No Difference in Response Rate to a Mailed Survey among Prostate Cancer Survivors Using Conditional versus Unconditional Incentives

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Abstract
Mailed surveys are widely used to collect epidemiological and health service data on cancer populations. Nonresponse can threaten the validity of surveys and various strategies, including the enclosure of modest incentives, are often used to increase response rates. A study was undertaken to determine whether response rate to a mailed survey differed with provision of immediate versus delayed incentives. A six-page mailed survey to ascertain dietary supplement use was sent to 1402 men who had been diagnosed with prostate cancer. Subjects were block randomized into two groups based on age (<65 years versus >65 years), race (white versus nonwhite), and disease status (locoregional versus distant). One group received a 30-min prepaid phone card concurrently with their blank survey (unconditional incentive), whereas the other group received the incentive only on receipt of their completed survey (conditional incentive). A 60% overall response rate was achieved, and no differences in response rates were noted between conditional and unconditional incentive groups (overall, as well as within defined age, race, and disease-defined strata). Nonwhites, however, were significantly less likely to respond than whites (P < 0.0001). In conclusion, acceptable response rates to a mailed survey can be achieved in a general population of cancer survivors using modest incentives. Given no differences in response rates using conditional versus unconditional incentives, the decision to provide immediate versus delayed incentives is one that should be considered on a study-specific basis, and a decision based primarily on cost. Other means, however, appear necessary to achieve acceptable response rates among minority group cancer survivors.

Introduction
Mailed surveys are commonly used to collect data for epidemiological and other health-related research. Poor response rates pose challenges to investigators, because they may intersect bias and threaten study validity. Strategies for increasing response rates have been reviewed recently by Edwards et al. (1) with consensus that the inclusion of incentives demonstrates positive results. The timing of incentives, however, is not as well characterized. Schweitzer and Asch (2) found similar response rates of 64% versus 59% for prepayment compared with the promise of $5 upon return of a completed survey. It is not known, however, whether these findings can be generalized to populations with cancer.

Our goal was to determine whether the response rate to a mailed survey aimed at prostate cancer survivors differs if a study incentive (30-min prepaid phone card) is inserted within the initial mailing or is mailed to subjects after receipt of their completed survey. Similar to the findings of studies conducted in the general population where the provision of unconditional incentives results in response rates that are ~70% higher than those obtained with conditional incentives, (1), we hypothesized that within this group of cancer survivors, response rates also would be higher among those incentivized before completing the survey.

Materials and Methods
This study of immediate versus delayed incentives was embedded within a mailed survey study aimed at assessing dietary supplement-use among prostate cancer survivors. The overall study population was derived from all of the patients receiving prostate cancer treatment at Duke University Medical Center. Cases who had been diagnosed with prostatic carcinoma between 1997 and 2002, and who were currently living within the United States were identified by the Duke University Medical Center Cancer Registry and approved for contact by their oncology care physician (n = 1402). No managing physicians denied contact of their patients. The sample was block randomized into two groups based on age (<65 years versus >65 years), race (white versus nonwhite), and disease status (locoregional versus distant), because these parameters have been shown to influence response rates in previous studies (1, 3, 4). The overall sample, when equally divided into the two groups, would provide at least 90% power to detect a response rate difference of 9% (two-sided type I error of 0.05). One group received the incentive (a 30-min prepaid phone card) attached to the bottom of the cover letter, “as a small token of thanks.” The other group received a cover letter that informed them that they would receive the 30-min prepaid phone card upon receipt of their completed survey. Both groups received the 34-item, six-page survey along with a postage-paid, preaddressed envelope for return; no provisions were made for repeat mailings.

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Role of Incentives on Cancer Survivor Response Rates

were tested using the overall response rate, as well as response rates within strata reminder cards, or other follow-up contact. Returned surveys were checked for completeness and consistency. Differences in the overall response rate, as well as response rates within strata were tested using $\chi^2$ testing ($\alpha < 0.05$; SAS, Cary, NC).

Results

A total of 52 surveys were returned with undeliverable addresses or notification of patient death and were, therefore, excluded, thus yielding an evaluable sample (denominator) of 1350 ($n = 681$, immediate incentive; $n = 669$, delayed incentive). An overall response rate of 60% was observed in both groups, and nearly identical responses were seen within age, race, and stage strata (see Table 1). No statistically significant differences were observed with respect to incentivizing. However, response rate differences were noted between whites versus nonwhites, with nonwhites demonstrating significantly lower response rates ($P < 0.0001$). Response rate differences seen between men with more advanced disease versus those with earlier-staged disease were nonsignificant once adjusted for race.

<table>
<thead>
<tr>
<th>Table 1 Response rates: overall and by subgroup</th>
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<tr>
<td>Responders to immediate incentive % ($n$)</td>
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<tr>
<td>Overall</td>
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<tr>
<td>Age</td>
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<tr>
<td>$\leq 65$</td>
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<tr>
<td>$&gt;65$</td>
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<tr>
<td>Race</td>
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<td>Stage</td>
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<td>Locoregional</td>
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<td>Distant</td>
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The consistent 60% response rate, irrespective of method and value of incentive, suggests that cancer survivors may respond to mailed surveys in a way that differs from the general population or may be influenced more by survey interest. In their review, Edwards et al. (1) found that response rates were 2.44 times greater when subjects found the survey of interest. While it is unsurprising that good response rates are achievable among cancer survivors who may be interested in surveys that target issues related to survivorship, an unexpected finding is that this effect may completely override other factors that have been found to influence response rates in other populations. More research is necessary, because findings of previous studies conducted within the general population do not appear generalizable to this specific subgroup.

Given the findings of this study where response rates were found to be essentially identical, the decision of immediate versus delayed incentivizing in survey studies of adult cancer survivors should rest solely on the method that is most cost effective. Labor, postage, and supply costs associated with delayed incentives must be taken into account and weighed against the value of the incentive on a study-specific basis. In groups where significantly lower response rates are anticipated, e.g., minorities, other strategies may be necessary to achieve response rates that are within acceptable limits. More research is necessary to determine factors that influence survey response rates among populations with cancer.

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References

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