Exploring Visual Enhancements on a Mail Survey of Physicians

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Overview

Objective. This study evaluates the response rate effects of using visual enhancements for a survey of physicians. We implemented an experimental design using a combination of custom Best Hospitals stamps on the survey envelope vs. a standard American flag stamp and a picture on the survey form vs. no picture.

Data Sources. A national survey of 4,700 board-certified physicians was conducted as part of *U.S. News & World Report's* annual rankings of America's Best Hospitals.

Study Design. Stratifying by region and specialty, physicians were randomly assigned to be in the control group or one of the experimental treatment groups.

Data Collection. The experiments were combined in a 2x2 factorial design such that physicians were assigned to one of four groups. The first group received the custom Best Hospitals stamp and a photo-version of the survey. The second group also received the custom stamp, but received the text-version of the survey. The third group received the standard American flag stamp and the photo-version of the survey. The fourth group, which was the control, received the standard flag stamp and the text-only survey.

Principal Findings. The use of a picture on the survey form had no effect on response rates. Adult specialists who received the custom Best Hospitals stamp had significantly different response rates than those who received the American Flag stamp. The adult specialists who received the custom stamp were less likely to respond to the survey. Although the custom stamp created for this study was not successful at increasing response rates, other custom stamps with more tailored content might yield better results.

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1. Use of Stamps on Response Rates — Background

Stamps Compared to Metered/Business Mail

- Using stamps instead of metered mail or business reply mail can improve response rates in mail surveys of physicians (Kellerman & Herold, 2001; Shiono & Klebanoff, 1991; Urban, Anderson, & Tseng, 1993).
- Stamps are more effective on the first mailing than follow-up mailings (McFarlane, Murphy, & Olmsted, 2008).

Breast Cancer Research Stamps Compared to Regular Stamps

- While research supports the use of stamps, it did not address the effects different types of stamps may have on response rates.
- In a 2007 study, the authors compared the use of two different types of stamps—a traditional American Flag stamp (image 1) and a Breast Cancer research stamp (image 2)—to metered mail in a mail survey of physicians (McFarlane, Murphy, Olmsted, 2007).
  - No differences in response rates between the two types of stamps for the overall sample of physicians.
  - However, the use of breast cancer stamps was associated with higher response rates for the oncologists in the sample.
  - Study limited due to small sample size and because stamps were tested on return envelope in follow-up mailings only.

- Stamp experiment was repeated with oncologists in 2008.
  - We compared the use of breast cancer stamps to regular stamps on both the outgoing and return envelopes on the first two survey mailings, which were sent via first-class mail.
  - Oncologists who received breast cancer research stamps on either the outgoing or return envelopes had higher responses rates, but the differences were not statistically significant.

RESEARCH QUESTION: Can we find a custom stamp that will work with other types of physicians?

- Wanted to generalize the stamp experiment to specialists other than oncologists
- Unfortunately no other official fund-raising stamps specific to the medical community
- Decided to create our own customized stamp for the "America's Best Hospitals" rankings (image 3).
- Stamps were purchased and printed from www.photostamps.com.
- Compared custom stamps to American Flag stamps. Due to the cost of the custom stamps, used them on the outgoing envelope for the first mailing only.

HYPOTHESIS: Custom stamps will be more noticeable and alert physicians to the content of the survey, encouraging participation.

2. Use of Pictures on Survey Response Rates — Background

- In addition to examining the effects that stamps had on response rates, we also tested the impact of another type of visual enhancement—pictures.
- The use of pictures of photographic images is not common in mail surveys.
- Research on cover letters for mail surveys showed some support for the use of graphic images to increase response rates, but success is marginal and not consistent (Gendall, 2003; Finn, Gendall, & Hoek, 2004).
- The use of pictures in web surveys is more pervasive. Research has shown that visual images associated with survey questions, and even with survey headers, can affect how respondents answer (Couper, Conrad, & Tourangeau, 2007; Couper & Tourangeau, 2004).
- The above research does not address whether the use of a photographic image on mail surveys can be associated with higher response rates.In this study, we compare response rates of physicians who received a mail survey with an embedded picture to physicians who received a text-only survey.

HYPOTHESIS: Including a photo of a patient may prime physicians to view the survey as a request for their expert medical opinion rather than viewing the survey as a hospital "popularity contest."

- Some physicians do not respond because they consider the rankings to be a "popularity contest."
- We hypothesized that including a picture of a patient, would prime the physician to think about the survey from the patient's perspective rather than as a commercial survey.

Adult specialists received a picture of a geriatric patient (See Image 4). Pediatric specialists received a picture of a pediatric patient (See Image 5).

Image 4. Adult Specialists

Image 5. Pediatric Specialists

Both surveys were one-sided, one-page surveys asking physicians to nominate up to 5 best hospitals in their medical specialty.

Half of the physicians received a survey with the picture embedded on the front-page (See Image 6). The remaining physicians received text-only version of the survey (See Image 7). The content of the surveys and all accompanying materials were identical.

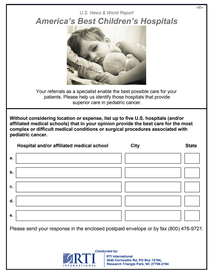


Image 6. Picture-Version

Image 7. Text-Version

3. Methods

America's Best Hospitals. The survey was conducted as part of *U.S. News & World Report's* "America's Best Hospitals" rankings, which ranks hospitals based on data from multiple sources including a one-page survey of board-certified physicians.

Sample. The sample for the 2010 physician survey consisted of 4,700 board-certified physicians.

- Stratified by census region (Midwest, Northeast, South, West) and medical specialty.
- 200 physicians in each of 16 adult medical specialties: Cancer; Digestive Disorders; Ear, Nose, and Throat; Geriatrics; Gynecology; Heart and Heart Surgery; Hormonal Disorders; Kidney Disease; Neurology and Neurosurgery; Ophthalmology; Orthopedics; Psychiatry; Rehabilitation; Respiratory Disorders; Rheumatology; and Urology.
- 150 physicians in each of 10 pediatric specialties: Cancer, Gastrointestinal Disorders, Diabetes/Endocrine Disorders; Heart and Heart Surgery; Neonatology; Nephrology; Neurology and Neurosurgery; Orthopedics; Respiratory Disorders; and Urology.

Survey Mailings. A series of four mailings conducted from January to March, 2010:

- **Mailing 1:** sent via United States Postal Service (USPS) first-class regular mail. The package included a cover-letter, survey, stamped return envelope and a $2 bill as an incentive for response
- **Mailing 2:** sent two weeks later to nonresponders via metered mail, included cover letter, survey and business reply envelope
- **Mailing 3:** sent two weeks later to nonresponders via USPS Priority mail, included cover letter, survey and business reply envelope
- **Mailing 4:** final mailing sent two weeks later to nonresponders via FedEx mail, included cover letter, survey and business reply envelope

Experimental Conditions. To evaluate visual enhancements for improving the overall level of participation in the survey, a 2x2 factorial experiment was conducted to see if changes in the appearance of the envelope or the survey questionnaire would have any impact on physician participation in the survey.

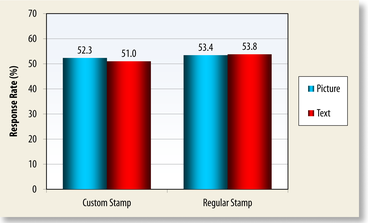
1. **Custom Stamp / Picture-survey:** custom Best Hospitals stamp used in first mailing, photo-version of the survey used in all mailings
2. **Custom Stamp / Text-survey:** custom Best Hospitals stamp used in first mailing, text-version of the survey used in all mailings
3. **Regular Stamp / Picture-survey:** standard flag stamp used in first mailing, photo-version of the survey used in all mailings
4. **Regular Stamp / Text-survey:** standard flag stamp used in first mailing, text-version of the survey used in all mailings

4. Results

The survey achieved an overall response rate of 52.9%. Response rates were much lower with adult specialists (48.2%) compared to pediatric specialists (63.5%). All response rates reported were calculated using AAPOR standard response rate formula 6, which excludes undeliverables and ineligibles. After removing ineligibles and undeliverables, the eligible sample size was 4,452. The results of the 2 x 2 factorial experiments were analyzed using chi-square significance tests.

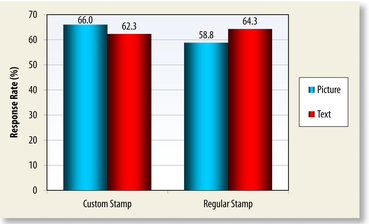
Figure 1 shows the response rates by treatment group for the overall sample, Figure 2 for the pediatric sample and Figure 3 for the adult sample.

Figure 1. Response Rate by Experimental Condition



4. Results *(continued)*

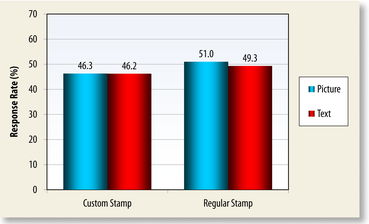
Figure 2. Pediatric Response Rate by Experimental Condition



Results Overall and for Pediatric Specialists Only

- Response rates were slightly higher for custom stamps with pediatric specialists, but differences were not statistically significant.
- No significant differences for the picture-version of the survey compared to text-version.
- Similarly, there was no significant effect for the interaction between the two treatment conditions.

Figure 3. Adult Response Rate by Experimental Condition



Results for Adult Specialists Only

- Physicians who received a survey envelope with a regular stamp were more likely to complete the survey (50.1%) than physicians who received a survey envelope with a Best Hospitals stamp (46.2%), χ^2***=5.1910, df=1, p=0.0227***.
- This result was more pronounced when response rates were examined after the first mailing only, χ^2***=5.7403, df=1, p=0.0166***.
- There were no significant differences between groups for the survey picture experiment or the interaction between the two experiments.
- No differences in response rates between experimental conditions by age, sex, region or specialty.

5. Discussion

Use of a Picture on the Survey Form

- Including a picture of a patient on the survey form did not have a significant effect on response rates.
- No differences in response by demographic items such as age and sex (available for adult specialists only), region or specialty
- Next step will be to compare survey responses for those who received the picture-version of the survey to those who received the text-only version to determine any context effects for the picture.

Custom Stamps

- Physicians who received a custom Best Hospitals stamp were less likely to complete the survey than physicians who received a regular stamp.
- Even though the custom stamp was only used on the first mailing, differences between groups were still seen at the end of data collection.
- Previous research (McFarlane, 2007) found presence of slight nonresponse bias for sex. No differences in response between experimental groups were observed by sex or by other demographic items available for the sample (region, specialty, age).
- Although the use of a custom stamp did not increase response rates compared to using the standard American flag stamp, other types of stamps may yield better results.
- Listed below are some possible reasons why the Best Hospitals custom stamp was unsuccessful at increasing response rates:
  - **Tailoring:** the Best Hospitals stamp was not tailored to individual specialties and some may even misunderstand the stamp to indicate the letter contains a subscription form.
  - **Appeal:** if physicians are not interested in participating in the Best Hospitals survey, a Best Hospitals stamp on the envelope may actually discourage opening the survey. This may explain the differences between adult and pediatric specialists—pediatric specialists have a more favorable opinion of the rankings and thus were not deterred by the Best Hospitals stamp.
  - **Charity:** 6 cents of the cost of the breast cancer research stamp is donated to charity, unlike the Best Hospitals stamp.
  - **Outgoing envelope:** previous research has shown that stamps are more effective on the return envelope than outgoing envelope, possibly because some physicians do not open their own mail.
- More research needs to be done to determine if a custom stamp that was more tailored and appealed more to physicians would improve response rates.
- For instance, Zazzle (www.Zazzle.com) has come out with a line of fund-raising stamps (see right), created by users, many of which are related to medical research. However, these stamps do not donate money to the charity, but are simply to raise awareness.

References

Couper, M. P., & Tourangeau, R. (2004). Picture This ! Exploring Visual Effects in Web Surveys. University of Michigan and Joint Program in Survey Methodology. *Public Opinion, 68*(2), 255–266.

Couper, M. P., Conrad, F. G., & Tourangeau, R. (2007). Visual Context Effects in Web Surveys. *Public Opinion Quarterly, 71*(4), 623–634. doi: 10.1093/poq/nfm044.

Finn, A., Gendall, P., & Hoek, J. (2004). Two Attempts to Increase the Response to a Mail Survey. *Response*, 1–5.

Gendall P (2003). Can You Judge a Questionnaire by its Cover? Paper presented at the American Association for Public Opinion Research Conference, Nashville, Tennessee.

Kellerman, S. E., & Herold, J. (2001). A Review of the Literature. *American Journal of Preventive Medicine, 20*(2), 61–67.

McFarlane, E., Murphy, J., & Olmsted, M. G. (2008). First Mailings versus Follow-up Mailings: Do the same strategies have the same effects? In *Presented at the American Association for Public Opinion Research*. New Orleans.

Shiono, P. H., & Klebanoff, M. A. (1991). The effect of two mailing strategies on the response to a survey of physicians. *American Journal of Epidemiology, 134*(5), 539–42. Retrieved from http://aje.oxfordjournals.org/cgi/content/abstract/134/5/539.

Urban, N., Anderson, G. L., & Tseng, A. (1993). Effects on response rates and costs of stamps vs business reply in a mail survey of physicians. *Journal of Clinical Epidemiology*, 46(5), 455–9. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8501471.