Direct Costs of Opioid Abuse in Medicaid Patients Using MAX Data

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Background

- Opioid abuse and dependence are major public health problems in the U.S.
- Opioid prescribing increased by 23.8% per year from 1996-2002. (Zerzan, 2006).
- The cost of opioid prescription abuse was estimated to be $9.2 billion annually in 2001. (Birnbaum, 2006).
- Opioid abusers were shown to have substantial increases in medical costs ($15,884 vs $1,830) in a claims database of privately insured patients as compared to controls. (White, 2005).

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Study Objectives

- Determine the prevalence of opioid abuse in a stable Medicaid population
- Compare health care costs including drug, medical, hospital, long term care (LTC) costs and opioid utilization for opioid abusers with those of matched controls who are not opioid abusers in a stable Medicaid population.
- Compare comorbidities for opioid abusers with those of matched controls who are not opioid abusers in a stable Medicaid population

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Study Design

- Data from January 1, 2002 to December 31, 2003
- A Medicaid Payer perspective was used
- Rebate data was not available and thus was not used.
- For this study opioid abuse also includes opioid dependence and poisoning

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Data

- Medicaid analytic eXtract (MAX) data
- Data is available for all 50 states and DC
- Patient level claims data including
  - Eligibility and Demographics
  - Inpatient
  - Outpatient
  - Pharmacy
  - Long Term Care
- Data for Medicaid patients under a fee-for-service (FFS) reimbursement program

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Study Population

- All patients 12 and above on 1/1/2002
- Residents of DC and all states except TN, AZ, and CO
- At least 12 months of continuous eligibility from the index date
- Patients with Mental Retardation, Cerebral Palsy, or Spinal Cord Paralysis were excluded
  - Low potential for opioid abuse
- Cases
  - Opioid Abusers
    - Opioid Type Dependence (304.0X)
    - Opioid Abuser (305.5X)
    - Poisoning by Opioids (not Heroin) (965.00, 965.02, 965.09)
    - Combination Abuse with Opioid (304.7X)

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Study Population

- Cases
  - Diagnosis present during 2002
  - First date of abuse diagnosis = Index Date
  - Continuous eligibility for 12 months after the Index Date
  - Patients with 3 months eligibility prior to the Index Date were in the Utilization Cohort

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Study Population

- Cases
- Opioid Abusers
  - Opioid Type Dependence (304.0X)
  - Opioid Abuser (305.5X)
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- Diagnosis present during 2002
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Study Population

- Controls
  - No abuse diagnosis for 1/1/2002 to 12/31/2003
  - Potential controls matched on
    - Birth Year
    - Gender
    - State
  - Index Date = Index Date of Case
  - – Continuous eligibility for 12 months after the Index Date

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Analysis

- Costs by claim type, i.e., inpatient, outpatient, LTC, as well as total costs, and sub-total costs excluding LTC were compared.
- Linear regressions were performed to control for patient characteristics that could affect cost outcomes (age, race, region, comorbidities and poisonings).

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Analysis

- All statistical tests were performed at the p=0.05 level using STATA v. 9.0 (College Station, TX) and SAS v. 9 (SAS Institute, Cary, NC).
- The current study was reviewed and approved by the University of Utah Institutional Review Board.

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Analysis

- Objective 1 – Prevalence
  - All patients 12 or older with minimum 12 months continuous eligibility
  - Patients with a diagnosis of Opioid abuse, dependence or poisoning
  - Prevalence reported as cases/1,000

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Analysis

- Objective 2 – Compare Health Care Costs
  - Costs for 12 months post index date
  - Costs and Log Costs compared in cases and controls
  - Costs were what Medicaid paid
  - Opioid utilization was tracked based on pharmacy claims 3 months before and 3 months after the Index Date

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Analysis

- Objective 3 – Compare Comorbidities
  - Comorbidities identified in the 12 months post Index Date
  - Costs and Log Costs compared in cases and controls
  - Intial Comorbidities were as described by White, et al.
  - Divided into Pain and non Pain
  - Top 20 Comorbidities for Cases and Controls were identified and compared

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Patient Selection and Match

MAX FFS Population >=12, FFS, Not Dually Eligible (N=37,500,259)

Minimum 12 Months Continuous Eligibility (N=18,536,482)

Cases	Controls
Abuse Diagnosis (N=96,963)	No Opioid Abuse Diagnosis (N=18,375,910)
Continuous Eligibility 12 months post index date, not disabled (N=83,192)	Continuous Eligibility 12 months post index date, not disabled , Prelim Match (N=205,547)
Patients Matched with 3 Controls (N=50,162)	3:1 Random Matching (N=150,486)

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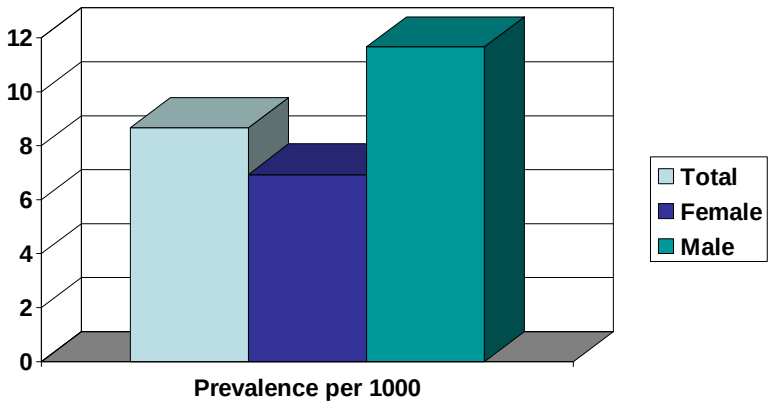
Prevalence by Gender



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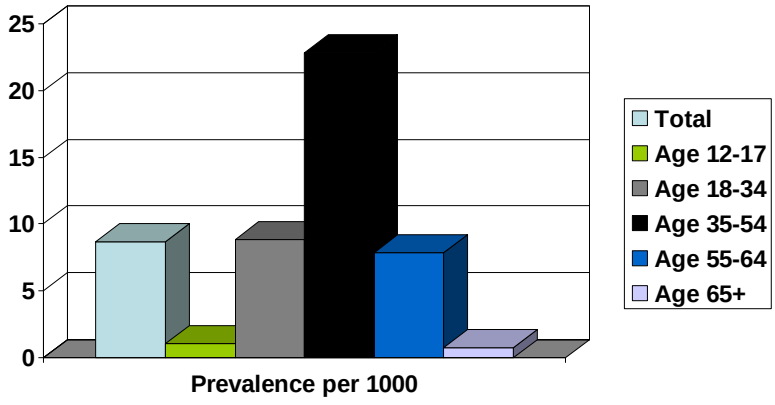
Prevalence by Age



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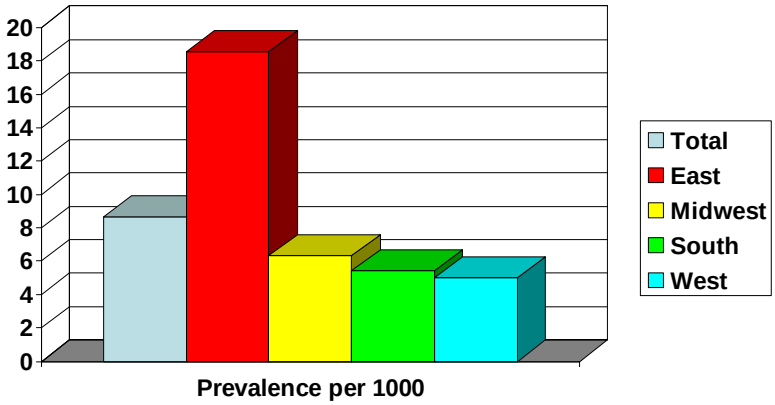
Prevalence by Region



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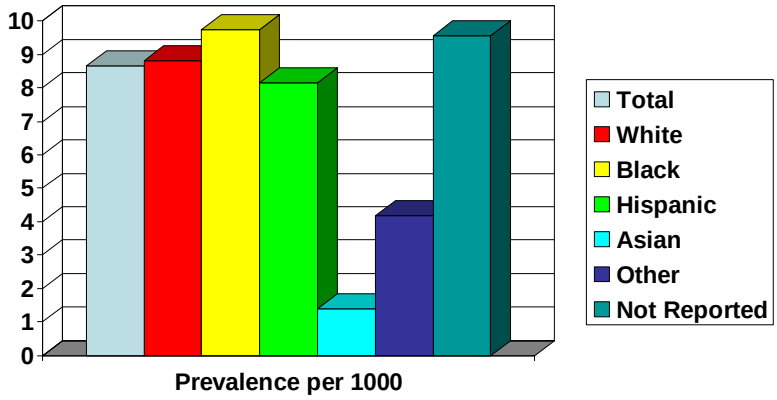
Prevalence by Race



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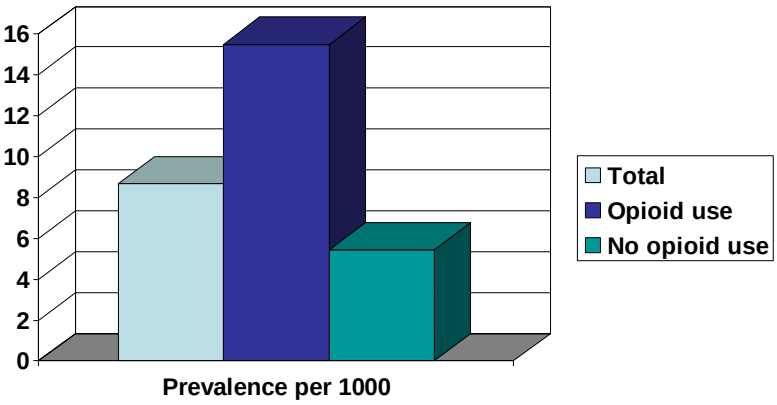
Prevalence by Pre-Index Date Opioid Use



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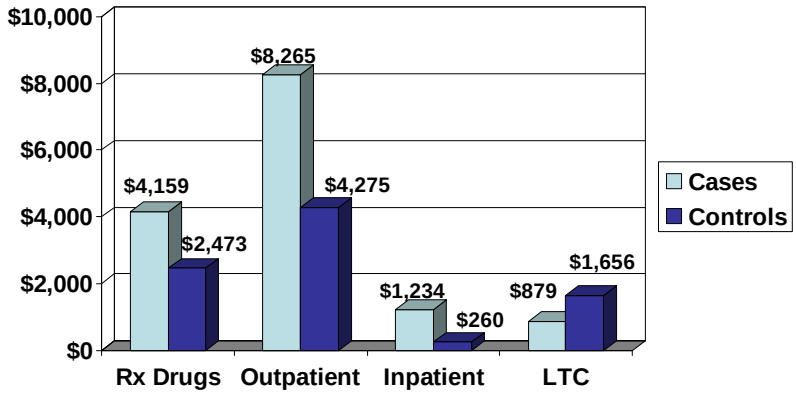
Mean Patient Cost



p<.01 between cases and controls

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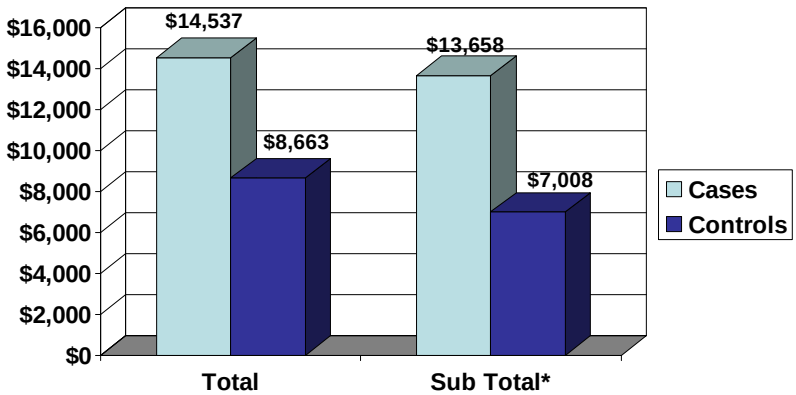
Mean Patient Cost



* Does not include long-term care costs
P<.01 between cases and controls

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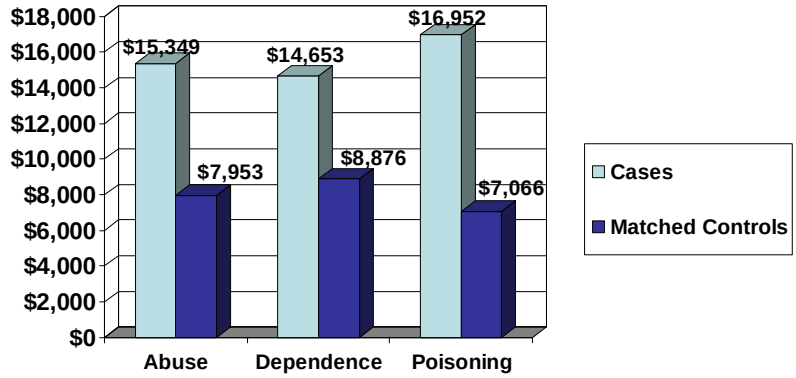
Total Costs by Diagnosis



p<.01 between cases and controls
Patient may be in multiple diagnosis groups

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Regression Adjustment

Cost Coefficient for Cases Relative to Controls	Subtotal^	P Value	Total^	P Value
Univariate (non transformed)	6651	<.0001	5874	<.0001
Multivariate (non transformed)	1818	<.0001	585	<.0001
Univariate (log transformed)	1.3166	<.0001	1.2909	<.0001
Multivariate (log transformed)	0.6716	<.0001	0.6361	<.0001

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Limitations

- Patients with opioid abuse or dependence would only be identified if a Medicaid claim included a related diagnosis.
- Patients with chronic pain who may be physically dependent on opioids may have been diagnosed with opioid dependence. These patients may not reflect the cost and utilization patterns of abusers (i.e., high medical cost and utilization).

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Limitations

- Requiring 12 months of continuous eligibility may have introduced a selection bias as abusers with discontinuous or short eligibility periods may not be identified or their abuse problem may not be documented during periods of Medicaid eligibility.
- There are no data on indirect costs related to opioid abuse. Thus, the current study only reveals a portion of the burden of opioid abuse in society.

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Conclusions

- The prevalence of opioid abuse, dependence and poisoning was 8.7/1,000 in Medicaid (2002), which was notably higher than found in a managed care cohort, and was associated with significantly higher patient medical costs compared to matched controls.
- Successful interventions to prevent opioid abuse could help to reduce costs associated with opioid abuse in the Medicaid population.

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Supplemental Slides

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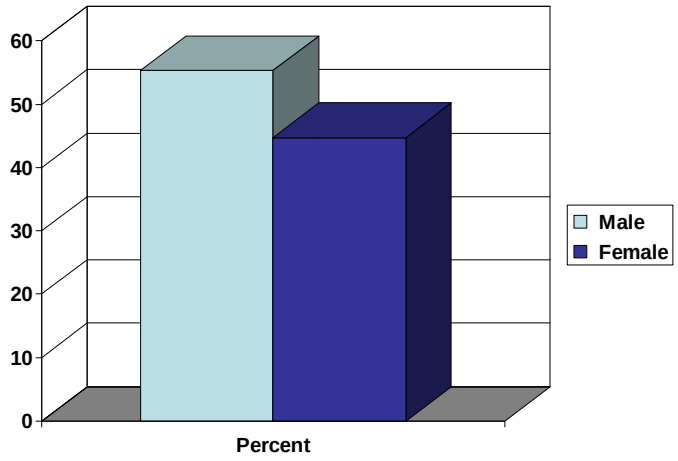
Matched Characteristics - Gender



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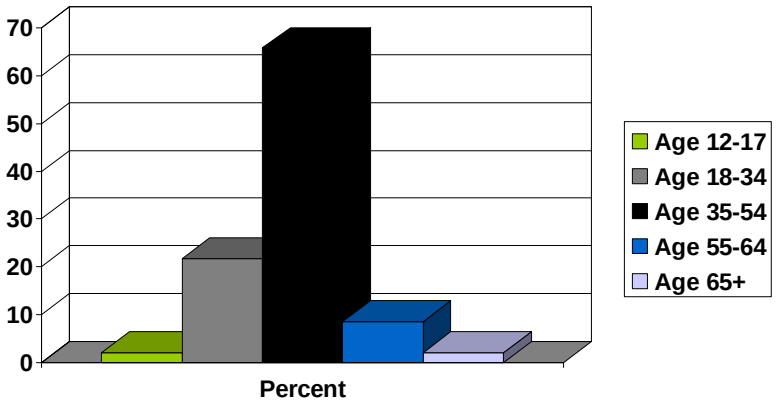
Matched Characteristics - Age



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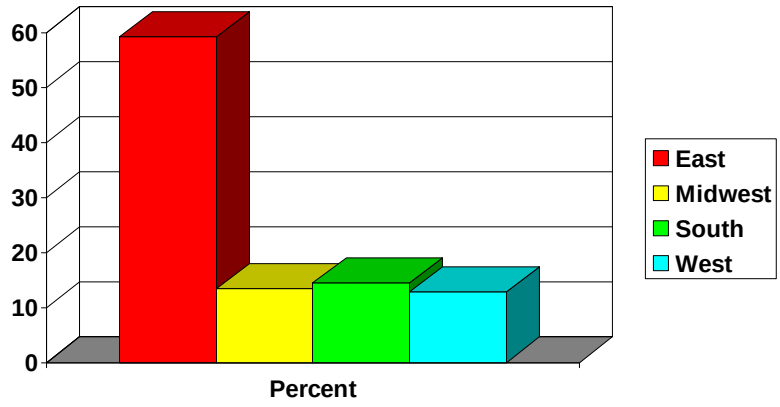
Matched Characteristics - Region



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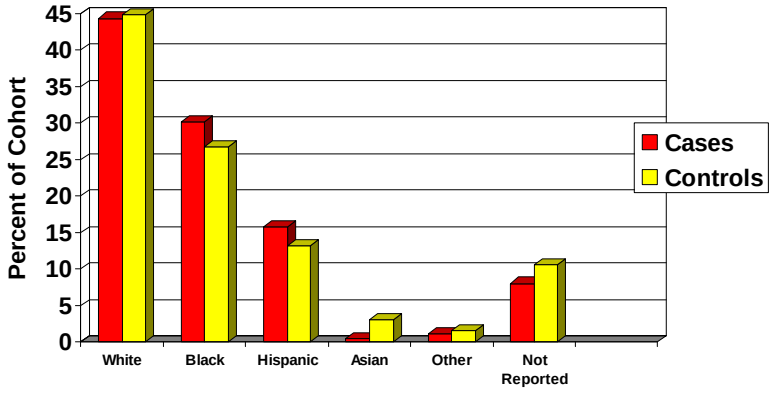
Baseline Characteristics - Race



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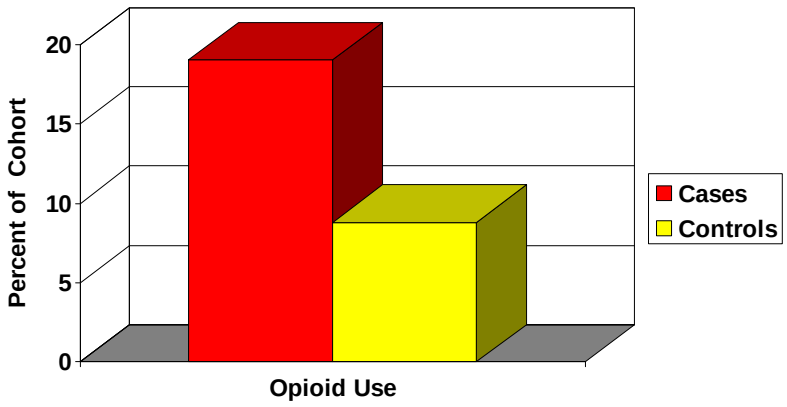
Baseline Opioid Use



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