The Impact of the 2004 Irish Workplace Smoking Ban on Lung Cancer Incidence and Mortality
Theodore L. Caputi and Dr. Zubair Kabir
School of Public Health, College of Medicine & Health, University College Cork, Cork, Republic of Ireland

Methods – Confounders

Lung cancer incidence and mortality was adjusted by annualized percentage of smokers in Ireland. Previous studies indicate Irish smoking prevalence was not impacted by the smoking ban, so smoking prevalence is unlikely to be a mediator between the smoking ban and lung cancer incidence and mortality.

Methods – Statistical Analysis

One-sample interrupted time-series analysis was conducted using Poisson regression. That is, for each year-age-sex combination, the number of mortality and incidence cases within that group was regressed against an indicator for pre-vs. post-intervention, with an offset for the total population of the age-sex group.

‘Modelled interruption’ points 0, 1, 2, 3, 4, 5, and 6 years after the 2004 ban were tested using a forward stepwise regression, and the most significant break point (measured by the absolute value of the t-statistic) was used as the interruption.

Results (cont’d)

Limitations and Validity

- One-sample interrupted time series leaves the possibility that an external event, occurring at the intervention, could confound the effect. If that event reduced smoking, the effect is overstated (and vice versa).
- Thorough review of tobacco control landscape, we could not find something that could plausibly explain the decrease
- Brain cancer validity test mitigates the possibility that a broader public health/cancer event could explain the effect

Conclusion

The Irish Workplace Smoking Ban significantly reduced the incidence and mortality of lung cancer in Ireland, averting over 200 cases and over 100 deaths each year. Still, twenty-four US states and 11 European Union countries do not yet have comprehensive smoking bans (15-16). This study can be added to the arsenal of studies that support the adoption of free policy.

Future research, potentially including individual-level data, are essential to fully understand the biological and policy implications of a comprehensive smoke-free policy.

Acknowledgements

We would like to thank the Ireland Environmental Protection Agency, Ireland Health Services Executive, National Cancer Registry Ireland, and the Central Statistics Office of Ireland for access to air quality, smoking prevalence, cancer incidence, and cancer mortality data (respectively). This project would not have been possible without the assistance of those institutions and the hard work of their employees.

This dissertation is dedicated to all patients, survivors, and victims of cancer. Hopefully, this work will be used to improve tobacco control policy so that fewer individuals and families will have to suffer through the hardships of cancer.

Contact Information

Theodore L. Caputi
1050 Massachusetts Ave.
Tel: +1 267 312 8471
Cambridge, MA 02139
tcaputi@gmail.com
United States of America
www.theodorecaputi.com
Full text and citations at: theodorecaputi.com/files/thesis.pdf