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

- 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

62% vote for ordinance

• Smokefree
  Workplaces
  Restaurants
  Bars
  Casinos
• Ordinance took effect June 5
• Widespread compliance
• Enforcement Suspended by court December 2
Collect data for 4 years before ordinance to establish time trends and seasonal variation

Compare AMI’s in Helena Zip Codes vs. 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

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

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±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