The direct and indirect effects of foreign-born status on Pap test utilization among women living in the United States: The impact of health insurance as a mediator

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OVERVIEW

The purpose of this paper is to investigate the direct effect and indirect effect, via health insurance status, of foreign-born status on Pap test use among women living in the United States.

RESEARCH QUESTIONS

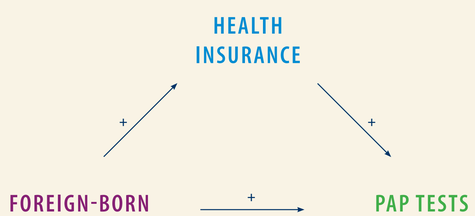
What percent of the total effect of foreign-born status measured as how long the woman has been in the United States (hereafter referred as "foreign-born status by duration") on Pap test use can be explained by the differences in health insurance status?

BACKGROUND

- Mortality due to cervical cancer in the United States has been significantly reduced in the past fifty years, partly due to the early detection of that disease by Pap tests.
- Nevertheless, disparities in the use of Pap tests in the United States remain, and little is know how foreign-born status and health insurance status interact to influence Pap test use.

CONCEPTUAL FRAMEWORK

- Foreign-born is positively related to health insurance status.
- Health insurance status is positively related to Pap test use.
- Foreign-born is positively related to Pap test use.
- Health insurance is a mediator between foreign-born and Pap test use.



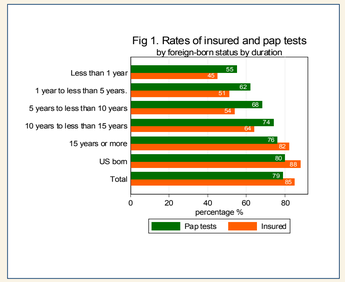
DATA

- The 2000, 2003, and 2005 National Health Interview Survey (NHIS) Data were retrieved from Integrated Health Interview Series (IHIS) and NHIS supplement files.
- The NHIS has been conducted annually in the 50 United States and the District of Columbia since 1957.
- The target population of this nationwide health survey is all non-institutionalized civilian population.
- Study population: women 18 years of age and older (n=49,577)

METHODOLOGY

- This is a pooled cross-sectional quantitative study.
- Dependent variable – Had a Pap test in the preceding three years at the time of the survey.
  - No
  - Yes
- Independent variable of interest – foreign-born status by duration
  - Reference group: US-born
  - Less than 1 year
  - 1 year to less than 5 years
  - 5 years to less than 10 years
  - 10 years to less than 15 years
  - 15 years or more
- Mediator – Health insurance status
  - Uninsured
  - Insured
- Analysis plan
  - Decomposition the total effect into the direct and indirect effects in a logit model was proposed by Buis (2008).
  - Three types of effects:
    - **The direct effect** is the effect of foreign-born status by duration while controlling for health insurance status. (This is estimated by fixing the distribution of health insurance of one group to be equal to the distribution of health insurance of another group.)
    - **The indirect effect** is the effect of foreign-born status by duration that can be explained by health insurance status. (This is estimated by fixing the logistic regression coefficients of one group to be equal to the logistic regression coefficients of another group.)
    - **The total effect** is the sum of the direct and indirect effect in log odds ratio.

PRELIMINARY RESULTS



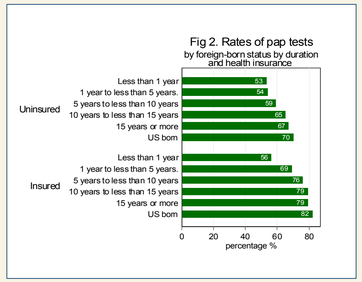


Table 1. The percentage of the total effect (foreign-born status by duration) on Pap test use contributed from the indirect effect (health insurance) among foreign-born women living in the United States compared with US-born women living in the United States.

Duration living in the United States	Method 1	Method 2	Average
Less than 1 year / US born	21%	21%	21%
1 year to less than 5 years / US born	30%	29%	30%
5 year to less than 10 years / US born	44%	44%	44%
10 year to less than 15 years / US born	76%	76%	76%
15 years or more / US born	19%	19%	19%
Average	38%	38%	38%

DISCUSSIONS AND CONCLUSIONS

- Foreign-born women who have recently immigrated to the United States are less likely to have health insurance and Pap tests.
- Uninsured women are less likely to have Pap tests, especially foreign-born women who have recently immigrated to the United States.
- Nearly forty percent of the total effect of foreign-born status by duration measured as how long the woman has been in the United States on Pap test use is due to whether the woman has health insurance.
- Increasing health insurance coverage for foreign-born women now living in the United States will increase their use of Pap tests, and in so doing, decrease disparities that currently exist between the rates of the Pap test use by foreign-born women living in the United States and US-born women living in the United States.

MAIN REFERENCE: Buis, M.L. (2008). Direct and indirect effects in a logit model. http://home.fsw.vu.nl/m.buis/wp/ldecomp.html
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