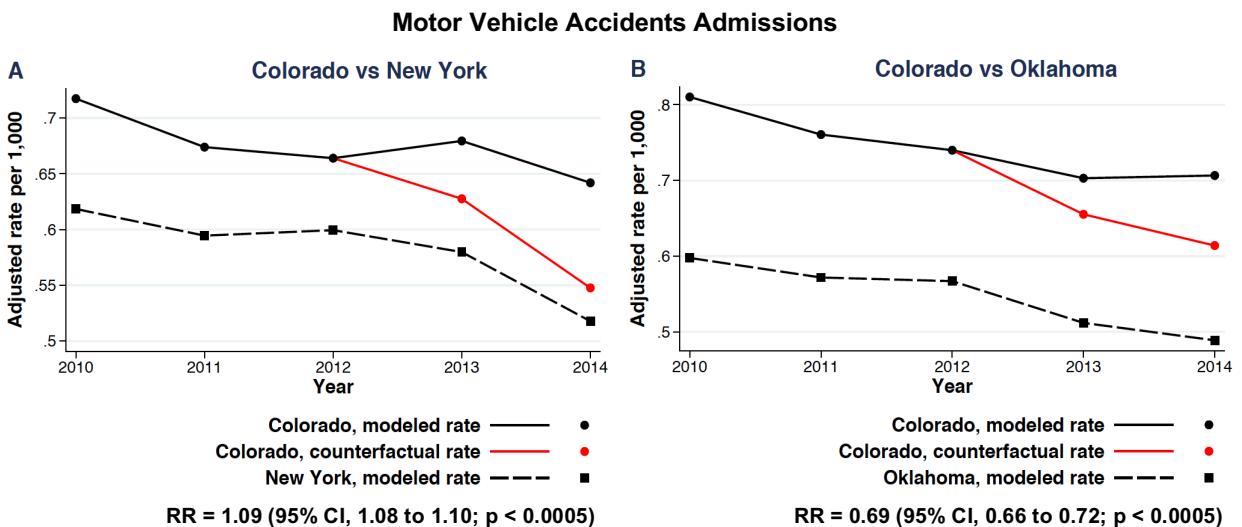
eFigure 1. Health outcomes with substantial or moderate evidence of a statistical association with cannabis use based on the National Academy of Science (NAS) summary statement. Medical diagnoses are identified based on a significant ($P < 0.05$) comparison between New York (NY) and Oklahoma (OK) (control states without cannabis legalization) with regards to the change of admission rates for such diagnoses following cannabis legalization. P values for the comparison between Colorado (CO) (site of cannabis legalization) and NY (rhomboid symbol), or between CO and OK (circular symbol) are shown as either < 0.05 , or > 0.05 using a gray scale for evidence of cannabis benefit (risk ratio [RR] < 1 shown on the left) and cannabis harm (RR > 1 shown on the right); 95% confidence intervals are shown for the comparison between CO and NY and between CO and OK as solid and dotted lines, respectively. Progressively darker shades of green or red indicate greater weight of evidence in the direction of proposed benefit versus harm, respectively, by the NAS.



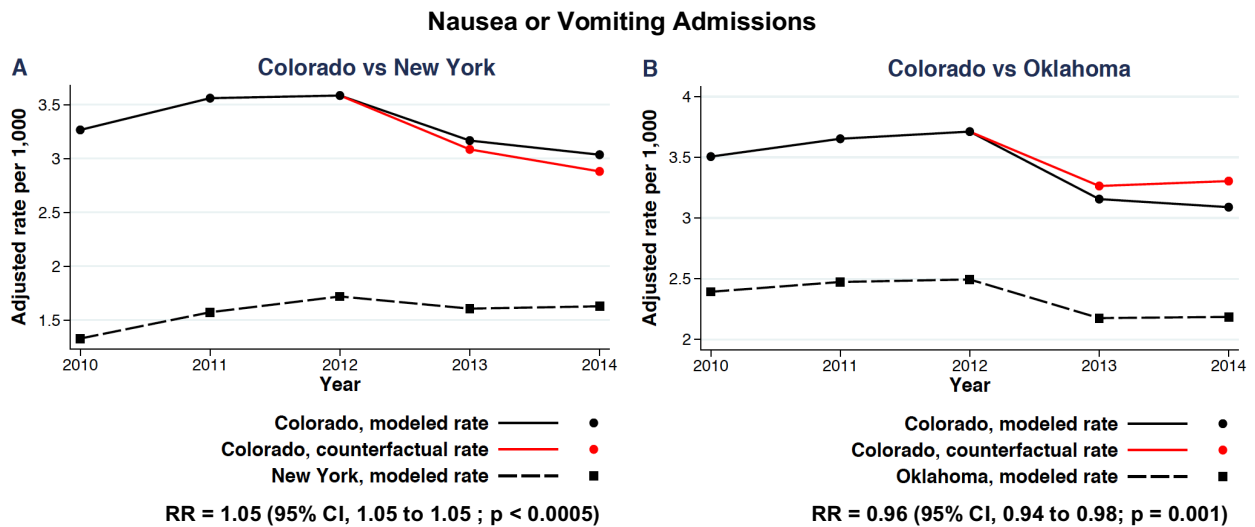
eFigure 2. Multivariate adjusted rates of total hospital admissions over 2010-2014 in Colorado, site of implementation of the 2012 recreational cannabis legalization policy, compared with New York (A) and Oklahoma (B), control states without cannabis legalization. Red lines show the predicted rates of admissions for schizophrenia or other psychoses (and all remaining medical diagnoses plotted in eFigures 2-15) had the cannabis legalization policy not been instituted. RR = risk ratio; CI = confidence interval.



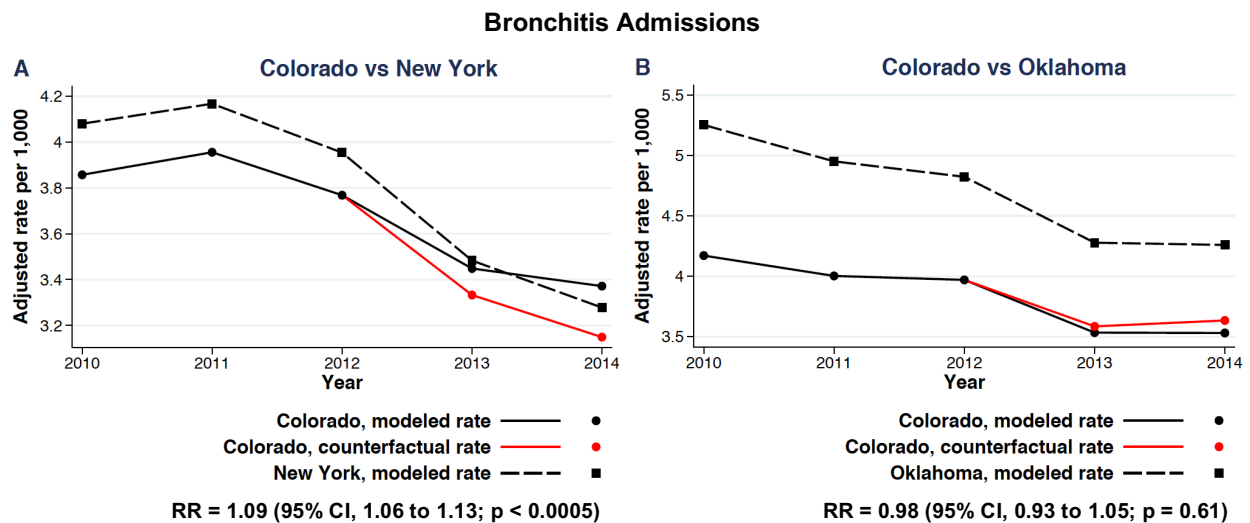
eFigure 3. Multivariate adjusted rates of admissions for motor vehicle accidents over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



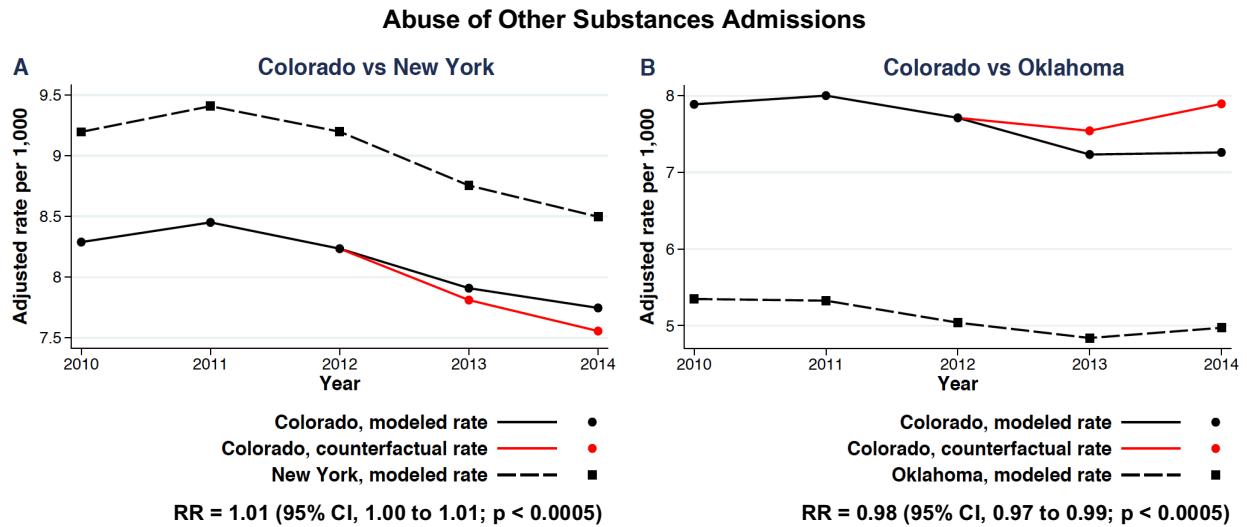
eFigure 4. Multivariate adjusted rates of admissions for nausea or vomiting over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



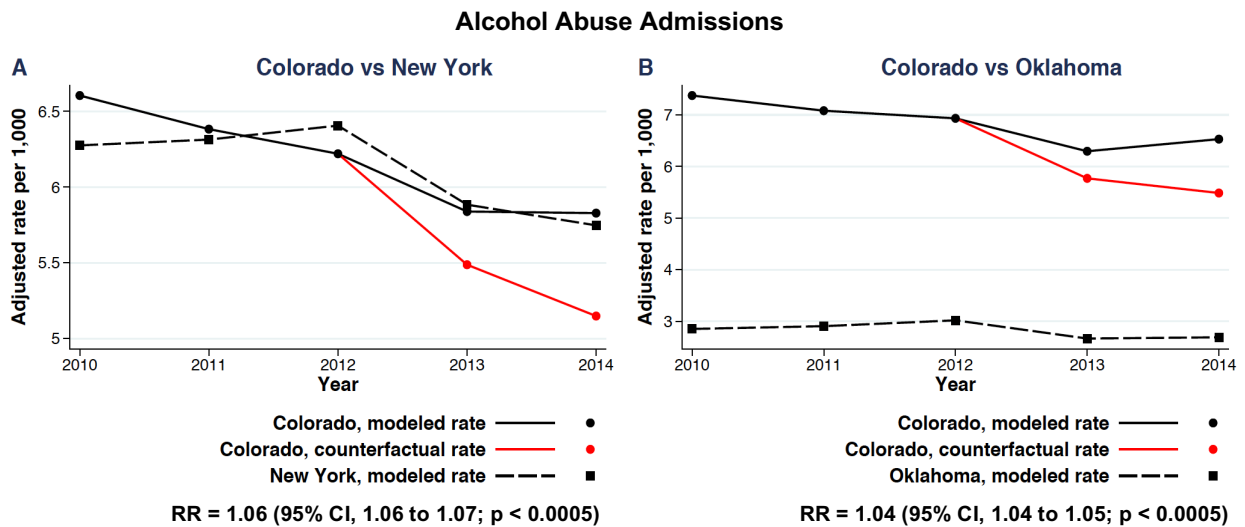
eFigure 5. Multivariate adjusted rates of admissions for bronchitis over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



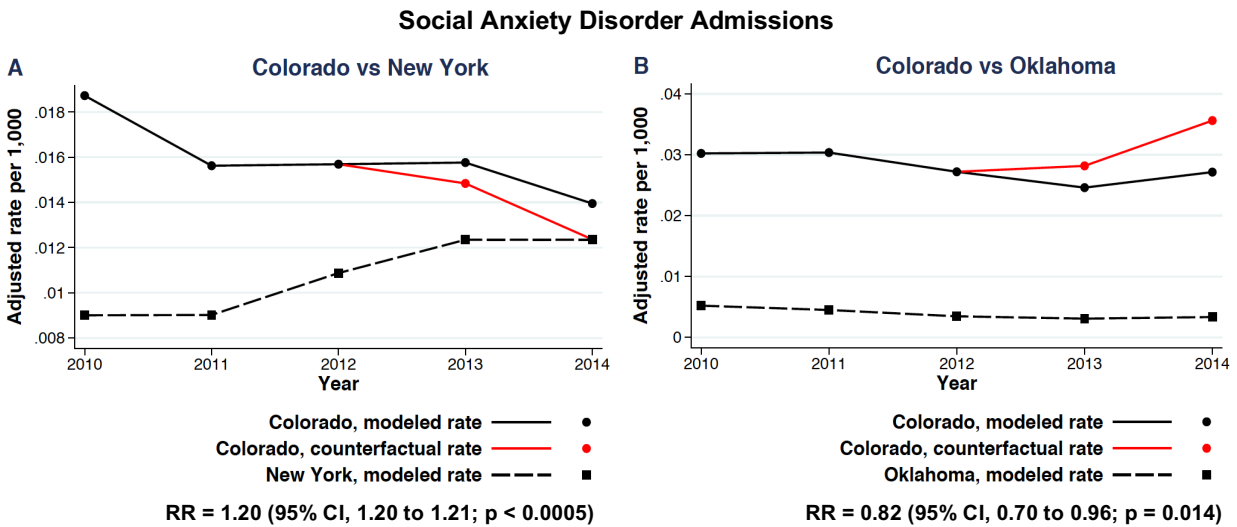
eFigure 6. Multivariate adjusted rates of admissions for abuse of other substances over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



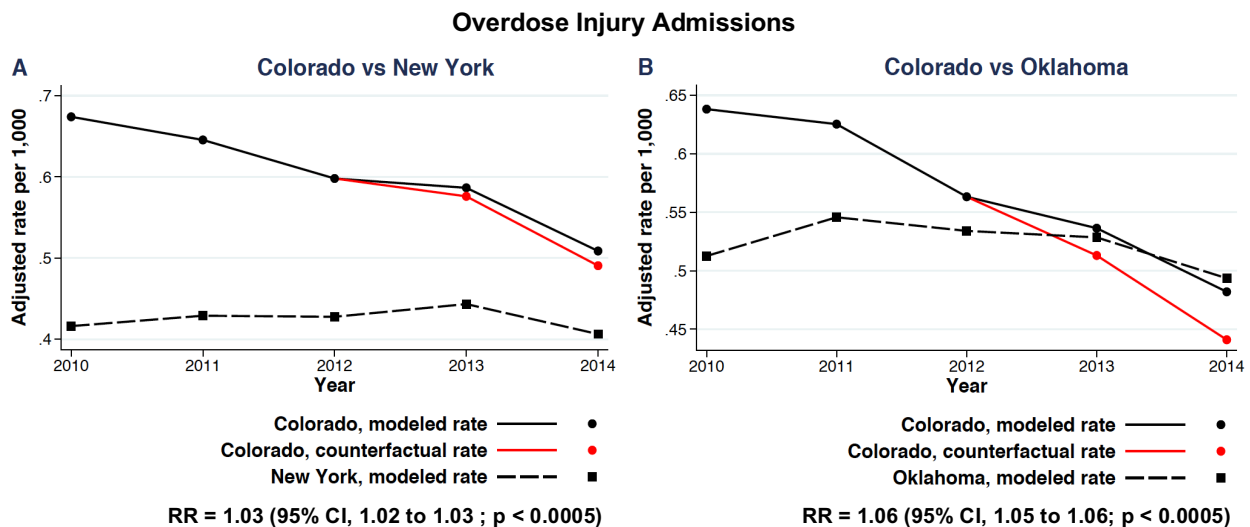
eFigure 7. Multivariate adjusted rates of admissions for alcohol abuse over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



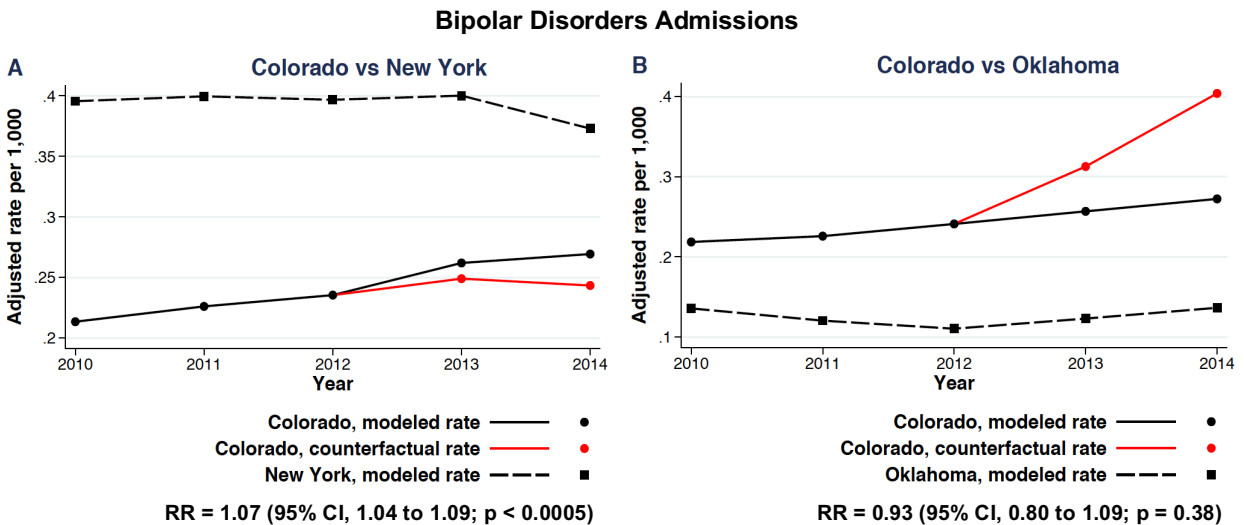
eFigure 8. Multivariate adjusted rates of admissions for social anxiety disorder over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



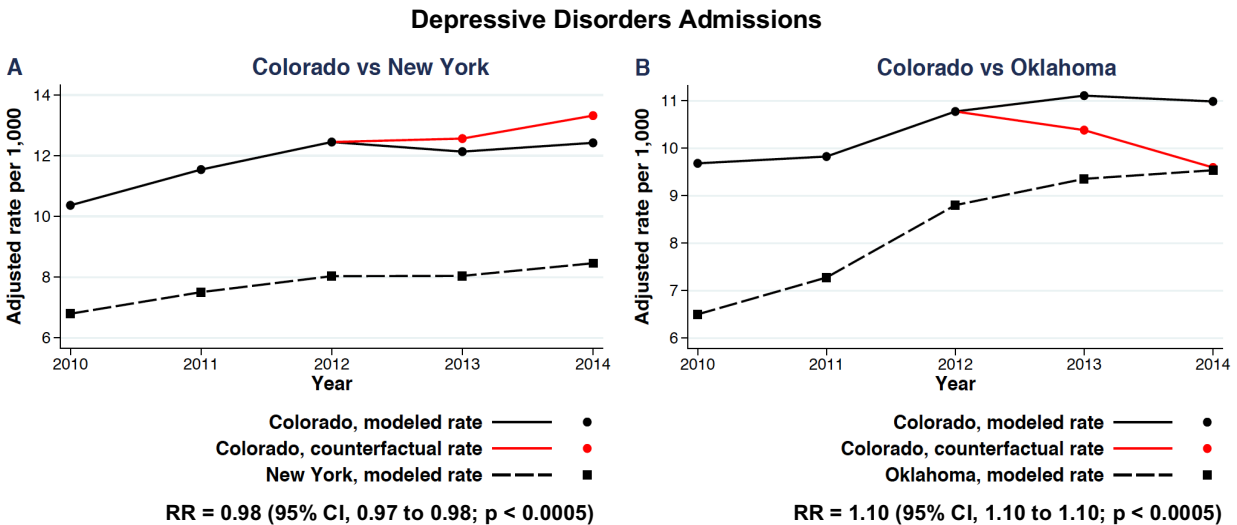
eFigure 9. Multivariate adjusted rates of admissions for overdose injury over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



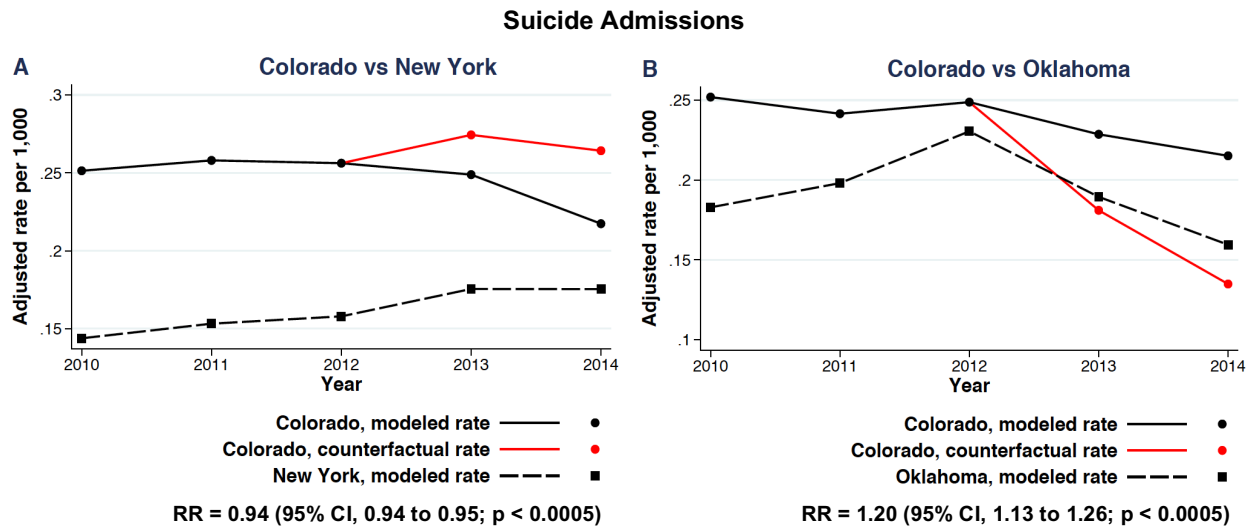
eFigure 10. Multivariate adjusted rates of admissions for bipolar disorders over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



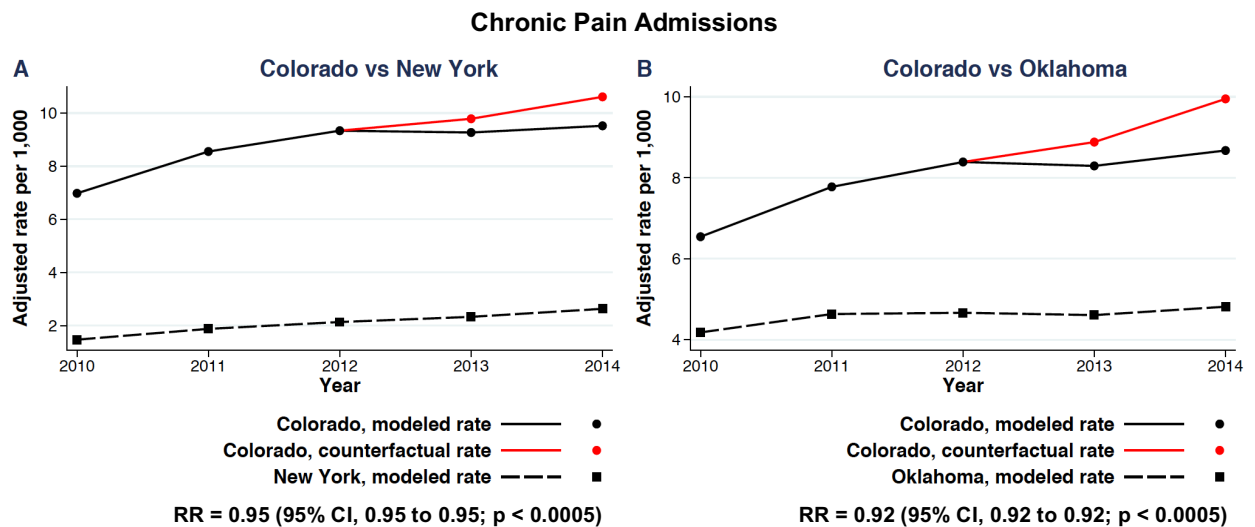
eFigure 11. Multivariate adjusted rates of admissions for depressive disorders over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



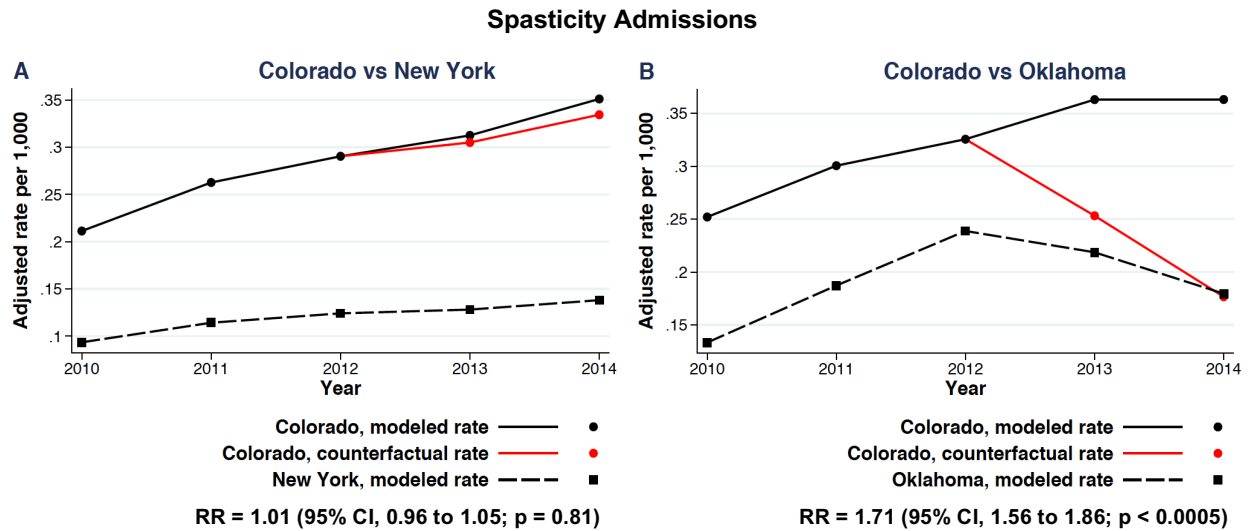
eFigure 12. Multivariate adjusted rates of admissions for suicide over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



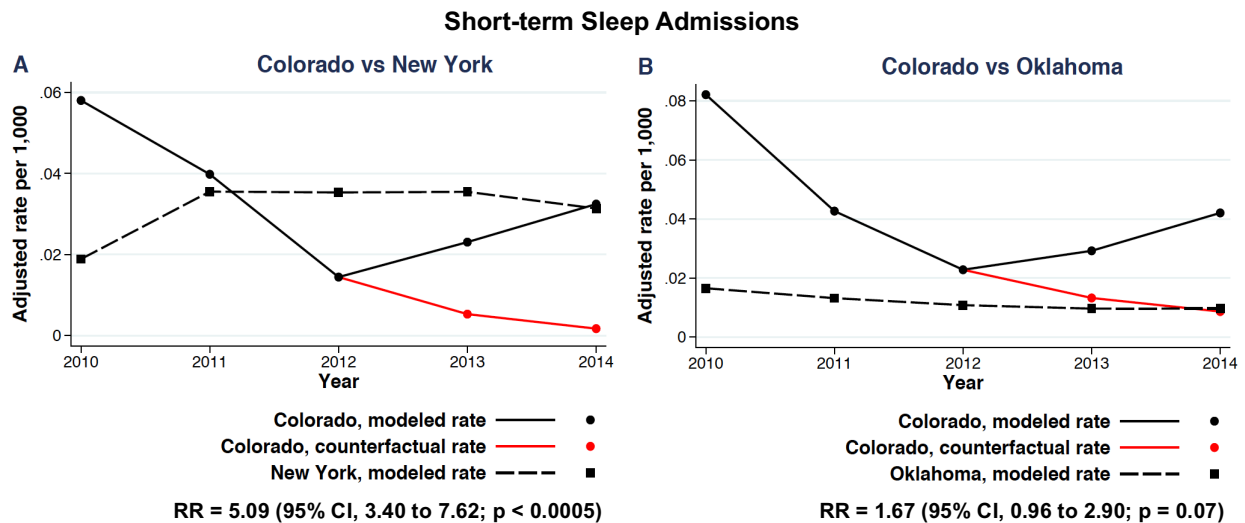
eFigure 13. Multivariate adjusted rates of admissions for chronic pain over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



eFigure 14. Multivariate adjusted rates of admissions for spasticity over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



eFigure 15. Multivariate adjusted rates of admissions for short-term sleep disorders over 2010-2014 in Colorado compared with New York (A) and Oklahoma (B). RR = risk ratio; CI = confidence interval.



eTable 3. Changes in specific NAS outcomes in a sensitivity analysis using January 2014 as the date of recreational cannabis legalization

NAS Outcome	State Comparisons	RR	95% CI	P value
Motor vehicle accidents	CO vs NY	1.22	(1.16, 1.28)	<0.0005
	CO vs OK	1.18	(1.02, 1.37)	0.026
	NY vs OK	1.04	(0.77, 1.40)	0.81
Overdose injury	CO vs NY	1.11	(1.09, 1.14)	<0.0005
	CO vs OK	1.03	(0.98, 1.09)	0.25
	NY vs OK	0.98	(0.80, 1.19)	0.81
Bipolar disorders	CO vs NY	1.08	(1.06, 1.09)	<0.0005
	CO vs OK	0.81	(0.73, 0.90)	<0.0005
	NY vs OK	0.77	(0.75, 0.78)	<0.0005
Depressive disorders	CO vs NY	1.01	(0.99, 1.03)	0.59
	CO vs OK	1.23	(1.20, 1.25)	<0.0005
	NY vs OK	1.16	(1.07, 1.26)	<0.0005
Schizophrenia or psychoses	CO vs NY	0.84	(0.82, 0.86)	<0.0005
	CO vs OK	0.80	(0.79, 0.80)	<0.0005
	NY vs OK	0.88	(0.87, 0.90)	<0.0005
Social anxiety disorder	CO vs NY	1.45	(1.43, 1.48)	<0.0005
	CO vs OK	0.58	(0.47, 0.71)	<0.0005
	NY vs OK	0.46	(0.29, 0.74)	0.001
Suicide	CO vs NY	1.09	(1.03, 1.15)	0.002
	CO vs OK	1.26	(1.12, 1.41)	<0.0005
	NY vs OK	1.11	(1.04, 1.18)	0.001
Bronchitis	CO vs NY	1.19	(1.15, 1.23)	<0.0005
	CO vs OK	1.03	(0.97, 1.10)	0.33
	NY vs OK	0.82	(0.78, 0.87)	<0.0005
Abuse of other substances	CO vs NY	1.04	(1.03, 1.05)	<0.0005
	CO vs OK	0.99	(0.97, 1.01)	0.45
	NY vs OK	0.94	(0.90, 0.98)	0.007
Nausea or vomiting	CO vs NY	1.08	(1.06, 1.10)	<0.0005
	CO vs OK	0.95	(0.97, 1.01)	<0.0005
	NY vs OK	0.89	(0.90, 0.98)	0.01
Chronic pain	CO vs NY	0.94	(0.93, 0.96)	<0.0005
	CO vs OK	0.92	(0.91, 0.93)	<0.0005
	NY vs OK	0.93	(0.90, 0.96)	<0.0005
Spasticity	CO vs NY	0.75	(0.71, 0.79)	<0.0005
	CO vs OK	1.56	(1.14, 2.14)	0.006
	NY vs OK	2.12	(1.64, 2.76)	<0.0005
Short-term sleep	CO vs NY	11.7	(7.36, 18.59)	<0.0005
	CO vs OK	3.44	(1.32, 8.99)	0.012
	NY vs OK	0.45	(0.06, 3.22)	0.42