

# *Epidemiologic Evidence of the Association between Alcohol and Rx Opioid Use Disorders*

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# Goals of presentation

- Cross-sectional associations between alcohol and Rx opioid use disorders
  - Prevalence
  - Survival analysis (time to onset of disorder)
- Temporal Sequencing
  - Co-occurrence
  - Incidence: Alcohol → Rx opioid use disorder
  - Incidence: Rx opioid → Alcohol use disorder
  - Survival Analysis (time dependent covariates)
- Use of prescription Rx opioids by those with alcohol dependence



# National Epidemiologic Survey of Alcohol and Related Conditions (NESARC)

## ▪ Survey methods

- Interviews conducted 2001-02
- Longitudinal follow-up in 2004-2005
- Conducted by National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- Data were collected in personal interviews conducted in respondents' homes
- One sample adult 18 or over was selected randomly for interview in each household

## ▪ Population

- Represents the civilian, non-institutionalised adult population of US
  - Including DC, Alaska and Hawaii
- African Americans, Hispanics and adults aged 18-24 years over-sampled
- Overall response rate 81% (n=43,093)
- Reinterview rate at follow-up 86.7% of eligible respondents (n = 34,653)



# Prevalence of Lifetime Alcohol Use Disorders Among Those With Lifetime and Past Year Rx opioid Use Disorders

Given...	Prevalence of Alcohol Use Disorders (lifetime)				
		Use	Abuse	Depend	Abuse/ Depend
	n	%	%	%	%
Lifetime history of Rx opioid abuse/dependence	521	97.0	82.0	61.4	83.1
Past year Rx opioid abuse/dependence	130	94.6	69.2	54.6	71.5
Lifetime history of Rx opioid abuse	494	96.8	82.6	61.5	83.8
Past year Rx opioid abuse	116	94.0	68.1	53.4	70.7
Lifetime history of Rx opioid dependence	131	99.2	85.5	76.3	87.8
Past year Rx opioid dependence	41	82.9	80.5	73.2	82.9

# Prevalence of Past Year Alcohol Use Disorders Among Those With Lifetime and Past Year Rx opioid Use Disorders

Given...	Prevalence of Alcohol Use Disorders (Past Year)				
	n	Use %	Abuse %	Depend %	Abuse/Depend %
Lifetime history of Rx opioid abuse/dependence	521	71.0	29.17	21.11	32.4
Past year Rx opioid abuse/dependence	130	83.8	47.69	37.69	50.8
Lifetime history of Rx opioid abuse	494	70.8	29.15	20.85	32.4
Past year Rx opioid abuse	116	83.6	48.28	36.21	50.9
Lifetime history of Rx opioid dependence	131	67.2	28.79	28.79	33.3
Past year Rx opioid dependence	41	82.9	53.66	56.1	58.5

# Prevalence of Lifetime Rx opioid Use Disorders Among Those With Lifetime and Past Year Alcohol Use Disorders

<i>Given...</i>	N	Prevalence of Rx opioid Use Disorder (lifetime)			
		Use %	Abuse %	Depend %	Abuse/ Depend %
Lifetime history of alcohol abuse/dependence	11,843	11.4	3.5	1.0	3.7
Past year alcohol abuse/dependence	3327	16.21	4.8	1.3	5.1
Lifetime history of alcohol abuse	11,170	11.44	3.6	1.0	3.8
Past year alcohol abuse	2774	16.4	5.2	1.4	5.5
Lifetime history of alcohol dependence	4781	18.33	6.4	2.1	6.7
Past year alcohol dependence	1484	22.58	6.9	2.6	7.4

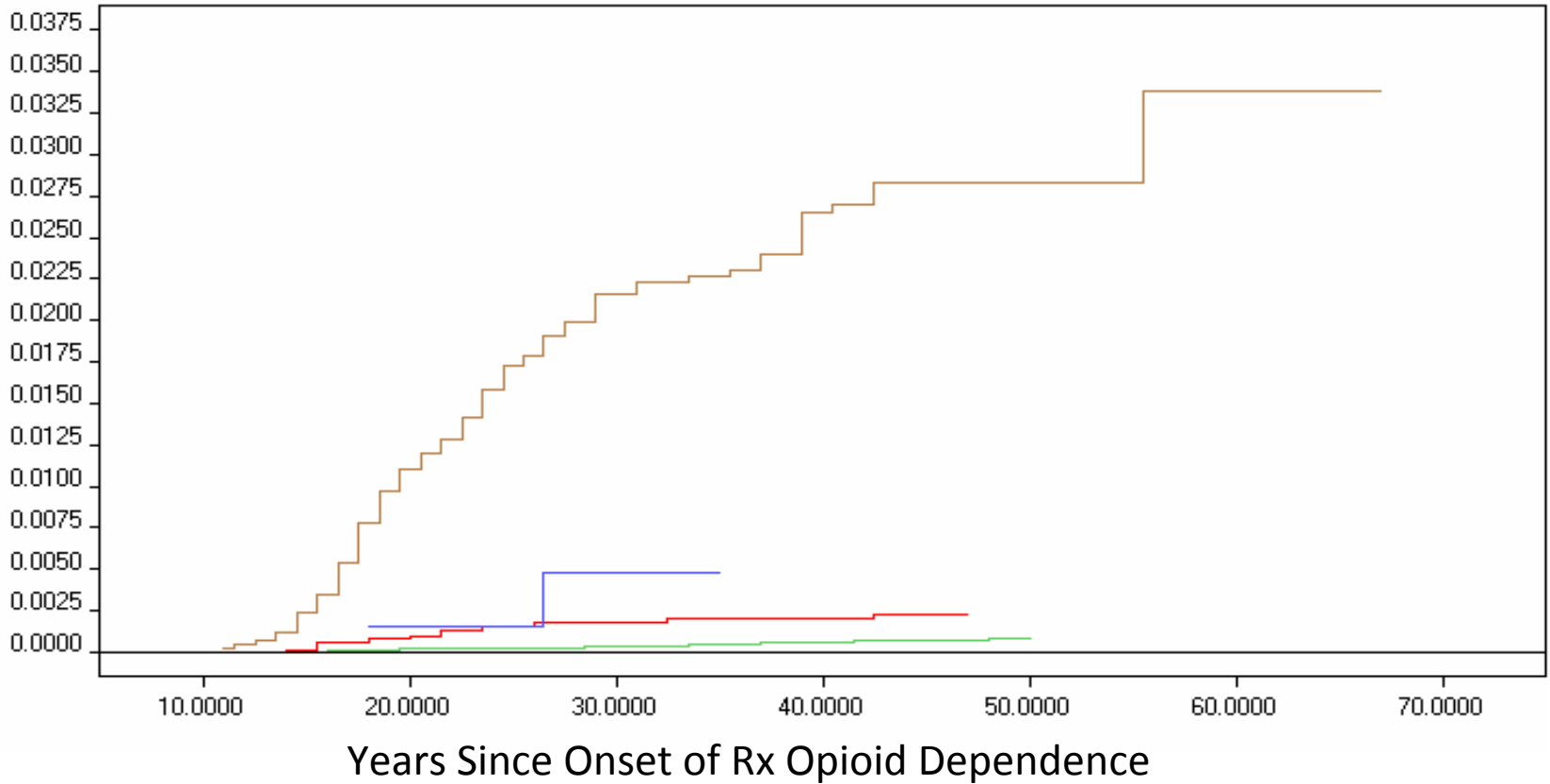


# Prevalence of Lifetime Rx opioid Use Disorders Among Those With Lifetime and Past Year Alcohol Use Disorders

<i>Given...</i>	n	Prevalence of Rx opioid Disorders (past year)			
		Use	Abuse	Depend	Abuse/ Depend
		%	%	%	%
Lifetime history of alcohol abuse/dependence	11,843	3.8	0.7	0.3	0.8
Past year alcohol abuse/dependence	3327	8.0	1.8	0.7	2.0
Lifetime history of alcohol abuse	11,170	3.7	0.7	0.3	0.8
Past year alcohol abuse	2774	8.2	2.0	0.7	1.9
Lifetime history of alcohol dependence	4781	6.4	1.297	0.6	1.5
Past year alcohol dependence	1484	12.3	2.8	0.7	1.5



# Onset of Rx Opioid Dependence by Lifetime Alcohol Disorder History



Lifetime Alcohol Disorder Status

- Abuse only
- Depend. only
- Abuse & Depend.
- No lifetime Alcohol Disorder





# *Results from Cox proportional hazards models with time dependent covariates*

- **Relative hazard of alcohol dependence by pre-existing Rx opioid dependence (as time-dependent covariate)**
  - Unadjusted hazard ratio (HR) = 15.0 (95% CI = 7.0 – 30.2)
  - Adjusted HR = 11.0 (95% CI = 5.1 – 23.8) – adjusted for demographic characteristics (sex, age, race, income, education, employment status)
  - Adjuster HR = 11.7 (95% CI = 5.4 – 25.1) – adjusted demographic characteristics and pre-existing other illegal drug dependence
  
- **Relative hazard of Rx opioid dependence by pre-existing alcohol dependence (as time-dependent covariate)**
  - Unadjusted hazard ratio (HR) = 19.7 (95% CI = 14.8 – 43.8)
  - Adjusted HR = 15.8 (95% CI = 6.9 – 36.4) – adjusted for demographic characteristics (sex, age, race, income, education, employment status)
  - Adjuster HR = 24.5 (95% CI = 9.8 – 61.7) – adjusted demographic characteristics and pre-existing other illegal drug dependence



*Incidence of Alcohol and Rx opioid Use Disorder in 3-Year Follow-up Among Those With No History of Either Disorder at Baseline*

	No Opioid Use Disorder	Opioid Abuse (only)	Opioid Dependence (with or w/o abuse)	
No Alcohol Use Disorder	23230	32	24	23286
Alcohol Abuse (only)	761	4	4	769
Abuse Dependence (with or w/o abuse)	569	11	9	589
	24560	47	37	24644

# *Incidence of Rx Opioid Use Disorder in 3-Year Follow-up Among Those With No History of Either Disorder at Baseline*

*Of those with no baseline alcohol or Rx opioid use disorder...*

the **3-year incidence of Rx opioid abuse (only)** among...

those with alcohol abuse (only)	4/769	5.2	per 1,000
those with alcohol dependence (with or w/o abuse)	11/589	18.7	per 1,000
those with no incident alcohol use disorder	32/23286	1.4	per 1,000

the **3-year incidence of Rx opioid dependence (with or w/o abuse)** among...

those with alcohol abuse (only)	4/769	5.2	per 1,000
those with alcohol dependence (with or w/o abuse)	9/589	15.3	per 1,000
those with no incident alcohol use disorder	24/23286	1.0	per 1,000



# *Incidence of Alcohol Use Disorder in 3-Year Follow-up Among Those With No History of Either Disorder at Baseline*

the **3-year incidence of alcohol abuse (only)** among...

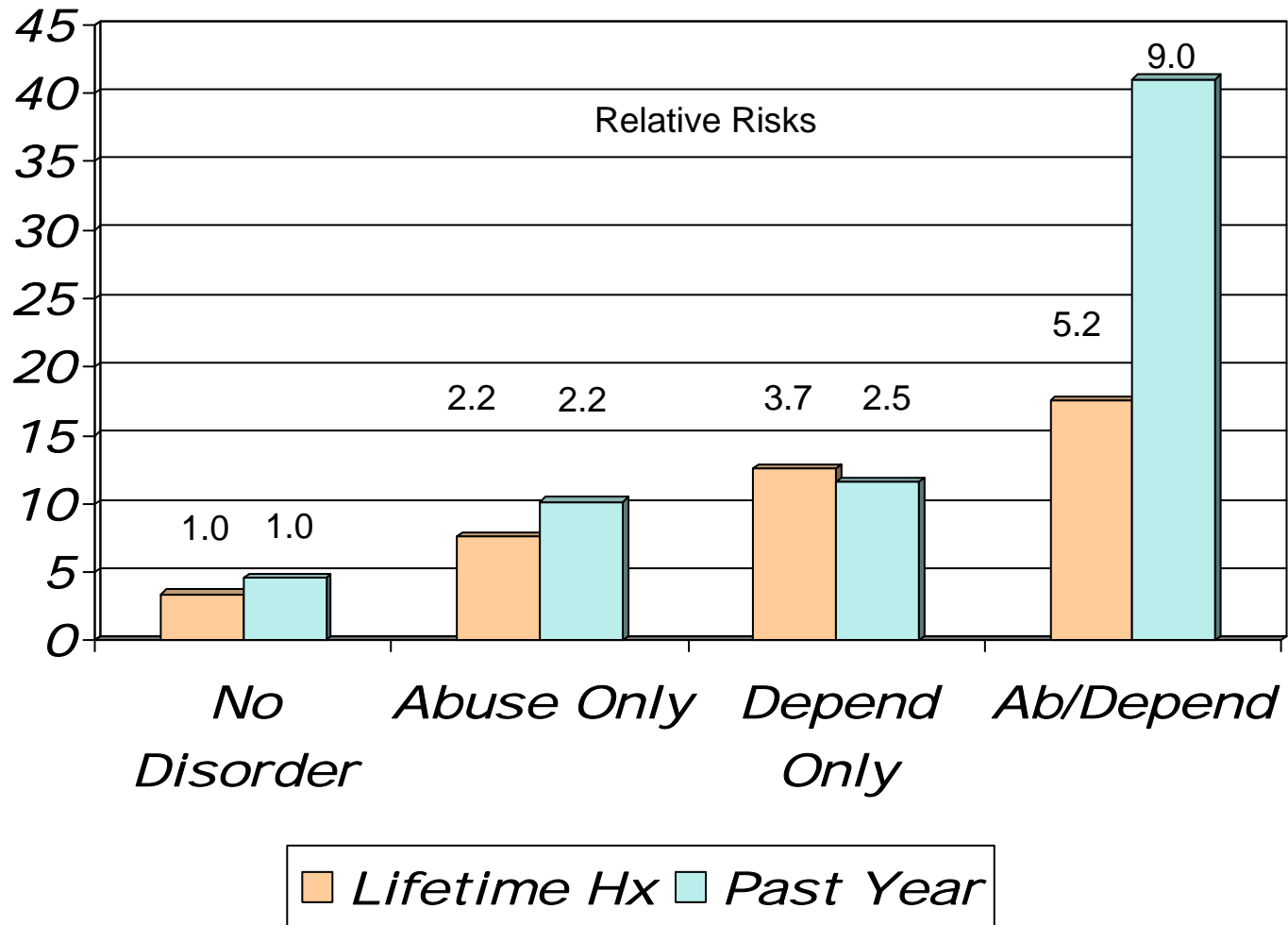
those with Rx opioid abuse (only)	4/47	85.1	per 1,000
those with Rx opioid dependence (with or w/o abuse)	4/37	108.1	per 1,000
those with no incident Rx opioid use disorder	761/24560	31.0	per 1,000

the **3-year incidence of alcohol dependence (with or w/o abuse)** among...

those with Rx opioid abuse (only)	11/47	234.0	per 1,000
those with Rx opioid dependence (with or w/o abuse)	9/37	243.2	per 1,000
those with no incident Rx opioid use disorder	569/24560	23.2	per 1,000



*Incidence (per 1000) of Rx opioid disorders (abuse or dependence) during 3-year follow-up by baseline alcohol use disorder status*

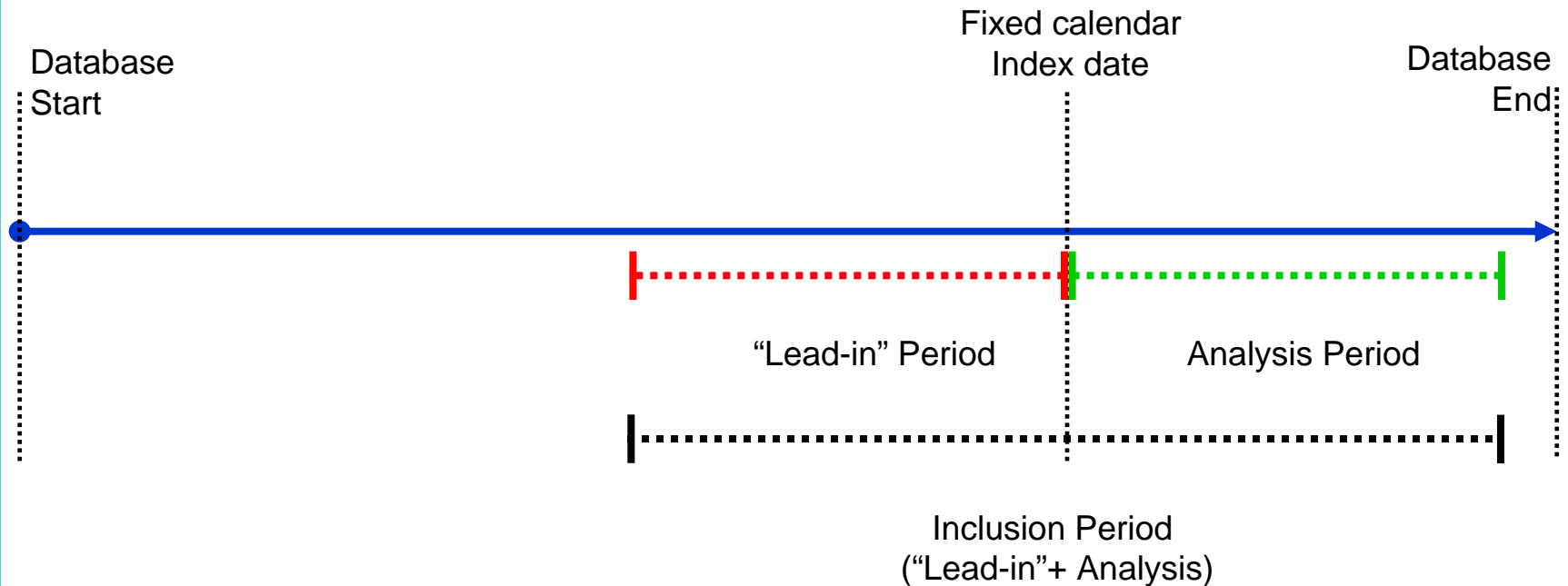


# Study Design

- Retrospective, cross-sectional, case-control study
- IHCIS claims database
  - Represents 73 million covered lives
  - National sample of 30 managed care plans in US
  - Medical and pharmacy claims
  - Over-represents eastern US



# The Approach



- Comorbidity and medication patterns will be described during the analysis period (comorbidities also assessed using full available history)
- The medical histories of patients during (and before) the **lead-in period** will be assessed to ensure that cases have the disease of primary interest and controls have no record of this disease.
- Patients are only considered eligible for the study if they are followed throughout the full study "**inclusion period**".



- The analysis period is defined as the 12 month period from (01/January/2005 to 31/December/2005, inclusive).
- The first day of the analysis period (01/January/2005) will be assigned as the "index date" for cases and their matched controls
- The pre-analysis lead-in period is defined as the 12 month period from (01/January/2004 to 31/December/2004, inclusive).
- Thus, the study inclusion period contains all time from 01/January/2004 to 31/December/2005, inclusive
- Cases required two ICD-9 codes for alcohol dependence (303.xx) with one prior to index date





## *Distribution of cases of alcohol dependence identified in IHCIS claims database*

Age class	All		
	Cases	Patients	Prevalence (95% CI)
12-17 yrs	111	1055975	10.51 (8.69, 12.71)
18-24 yrs	708	808315	87.59 (81.31, 94.34)
25-34 yrs	1130	1176376	96.06 (90.58, 101.86)
35-49 yrs	6411	2985530	214.74 (209.53, 220.07)
50-65 yrs	5444	2609196	208.65 (203.16, 214.28)
65+ yrs	631	851769	74.08 (68.47, 80.15)
All	14435	9487161	152.15 (149.69, 154.66)

*Percent of alcohol dependent patients and matched controls who had been prescribed an Rx opioid in one year follow-up period*

Age Group	Alcohol Dependent (%)	Controls (%)
12-17 yrs	17.12	19.82
18-24 yrs	31.64	16.81
25-34 yrs	35.31	22.39
35-49 yrs	38.94	23.98
50-65 yrs	41.61	26.44
65+ yrs	35.5	26.94



## Summary

- Alcohol Use Disorders highly comorbid with Rx opioid disorders
- 76% of those with lifetime history of Rx opioid dependence have a history of alcohol dependence
- Over half (56%) of those with current Rx opioid disorder have current alcohol dependence
- Bidirectional associations between alcohol and Rx opioid use disorders
- One-third of incident cases of Rx opioid dependence co-occur with alcohol abuse or dependence
- Nearly half of those diagnosed with alcohol dependence were prescribed opioid medications in one-year period



## *Conclusions*

- Extremely high prevalence of alcohol use disorders among those with Rx opioid use disorders points to need for addressing multiple disorders in treatment
- Concentration of Rx opioid use disorders among those with alcohol dependence points to targets for primary and secondary prevention efforts
- High rates of prescribed opioids for those with alcohol dependence points to need for greater monitoring of prescribing and supervision of alcohol dependent patients who receive these medications

