The Effect of Local Primary Care Physician Supply on Physician Access and Utilization of Preventive Services

New York Center for Health Workforce Studies, University at Albany, State University of New York

Sandra McGinnis, Ph.D.

Tracey Continelli, ABD and

Robert Martiniano, M.P.A., M.P.H.

Purpose of this Research:

- To integrate geographic and non-geographic factors that predict utilization of preventive health services into one model at both the individual and local level; and
- To examine the relationships between local primary care physician supply, the probability of having a primary care physician, and the likelihood of obtaining various preventive health services.

Data and Methods:

- Survey asked respondent’s residential zip code, whether or not the respondent had a primary care physician, and if yes, in what place (city or town) was the physician’s office located.
- Total of 2043 cases used in analyses.
- City or town of physician’s office was matched to its respective zip code, and residential zip codes were matched with their respective RUCA codes.
- Average Euclidean distance between the geographical centroid of residential zip code and primary care physician zip code was computed.
- Average distance in Euclidean miles from residences to primary care physicians based on aggregated RUCA codes were computed. [Urban = 7.3 miles, Large Town = 8.8 miles, Small Town = 11.2 miles, Rural = 13.1 miles]
- Local physician supply was based on the total number of all active primary care physicians across all zip codes that fell within a respondent’s residential radius, divided by the total population across all zip codes within a respondent’s residential radius, multiplied by 10,000.
- Outcome variables: the probability of having a primary care physician, followed by the probability of getting:
  - Blood pressure checked
  - Cholesterol checked
  - Blood stool test
  - O a flu shot
- Control variables: Zip code level: Population Density
- Control variables: Individual level: Age, Income, Marital Status, Gender, Health Insurance, Current Health Status
- Methods used: Logistic Regression, Path Analysis, Multi-level Modeling

Results:

- Density exerted a significant positive bivariate effect on the primary care MD rate
- The primary care MD rate exerted a significant positive bivariate effect on the probability of having a primary care physician
- Having a primary care physician significantly increased the likelihood of receiving preventive healthcare services.

Path Analysis

Time since last visit to a primary care physician (“Use of PC MD”) fully mediated the relationship between gender, health status, marital status, and the sum of the 5 preventive health services (“Preventive”), and it partially mediated the relationship for health insurance and age. Use of PC MD exerted the second strongest direct effect on Preventive.

Multi-level Modeling

- Primary care MD rate was significantly associated with the probability of having a primary care physician. An increase in 1 primary care physician per 10,000 population resulted in a 7.2% increase in the probability of having a primary care physician.
- Controlling for population density, an increase of 1 primary care physician per 10,000 population resulted in an 8.3% increase in the probability of having a primary care physician.
- Primary care MD rate significantly affected the probability of having a primary care physician, even after controlling for all factors. An increase of 1 primary care physician per 10,000 population resulted in an 8.3% increase in the probability of having a primary care physician.
- Having a primary care physician exerted a strong effect on obtaining each of the preventive health services, even after controlling for all other factors.

Conclusions

- The relationship between primary care physician supply and utilization of preventive health services is an indirect one.
- Primary care physician supply, at the local level, increases the probability of personally having a primary care physician. This in turn strongly increases the likelihood of receiving a variety of preventive health services.