Testing the use of novel patient financial incentives to improve breast cancer screening rates

Dominic Hodgkin1, Elizabeth Merrick1, Constance M. Horgan1, Laura S. Lorenz1, Grant Ritter1, Lee Panas1, Paul Kasuba2, Debra Poskanzer2, Renee Altman Nefussy2 and Elizabeth Goheen
1Institute for Behavioral Health, The Heller School for Social Policy and Management, Brandeis University
2Tufts Health Plan, Watertown, MA

Context
- Routine screening mammograms to detect breast cancer can save lives
  - But many eligible women do not obtain the screening (e.g.: average 30% in commercial HMOs). Even in high-performing health plans, many do not obtain.
- Financial incentives improved mammography uptake in some studies2
- Lottery incentives have not been evaluated for mammography
  - But, found effective for some other health behaviors3
- Depression may affect use of preventive services and possibly response to incentives


Study goals
- Address problem of eligible women who have not received mammogram in past 2.5 years (modified HEDIS selection criteria).
- Randomized controlled trial to evaluate impact of 3 types of low-cost financial incentives for members overdue for routine screening mammography
- Main outcome: Mammography rates
- Includes novel patient-choice option we term “person-centered incentives”
- Qualitative component: Insight into member views on incentives in this context

Sample and Intervention Period
- Privately insured, Tufts Health Plan, Massachusetts members
- Women 40-69 years old, no mammogram past 2.5 years
- Track mammography receipt during 4-month intervention period
- Mail incentives to members who received mammograms as appropriate to intervention group

Sample Description
- n = 4,427 subjects
  - Education: 40% completed college, 50% completed high school, 10% neither
  - Household income (from zip): mean=$70,829
  - Age: 36% were 40-49; 43% were 50-59, 21% were 60-69
  - Common health conditions (in past 12 months, from diagnoses in claims):
    - 20% had hypertension,
    - 11% had depression
* After removing those with unbelievable mail, mammogram since sample selection but before intervention, etc.

Sample and Intervention Period
- Privately insured, Tufts Health Plan, Massachusetts members
- Women 40-69 years old, no mammogram past 2.5 years
- Track mammography receipt during 4-month intervention period
- Mail incentives to members who received mammograms as appropriate to intervention group

Sample Description
- n = 4,427 subjects
  - Education: 40% completed college, 50% completed high school, 10% neither
  - Household income (from zip): mean=$70,829
  - Age: 36% were 40-49; 43% were 50-59, 21% were 60-69
  - Common health conditions (in past 12 months, from diagnoses in claims):
    - 20% had hypertension,
    - 11% had depression
* After removing those with unbelievable mail, mammogram since sample selection but before intervention, etc.

Incentive Approaches
- **GIFT CARD**
  - The goal was to test low-cost, widely feasible incentives ($15)
- **PRIZE-BASED**
  - We offered the chance to win one of five $250 gift cards
- **PERSON-CENTERED** (CHOICE)
  - Choice of $15 gift card or prize-based
  - Allow each individual to self-match to the incentive she finds most meaningful
  - Could engage patient more in decision-making

Design and Methods

| Intervention Group | Reminder letter + $15 gift card
| Reminder letter + prize-based incentive (1 of 5 $250 gift cards) |
| Reminder letter + member’s choice of $15 gift card or prize-based incentive |
| Reminder letter only |

Compare cross-group mammography rates
[
[Image 2239x1028 to 2934x1200]

Use multivariate modeling including covariates that may be predictive: key explanatory variable is incentives group

4-month intervention period

Discussion
- Gift card was a more popular choice than prize-based, among those who indicated preference
- None of these incentives was found to be significantly more effective, compared to reminder only
- The sample consisted of women with no mammogram for over 2 years – perhaps especially hard to influence

Implications
- One could consider refinements:
  - Larger incentives, more appealing choices
  - More immediate rewards
  - Intervention might be effective with individuals who have had more recent screening
  - The incentives may work better for subgroups, e.g. those with depression, or who are less overdue
  - May not be desirable to offer incentives only to subgroups
  - However, this can help inform further research on response to incentives

References
- Stone, Erin G., et al. “Interventions that increase use of adult immunization and depression may affect use of preventive services and possibly response to incentives.”

Further Information
Please contact: Dominic Hodgkin, hodgkin@brandeis.edu

Acknowledgments
This research was funded by Robert Wood Johnson Foundation’s Pioneer Portfolio and the Donaghue Foundation: ‘Applying Behavioral Economics’ initiative.