Supplemental Online Content

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eFigure 1. An Example of the Geographical Random Forest With a Target County and 50 Nearest Neighbors in the Northeast of the United States

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This supplemental material has been provided by the authors to give readers additional information about their work.
eFigure 1. An Example of the Geographical Random Forest With a Target County and 50 Nearest Neighbors in the Northeast of the United States
**eTable.** Performance of Geographical Random Forest Models Comparing Different Numbers of Nearest Neighbors

| Risk factors* | Number of nearest neighbors of a target county | 50          | 100         | 200         | 400         |
|---------------|-----------------------------------------------|-------------|-------------|-------------|-------------|
|               |                                               | Receipt of food stamps | Receipt of food stamps | Receipt of food stamps | Receipt of food stamps |
| 1             | Receipt of food stamps                        | Receipt of food stamps | Receipt of food stamps | Receipt of food stamps | Receipt of food stamps |
| 2             | Median household income                       | Smoking     | Smoking     | Smoking     | Smoking     |
| 3             | Smoking                                       | Median Household Income | Median Household Income | Median Household Income | Physical Inactivity |
| 4             | Without high school degree                    | Adult obesity | Without high school degree | Median Household Income | Median Household Income |
| 5             | Adult obesity                                 | Without high school degree | Female-headed households | Frequent physical distress |
| 6             | Preventable hospital stays                    | Female-headed households | Adult obesity | Fair or poor health |
| Average Pseudo R^2 (SD) of sub-models | 26.8\% (21.1\%) | 34.2\% (18.1\%) | 40.6\% (15.0\%) | 45.7\% (12.2\%) |

Note: The order of risk factors is based on the average value of variable importance measures of sub-models.
**eFigure 2.** Relative Importance of Selected Cancer Risk Factors From the Geographical Random Forest Analysis (High Resolution Maps)

Notes: The highest value of variable importance among all risk factors is set to 100%. All other values of variable importance are scaled relative to the highest value.

A. Receipt of SNAP benefits

B. Smoking

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C. Median household income

D. Without high school degree
E. Female-headed households

F. Adult obesity

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eFigure 3. Pseudo Coefficient of Determination (Pseudo $R^2$) of Counties in Predicting Cancer Mortality From the Geographical Random Forest Model

Notes: Most areas in the Northeast and the West have relatively high model performance. Areas in the South have both the highest (Kentucky, Tennessee, West Virginia, Virginia, and North Carolina) and the lowest (Mississippi, Alabama, Georgia, and Florida) model performance. In the Midwest, areas in the eastern part mostly have high performance, while those in the western part have relatively low performance.
**eFigure 4.** Risk Factors Prevalence and Areas With High Variable Importance From the Geographical Random Forest (High Resolution Maps)

Notes: All variables use their own respective scales and are classified by quartile.
