

# **Immediate Reduction in Acute Myocardial Infarctions After Implementation of a Comprehensive Smokefree Ordinance**

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# Immediate Reduction in Acute Myocardial Infarctions After Implementation of a Comprehensive Smokefree Ordinance

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# Passive and Active Smoking Cause Heart Disease

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- SHS increases risk of cardiac event by 30%
- Effects on platelets
- Effects on endothelium
- Effects on heart rate variability
- Smokefree workplaces are associated with a 29% drop in cigarette consumption

# Helena, Montana

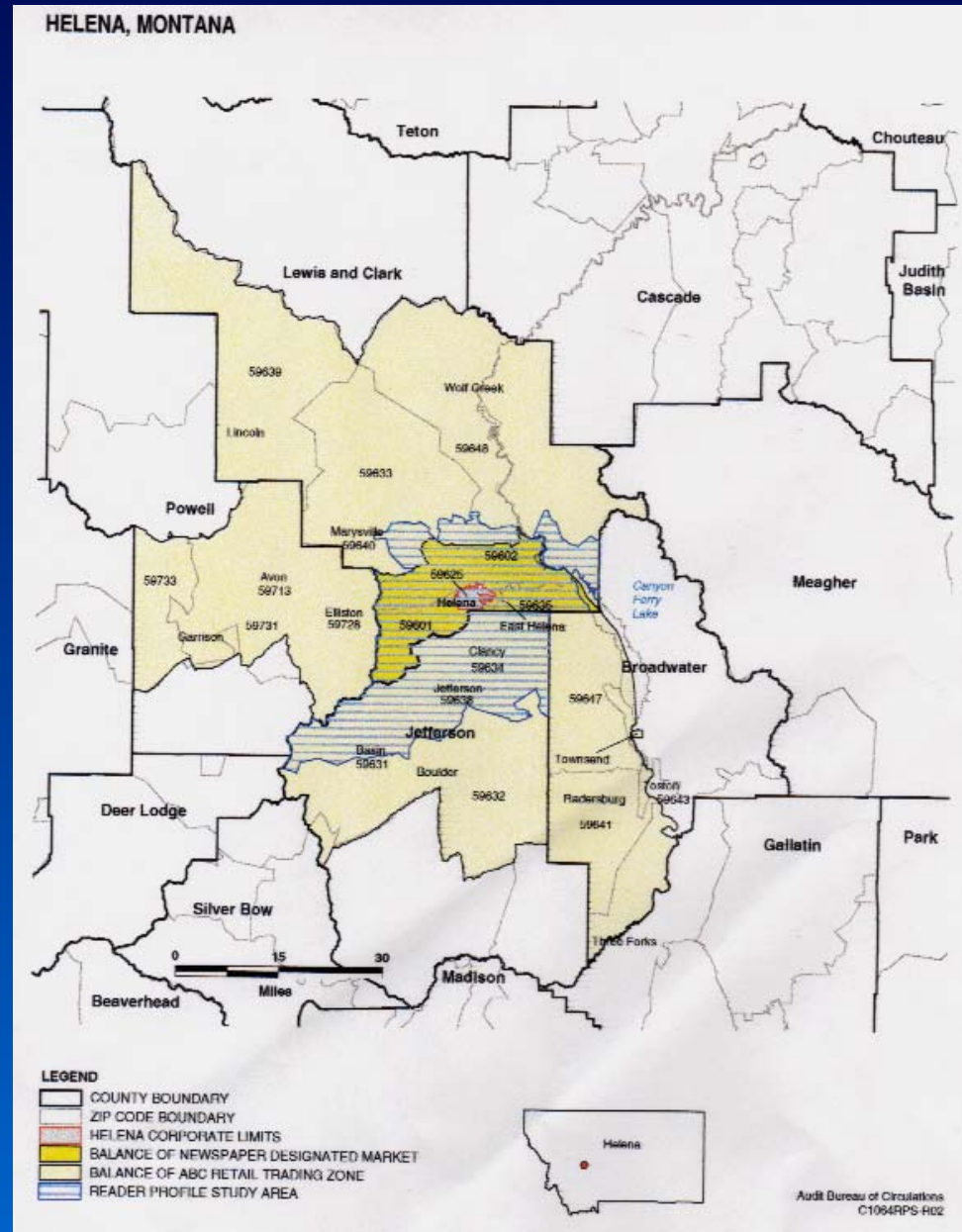
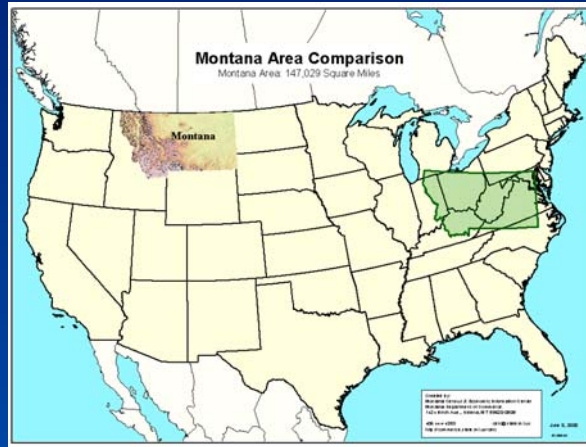
Population of city: 28,306

Population of Helena Zip Codes: 46,943

Total Population of Study area: 65,913

Geographically isolated population

Next nearest cardiologist: 60 miles



# Area Hospitals

- St. Peters Community Hospital, Helena, MT
  - 99 Beds, Two cardiologists
- Broadwater Health Center, Townsend, MT
  - 9 beds, Two Family Practitioners
  - 30 Miles SE of Helena
- Ft. Harrison VAMC, Helena, Montana
  - No After hours admissions

# **JUNE 4, 2002 ORDINANCE PASSES**

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62% vote for ordinance

- Smokefree
  - Workplaces
  - Restaurants
  - Bars
  - Casinos
- Ordinance took effect June 5
- Widespread compliance
- Enforcement Suspended by court December 2

# HOSPITAL COMPUTERIZED MEDICAL RECORD

Collect data for 4 years before ordinance to establish time trends and seasonal variation

Compare AMI's in Helena Zip Codes

v.

AMI's in Zip Codes Not in Helena

# STUDY DESIGN

- COMPUTER SEARCH FOR ALL RECORDS WITH PRIMARY OR SECONDARY DIAGNOSIS OF AMI
- CHART REVIEW OF ALL SECONDARY DIAGNOSES AND ALL PATIENTS WITH OUT OF AREA ZIP CODES TO ASSIGN TO THE STUDY GROUP
- SORT CASES BY ZIP CODE



# INCLUSION CRITERIA

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## Discharge Diagnosis: Acute Myocardial Infarction

- Resident of the Area OR
- Spent the Night Preceding the MI in the Study Area OR
- Ate at Least One Meal in the Area Prior to the onset of Symptoms. AND
- Symptoms Began Prior to Hospitalization
- No Complicating Condition or Surgery

# STATISTICAL ANALYSIS

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## Multiple Linear Regression

Dependent Variable:

AMI admissions for month

Independent variables:

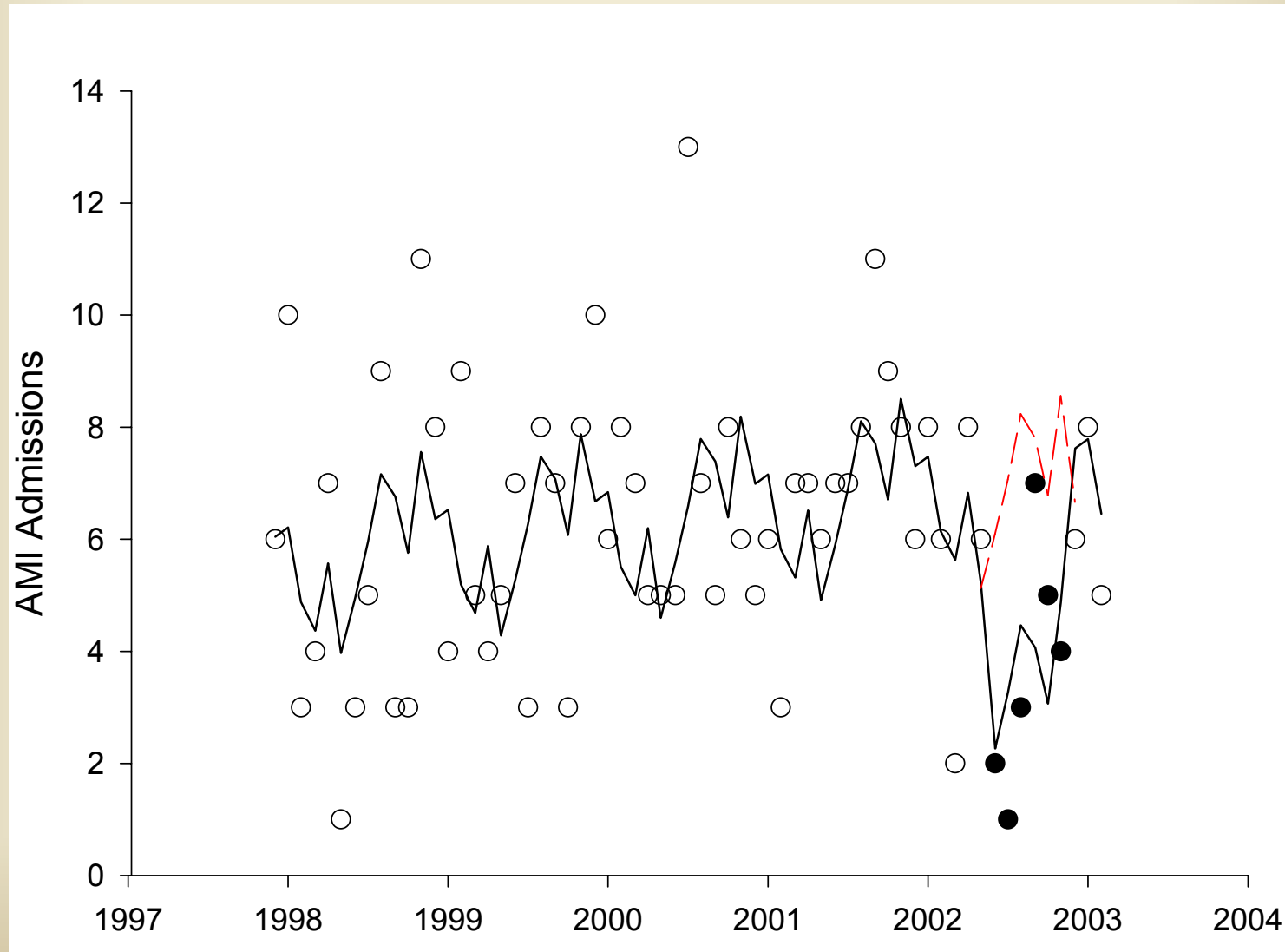
Time

Month

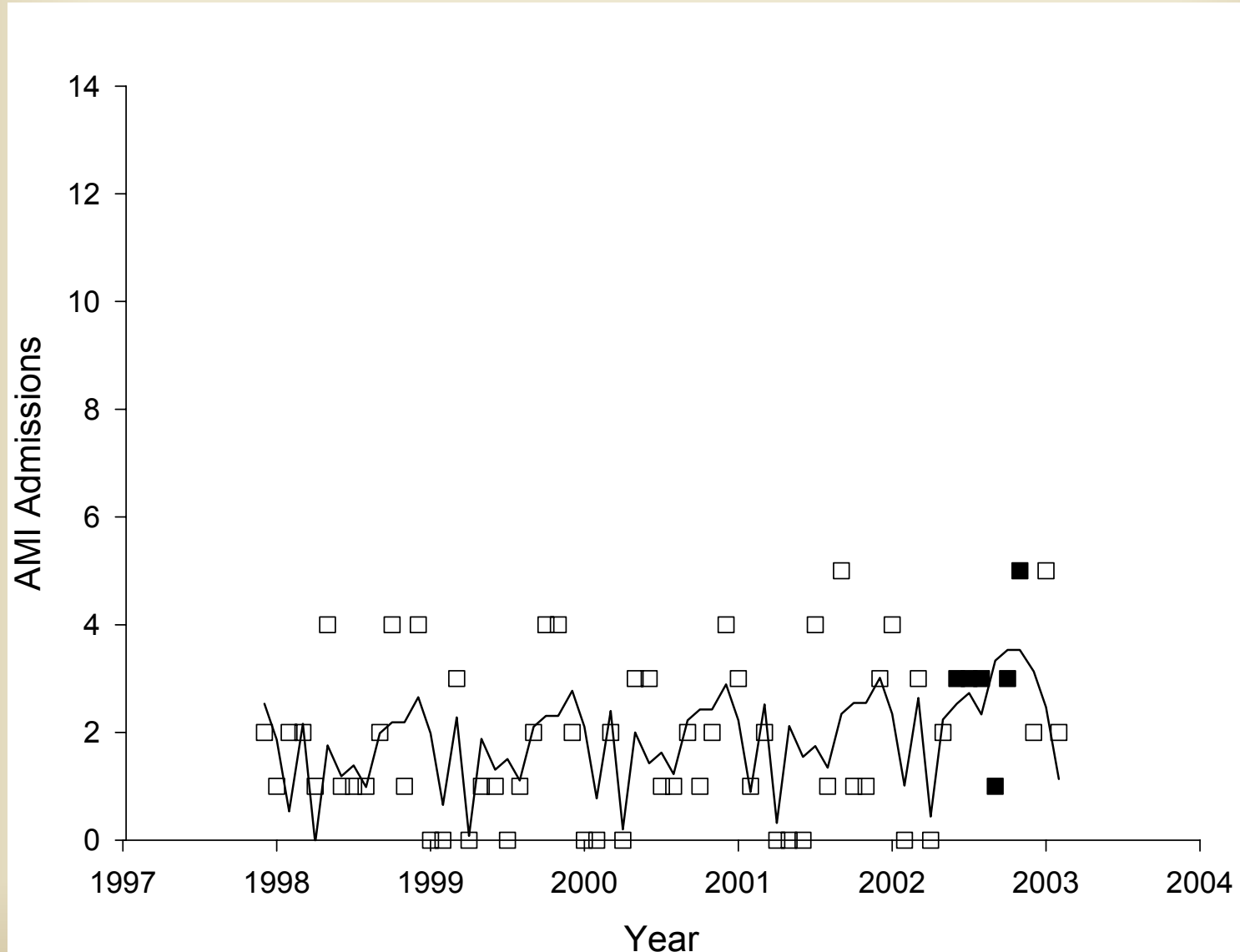
Presence of Ordinance

0,1 dummy variable

In Helena: Significant fall of  $-4.0 \pm 1.2$  AMI admissions per month ( $P=.002$ ) while ordinance is in force



Outside Helena: No significant change in AMI admissions per month ( $+0.9 \pm 0.7$ ;  $P=0.22$ ) while ordinance is in force



# CONCLUSIONS

- Helena, Montana's Clean Indoor Air Ordinance Decreased Acute Myocardial Infarction by 60% compared to the same time period in the previous four years.
- Result is biologically plausible
- Suggests that 100% smokefree ordinances have an important and immediate effect on cardiac risks