

A Comparison of Establishment Collection Mailing Methods

Chris Ellis¹, Margaret Noonan², Tim Flanigan³, Scott Ginder⁴, Hope Smiley McDonald⁵

^{1, 3, 4, 5} RTI International, ² U.S. Department of Justice, Bureau of Justice Statistics
¹ ellis@rti.org, ² margaret.noonan@usdoj.gov, ³ tsf@rti.org, ⁴ sginder@rti.org, ⁵ smiley@rti.org

Introduction

Each year, approximately 4,000 inmates die while under the custody of the American correctional system (Noonan & Carson, 2011). Effectively tracking mortality statistics among this population necessitates complete coverage of the nation's prisons and jails. Thus, in 2000, the Bureau of Justice Statistics (BJS) established the Deaths in Custody Reporting Program (DCRP) to collect mortality statistics and publish detailed analyses of comparative death rates across demographic categories, offense types, and facility/agency characteristics. Policymakers, correctional administrators, and government officials use DCRP products to maintain critical oversight and inform new policies, procedures, and budgets.

Since 2009, RTI International has served as BJS's DCRP data collection agent. Using a multimode approach designed to minimize respondent burden, RTI's role is to collect inmate death data from the 50 state prison systems (Department of Corrections [DOCs]) and across approximately 3,000 local jail jurisdictions. The inclusion of jails in the DCRP study population is critical in gaining a comprehensive understanding of the issue of mortality in corrections. First, jails are a necessary and routine point in the correctional process. In particular, although not all arrestees proceed to prison, all prison inmates have served time in one of the nation's jail jurisdictions. Second, jails account for a substantial number of inmates, with between 12 and 13 million admissions per year and an average daily population of approximately 750,000. Third, jails represent the most transitional of correctional settings, often holding inmates for only hours, days, and weeks (versus months and years). In fact, the average length of a jail stay is approximately 21 days. Jails account for 65% of the unconvicted inmate population.

RTI offers respondents the opportunity to complete the forms on the DCRP Web site (<https://bjsdcrp.rti.org/>), via hard copy (i.e., facsimile or mail), or by electronic (i.e., bulk file) submission. Additionally, RTI includes e-mail, mail, and telephone prompting steps into the data collection approach for nonresponding agencies and, in some cases, data are collected via telephone to further reduce nonresponse. To further ensure high-quality data, such as low item nonresponse, RTI implements a rigorous data quality follow-up process. In addition to soft and hard prompts within the Web forms, this process uses machine and interactive (i.e., statistical) edits to identify inconsistent or missing data within or across death records. Agencies with resultant data quality issues are contacted by telephone to resolve any discrepancies.

One of the biggest challenges associated with collecting these data is the reality that correctional administrators manage overcrowded facilities that are understaffed and insufficiently funded, and routinely balance inmate and staff safety. In short, DCRP respondents must increasingly “do more with less,” which among other things means response time to data requests is limited. Despite this challenge, in 2009,¹ RTI achieved a 100% response rate across the 50 state DOCs, a 100% response rate across the 150 largest jail jurisdictions, and a 96.7% response rate across the remaining jail jurisdictions.² (Identification and tracking of the 150 largest jail jurisdictions is a construct BJS and RTI use to facilitate data collection. Along with the DOCs, these “top 150” jail jurisdictions account for approximately 80% of all inmate deaths and, thus, are tracked separately from the general jail jurisdictions during the data collection.)

¹ The DCRP study design allows for late data submissions. Therefore, the 2009 response rates reported here are ones to date. They are higher than the ones available for use at the time of randomizing the 2010 sample to treatment groups discussed further below.

² Response rates (AAPOR RR5) are specific to the DCRP Annual Summary Form, which is requested of each agency regardless of incidence or number of inmate deaths. RR5 is applicable to the 2009 DCRP because of a frame verification effort that preceded data collection and, thus, concluded eligibility status for each agency.

Background

Choosing the most appropriate mailing method (e.g., Federal Express [FedEx]) is an important aspect of any mail or mixed-mode data collection protocol, especially in the context of minimizing nonresponse (Dillman, 2000; Fowler, 1993). Typically, when mailing method is shown to positively affect response rate, it is in the context of what method was used for nonresponse follow-up prompting. This is often attributed to use of a “special” mailing method, such as United States Postal Service (USPS) Priority Mail or FedEx. For example, Moore and An (2001) describe a survey of physicians, in which mail response rates were significantly improved by the use of a USPS Priority Mail contact. Similarly, in an experiment that examined refusal conversions, the FedEx cohort resulted in a higher response rate when compared with the USPS Priority Mail cohort (Hagedorn et al., 2006).

Although there is agreement that varying mailing methods *within* a single study protocol increases response propensity (Dillman, 2007), the impact of alternate *initial* mailing methods (those inviting participation in the study) is less clear. In other words, what impact does using FedEx or USPS Priority Mail have on eventual response rates, especially when compared to USPS First Class? Moreover, there appears to be a relative dearth in the survey literature on studying the inverse of this special mailing principle: whether some study populations would respond equally as well or even better to a simple USPS First Class mailing.

Additionally, the choice of mailing method necessarily should also take into consideration study- and sample-specific factors, such as whether a signature from the recipient is required; whether mailing addresses may contain post office boxes (thus eliminating FedEx as a viable option); whether delivery directly to the potential participant is important (thus suggesting FedEx as a primary method); and whether the methods under consideration will provide delivery in a timely and cost-efficient manner across all geographic regions.

Finally, and consistent with the concept of a tailored design for each study, costs and respondent perceptions associated with a mailing method(s) should be considered. In other words, if applicable, how does the study population view the government using perceivably “more expensive” methods, such as FedEx?

DCRP Mailing Experiment

Regular mailings to the entire population of jail jurisdictions and state DOCs provided the DCRP team with insight into the mail delivery environment for the study. Other research has shown that the use of Priority Mail did not improve response rates across two mailing cohorts (Messer & Dillman, 2011). Given the lack of clear guidance from the extant literature and seeing a need and an opportunity for an experiment, RTI and BJS determined to test which mailing method would work best for the DCRP respondents.

The DCRP Data Collection Protocol

The routine data collection protocol for DCRP involves several mailings and prompts to each agency throughout and following the reference year period. The DCRP protocol implemented for 2010 data collection involved a multimode design, involving original and replacement mailings, various reminders or nonresponse prompts, and an extensive data quality follow-up effort. **Exhibit 1** provides an overview of that protocol. **Exhibit 2** details the data collection schedule starting with the mailing of the 2010 Annual Summary Forms through data collection close-out.

Genesis of the DCRP Mailing Experiment

The initial DCRP protocol (2009) involved sending all correspondence to agencies, other than simple reminders or prompts, via FedEx.³ The draw of using FedEx for these mailings was the prominence of the packaging and the ability to track shipments, both of which were believed to facilitate data collection overall. This approach seemed especially appropriate given the experience on two of RTI’s prominent establishment/employee data collections.

³ For the 2000–2008 DCRP collections, forms were mailed in a U.S. Department of Justice envelope.

Exhibit 1. 2010 Data Collection Protocol

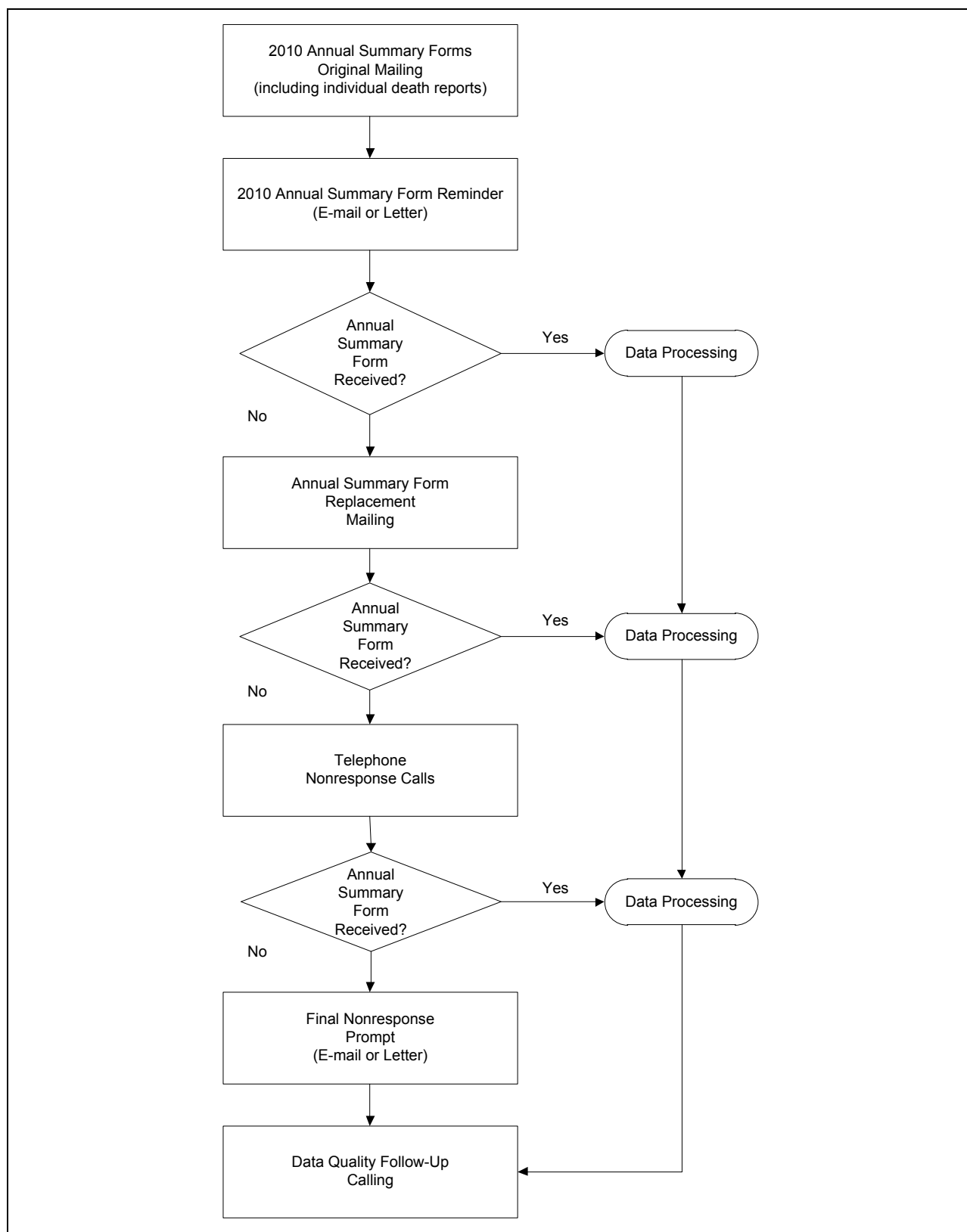


Exhibit 2. 2010 Data Collection Schedule

Data Collection Activity	Approximate Date
2010 Annual Summary Forms –Sent by FedEx, USPS Priority, and USPS First Class	Week of January 20, 2011
First Reminder by E-mail/Letter	February 28, 2011
Verification Calls to Agencies	March–April 2011
2010 Nonresponse Prompt by E-mail/Letter	February 2011
2010 Replacement Forms Mailing	May 24, 2011
2010 Telephone Nonresponse Calls	August–September 2011
2010 Final Nonresponse E-mail/Letter Prompt	September 2011
2010 Data Quality Follow-up Calls	August–October 2011

Specifically, in Year 1 of the National Inmate Survey (NIS), funded by BJS, project staff found that the letters sent to busy law enforcement heads and facility administrators through USPS were often lost or quickly forgotten. Thus, a substantial amount of staff time was dedicated to resending letters via the postal service, fax, or e-mail. Once NIS staff began to use FedEx to deliver letters, the initial costs of sending the letters overnight were quickly offset by the increased attention the letters received upon delivery, resulting in reduced staff time. Additionally, the use of express mail (FedEx) proved to be a highly effective strategy for the National Sample Survey of Registered Nurses (NSSRN) 2000. This strategy increased the response rate nearly three-fold between the 1996 survey and the 2000 survey, thus reducing the number of cases that required costly telephone follow-up (<http://datawarehouse.hrsa.gov/nssrn.aspx>).

Once the mailings were delivered, RTI received several telephone calls from respondents questioning the use of what was perceived as an expensive delivery carrier. Respondents were informed that the mailing was done under a less expensive, negotiated rate RTI has with FedEx that was lower than the typical package costs. This notwithstanding, the perception of wasteful spending, particularly when state and county budgets were tight because of the recession, was difficult to ameliorate.

There was some truth to the respondents' concerns. Although the average cost to ship each package was \$7.00—in line with the project budget and, again, anticipated to “pay for itself” through lessened nonresponse follow-up—RTI experienced a changing landscape with FedEx variable or supplemental charges. There were also additional costs associated with some FedEx packages, such as ones that had to be resent because of address changes, were deemed nondeliverable, were rejected by the recipient, or were sent to Alaska and Hawaii. These added surcharges ranged from \$10 to \$20 per package. With a sample of more than 3,000 agencies, agency address changes or delivery refusals were an unavoidable occurrence, even if limited only to instances when the agency point of contact leaves or changes positions. Finally, FedEx has character limits on its packaging labels. For a study like DCRP, where agency names or destination fields can be lengthy, this required a detailed review to truncate longer than acceptable fields. Ultimately, this resulted in additional unexpected costs. These extra costs reinforced the decision to reevaluate FedEx as the primary mailing method.

As a result of these findings, respondent feedback, and a desire to contribute to the methods literature concerning establishment mailing methods, the DCRP team decided to test a hypothesis that other, less expensive forms of mailing may be used without jeopardizing DCRP response rates.

Mailing Experiment Methodology

In consultation with BJS, RTI embedded an experiment into the routine mailout process for 2010 Annual Summary Forms, the mailing of which occurred in January 2011. This involved mailing all routine forms to all agencies, but varying the mail carrier. The goal was to determine whether there were timing and rate of response benefits associated with different mailing options. In addition, the experiment would analyze cumulative costs associated with the number of nonresponse prompting mailings (i.e., whether additional mailings offset any savings associated with a lower cost mailing method). This would allow for a scientific analysis of these mailing options and, hopefully, confirm the hypothesis that less expensive shipping methods are equally suitable for DCRP.

The following procedures were employed for the mailing experiment. First, because of the critical nature of their participation and data, the 50 state DOCs, the largest 150 jail jurisdictions, and an additional 28 “special case” general jail jurisdictions were excluded from the experiment (i.e., randomization and analysis, such that they would continue to receive materials via FedEx). This exclusion was in an effort to not unpredictably affect the success of the surrounding and ongoing data collection. Of the 2,717 remaining agencies, RTI randomly assigned the sample to one of three mailing method cohorts: FedEx, USPS Priority Mail, or USPS First Class Mail. Because the default data collection protocol utilized FedEx, the vast majority of agencies eligible for the experiment (1,717) were randomly assigned to a control group, or Cohort 1. The remaining 1,000 agencies were randomly assigned to one of two treatment groups—Cohorts 2 or 3 (500 each) (see *Exhibit 3*). For mailings scheduled to occur later in the data collection protocol, agency cohort affiliation was noted and the appropriate mailing method (i.e., FedEx, USPS Priority Mail, or USPS First Class Mail) was applied to maintain the integrity of the experiment.

Exhibit 3. Experimental Cohorts

Cohort	Mode of Mailing	Sample Size
1	FedEx	1,717
2	USPS Priority Mail	500
3	USPS First Class Mail	500
Total		2,717

The randomization procedure controlled for 2009 response status, ensuring that approximately the same proportion of nonrespondents were assigned to each of the three cohorts. The randomization also controlled for the speed with which a jurisdiction responded in 2009 to ensure a good mix of prompt versus slower responders in each cohort. Subsequent to randomization, several jurisdictions were later deemed ineligible for analysis because they merged with another jurisdiction for DCRP reporting or because they responded to the 2009 collection prior to receiving the experimental mailing. A comparison of the randomized and subsequently analyzed cohorts, including sizes and count/percentage of 2009 nonrespondents, is provided in *Exhibit 4*.

Exhibit 4. Comparison of Randomized and Analyzed Cohorts

Cohort	Mode of Mailing	Randomized			Analyzed		
		Total	2009 Nonrespondents	Percent	Total	2009 Nonrespondents	Percent
1	Fed Ex	1,717	91	5.3	1,672	91	5.4
2	USPS Priority Mail	500	27	5.4	488	27	5.5
3	USPS First Class	500	26	5.2	484	26	5.4
Total		2,717	144	5.3	2,644	144	5.4

Other details concerning the experiment related to package size and mailing dates. In particular, and regarding Cohort 3, the First Class Mail envelope used was a 9” x 12” white Tyvek® envelope, specially designed for DCRP. In addition to the standard RTI return address in the top left corner, and the recipient’s affixed mailing address in the center, a study identifier (“Deaths in Custody Reporting Program [DCRP]”) was printed in the bottom left quadrant of the mailing envelope. To ensure comparability with the other two cohorts, the same study identifier was added in sticker format to the FedEx and USPS Priority envelopes. Additionally, considering the varying delivery times associated with each mailing method, RTI attempted to obviate potential systematic differences in response time by staggering the mailing date of each cohort’s packages. Therefore, Cohort 3 (USPS First Class) was mailed a few days before Cohort 2 (USPS Priority Mail), followed by Cohort 1 (FedEx) in an attempt to ensure that agencies received their forms on approximately the same day.

Results

Analysis of the 2,644 eligible cases was conducted to answer research questions classified into two groups: (1) those primarily relevant to DCRP, and (2) those intended to generalize to establishment survey research at large.

The questions primarily relevant to the DCRP were:

- 1a. While maintaining the rest of the protocol, can the data collection forms mailing method be changed without jeopardizing response rates?
- 1b. Which mailing method is the most cost-effective over the course of the entire protocol?

The questions intended to be generalized to establishment surveys were, ~~“Prior to the first nonresponse prompt (the period most transferrable to other establishment data collections)…”~~

- 2a. Do response rates vary by mailing cohort?
- 2b. Do response rates vary among prior-round (2009) nonrespondents by mailing cohort?
- 2c. Does the speed with which we receive a response differ by mailing cohort, and what role does mode of response play?

Questions Relevant Primarily to the DCRP

Focusing on question 1a, **Exhibit 5** displays the response rate by mailing cohort over time for the period from initial mailing to the end of nonresponse follow-up. Delineated on the graph are the points in time when jurisdictions were contacted per the overarching data collection protocol—an e-mail prompt 34 days after initial mailing, a frame verification call approximately 30 days after the e-mail prompt, a replacement mailing of data collection materials 56 days after the verification call, and nonresponse follow-up calls beginning 92 days after the second forms mailing. The frame verification call was primarily intended to gather information relevant to the next year’s (2011) DCRP data collection, but RTI took advantage of the contact to either thank the respondent for his or her 2010 response or remind him or her of the request for 2010 data. Of note in **Exhibit 4** is the generally parallel track that the individual mailing cohorts follow, with FedEx and Priority Mail merging together relatively quickly. First Class Mail seemed to follow the same trajectory, but at a slightly lower response rate. The three cohorts all merge to the mid-90% range at the end of the data collection period: 97.0% for FedEx, 96.3% for USPS Priority Mail, and 95.5% for USPS First Class Mail. Although not identical, the differences among these response rates are not statistically significant ($\chi^2 = 2.9$, $p = 0.23$, 2 degrees of freedom [df]).

Focusing on question 1b, the cost of conducting data collection, it is important to compare the cost of applying each method to the entire DCRP universe of 2,954 entities. To do so, RTI calculated a cost per case for each mailing method that included both postage and the labor involved in preparing the mailing. RTI assumed that the cost per case for each cohort was a reasonable estimate of what the cost per case would be if a particular method would be deployed into full-scale production. Costs were calculated based on typical rates for survey support staff that have been used to deploy DCRP forms mailings in the past.

In addition to the cost per case for mailing, there are also costs associated with sending the e-mail prompt, making the verification calls, and conducting the nonresponse follow-up. The cost of sending an e-mail prompt does not vary based on the number of e-mails being sent; the only significant expense is in developing the actual message. As such, the cost of the e-mail prompt does not vary between the cohorts and was not considered in this comparison. Likewise, the verification call must be done for all entities in the DCRP universe, so there is no verification call differential based on mailing method to include in the comparison. Nonresponse follow-up costs *do* differ between the mailing cohorts because the response rates (and hence the number of nonrespondents to be contacted) may be different when the calls commence. An estimate of the labor required to make a nonresponse call and a typical hourly rate for the individuals making the calls were used to construct the dollar amount included in the comparison.

Exhibit 5. Response Rate by Mailing Cohort, With Indicators of Prompting Contact

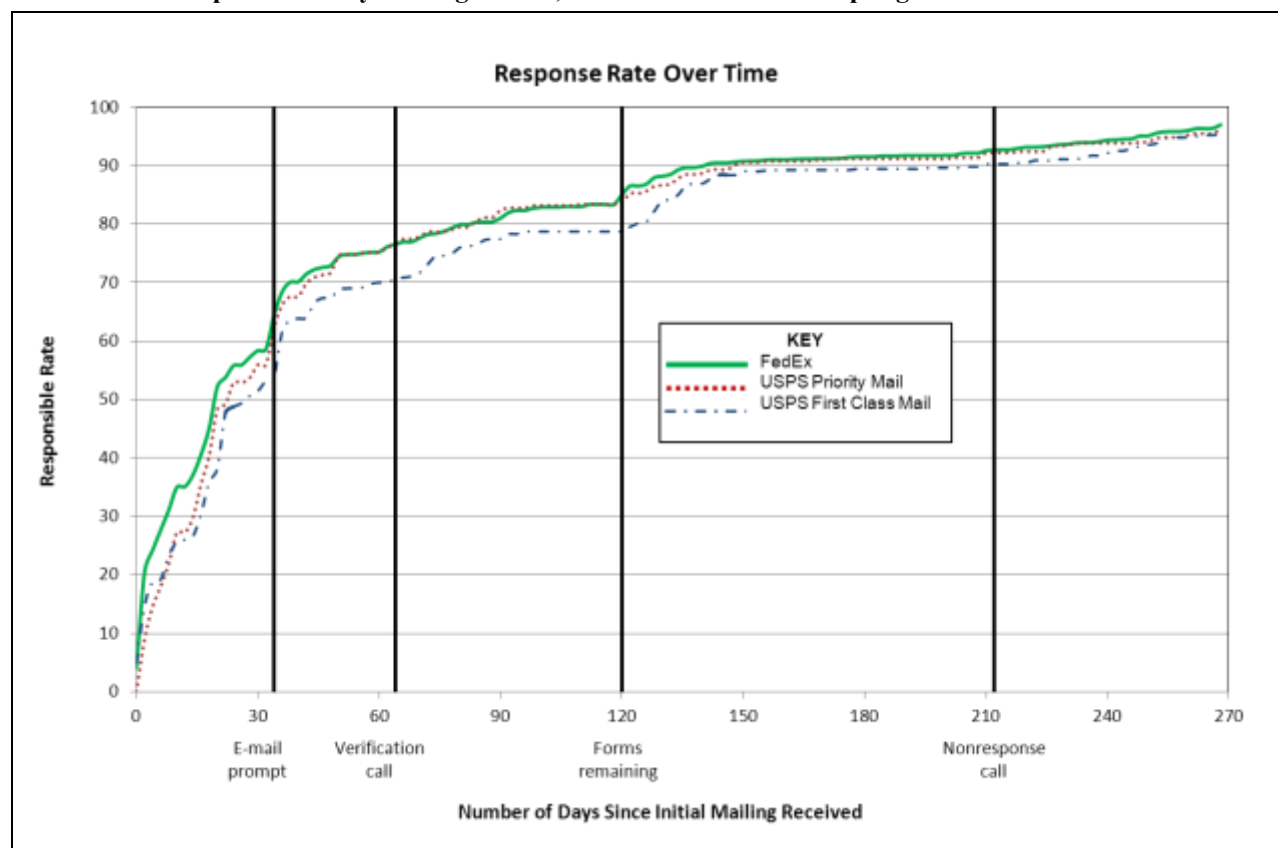


Exhibit 6 contains the cumulative response rate by mailing cohort at each of the data collection contact points. These rates are the basis for the estimates in **Exhibit 7**, which shows the projected number of nonrespondents remaining at each of the data collection contact points for the entire DCRP universe, by mailing cohort. That is, if each mailing method was applied to the total DCRP universe, these are the counts of nonrespondents that the results of the experiment would predict at each data collection contact point. These predictions were used to calculate the estimated total comparison cost for each of the mailing methods. The e-mail prompt and verification call counts were not used, for the reasons mentioned above, but are included for completeness. **Exhibit 8** displays the individual component and total comparison costs for each mailing method examined. Notably, despite being less expensive than FedEx shipping rates, the labor involved in assembling the USPS Priority Mail package led to this method having the highest comparison cost—\$2,136 higher than FedEx and \$11,453 higher than USPS First Class Mail. Despite having slightly higher costs at the nonresponse follow-up stage of data collection, the USPS First Class Mail method was the least expensive, \$9,317 less than FedEx.

Exhibit 6. Cumulative Response Rates at Each Data Collection Contact Point, by Mailing Cohort

Cohort	Mailing Method	Cumulative Response Rate Prior to:			
		E mail Prompt	Verification Call	Forms Remailing	Nonresponse Follow Up
1	FedEx	64.5	76.9	83.4	91.8
2	USPS Priority Mail	62.5	77.0	83.6	91.4
3	USPS First Class	59.1	71.5	78.7	89.7
Total		63.2	75.9	82.6	91.3

Exhibit 7. Estimated Number of Nonrespondents at Each Data Collection Contact Point, by Mailing Cohort

Cohort	Mailing Method	Projected Number of Nonrespondents Remaining at the Time of:			
		E mail Prompt	Verification Call	Forms Remaining	Nonresponse Follow Up
1	FedEx	1,048	682	491	242
2	USPS Priority Mail	1,108	678	484	254
3	USPS First Class	1,208	842	629	305

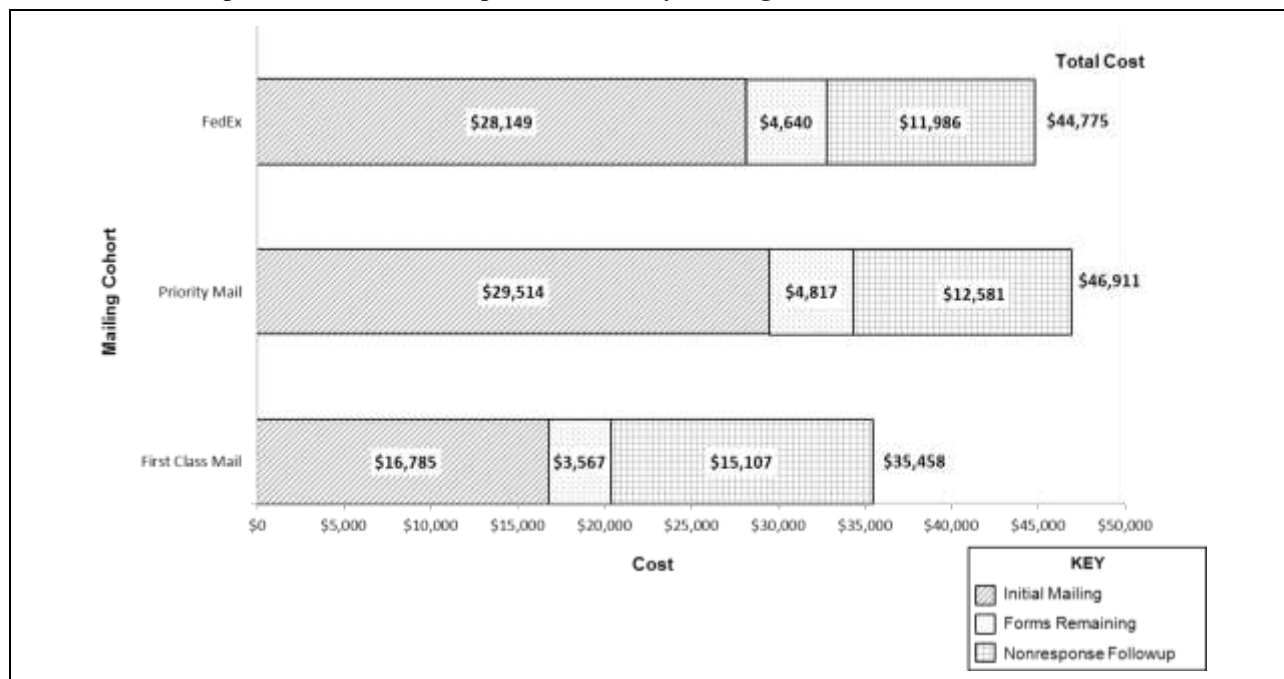
NOTE: The projected number of nonrespondents by mailing cohort assumes a total DCRP universe of 2,954. Varying rates of estimated nonresponse are calculated according to the achieved response rates shown in *Exhibit 6*.

Drawing together the results of investigating questions 1a and 1b, it seems reasonable to conclude that the USPS First Class Mail method should be applied to DCRP to minimize costs without jeopardizing response rates.

Questions Relevant To Establishment Surveys in General

The length of the DCRP data collection period is longer than that of the typical establishment survey, and contacting protocols can differ widely across survey efforts. In an attempt to account for these differences in the generalization of results from this experiment, analysis was conducted on response status prior to any contacts beyond the initial mailing (i.e., if the DCRP data collection period were shorter and, thus, more similar to other establishment surveys, how would mailing method affect response status?).

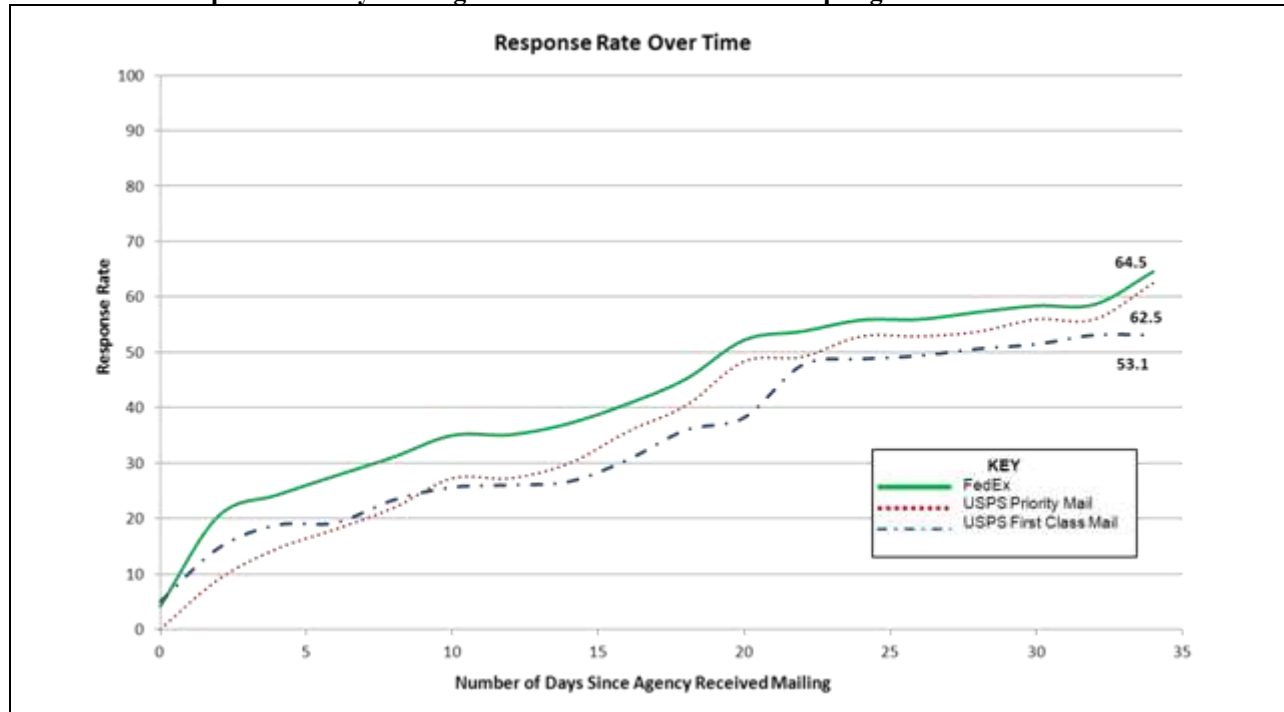
Exhibit 8. Component and Total Comparison Costs, by Mailing Cohort



Focusing on question 2a, variance of response rates by mailing method, *Exhibit 9* displays the response rate by mailing cohort over time for the period corresponding only to the initial mailing. In particular, it depicts the response rate progression since the estimated receipt date for the original mailing. Of note in *Exhibit 9* is that the response rate trajectories over time seem very similar across mailing cohorts, although the FedEx cohort consistently maintains a slightly higher response rate than the Priority or First Class cohorts. Statistically speaking, the mailing cohort effect on response rates is only marginally significant ($\chi^2 = 4.9, p = 0.09, 2 \text{ df}$). Looking at specific differences among the

cohorts, the difference between FedEx and First Class Mail is the only significant difference, with the odds of receiving a response from the First Class Mail cohort being 0.79 times those of the FedEx cohort ($\chi^2 = 4.8$, $p = 0.03$, 1 df), with a 95% confidence interval of (0.65, 0.98). Thus, it appears that use of FedEx may have some ability to motivate response that USPS First Class Mail does not have, although such a conclusion is tenuous given the initial marginal significance.

Exhibit 9. Response Rate by Mailing Cohort Prior to the First Prompting Contact



Considering question 2b, variance of response rates among prior-round (2009) nonrespondents by mailing method, RTI noted (unsurprisingly) that response rates in 2010 among 2009 nonresponders were lower than response rates among 2009 responders ($\chi^2 = 78.8$, $p < 0.01$, 1 df). This result did not vary by mailing cohort. Of more interest for this experiment, however, were potential mailing cohort differences within the 2009 nonrespondent subgroup.

Exhibit 10 displays 2010 response rates by 2009 response subgroup and by mailing cohort. FedEx again appears to have a slightly higher response rate (29.7% among 2009 nonrespondents) than Priority Mail (25.9%) and First Class Mail (26.9%). However, these difference are within the boundary of random variation ($\chi^2 = 0.2$, $p = 0.91$, 2 df), so RTI cannot conclude that a mailing effect exists. Thus, RTI concluded that mailing method does not impact the propensity of a nonrespondent to respond in the following year of a longitudinal or recurring establishment survey.

Looking to the speed with which RTI received a response to our initial mailing (question 2c), we noted that among those cases that provided data, the mean number of days that passed before data were provided (response time) *did* vary by mailing cohort, with USPS Priority Mail and USPS First Class Mail both differing from FedEx, but not differing from one another. It is worth noting that the response time was calculated from the estimated date of receipt, not the date of mailing. This means that observed differences in response time by mailing cohort controlled for differing speeds with which the mailing methods made delivery. Mean response time for the FedEx cohort was 2.5 days faster than Priority Mail ($t = 3.59$, $p < .01$, 1,667 df) and was 2.4 days faster than First Class Mail ($t = 3.37$, $p < .01$, 1,667 df).

Exhibit 10. Response Rate by 2009 Response Status Subgroup and Mailing Cohort

Cohort	Mailing Method	2009 Nonrespondents			2009 Respondents		
		Subgroup Size	Respondents	Rate	Subgroup Size	Respondents	Rate
1	FedEx	91	27	29.7	1,581	1,052	66.5
2	Priority Mail	27	7	25.9	461	298	64.6
3	First Class Mail	26	7	26.9	458	279	60.9
Total		144	41	28.5	2,500	1,629	65.2

In addition to the mailing cohort effect on response time noted above, RTI also hypothesized that response time could vary with use of the web response mode. Investigating mode (Web only, Mixed [with web], No web) usage among the mailing cohorts showed that mode of response was not independent of mailing cohort ($\chi^2 = 16.8$, $p < .01$, 4 df).

As a result of the significance between mailing cohort and mode, a regression analysis was conducted on response time to allow the inclusion of a mailing cohort by mode interaction. Similar to the initial analysis above, the model indicated that response time varied significantly by mailing cohort ($F = 3.6$; $p = .03$; 2 numerator df; 1,661 denominator df). RTI also found a significant difference in response times by mode of response ($F = 73.1$; $p < .01$; 2 numerator df; 1,661 denominator df). Despite the significant relationship between mailing cohort and mode of response, the interaction term in the model was not significant ($F = 1.3$; $p = .28$; 4 numerator df; 1,661 denominator df). In the absence of a significant interaction between mode of response and mailing cohort, a final model was specified without the interaction term to draw conclusions about response time differences by mailing cohort and mode of response.

Operating under the final, no interaction model, pairwise comparisons of mean response time were conducted for the mailing cohorts and for the mode categories to pinpoint the differences and estimate the effect that these two characteristics had on response time. The model estimated mean response times, accounting for the other terms in the model, were compared. *Exhibit 11* displays the estimated mean response times, differences, and associated significance tests. Looking first to mailing cohort, FedEx had a faster response time than both USPS Priority Mail (by 2.0 days) and USPS First Class Mail (by 1.6 days). Regarding mode of response, those responding only via the Web exhibited response times 8.2 days faster than those not using the Web at all—and 5.5 days faster than those who used a mixed mode of response including the Web. The group not using the Web at all responded 2.7 days slower, on average, than the mixed-mode group. Because the interaction term was not significant, the mailing cohort effect appears to be constant across the modes of response, and vice versa. For example, a FedEx respondent is expected to respond 2 days faster than a Priority Mail respondent, on average, regardless of the mode of response.

Given the magnitude of the difference in response times by mode, it is clear that every effort should be made to promote Web response, regardless of mailing method used to solicit information.

Discussion and Conclusions

Although prior research has well addressed the topic of altering mailing methods within a data collection and tested alternatives of those latter-stage methods, this study contributes to a topic with less representation in the survey literature—that of initial mailing methods among establishments and their effect on total survey cost, time of response, and mode of response. Although it is important to note that this experiment involved a topic known to most of the contacted agencies and one done on an annual basis, there are nonetheless some very important findings. First, the overall results show that at the end of the data collection period, the response rates across the two treatment mailing cohorts (i.e., USPS Priority Mail and USPS First Class Mail) and the control group cohort (i.e., FedEx) do not vary statistically from one another. Thus, use of a more traditional mailing method (e.g., USPS First Class Mail) in a study similar to DCRP may be entertained without compromise to response rates. Second, when costs over time—including the costs associated with possibly higher interim rates of nonresponse—are taken into consideration, the results from this experiment underscore that savings can be realized by using the least expensive shipping option in terms of shipping and handling rates (i.e., USPS First Class Mail). Analyzing the time it takes for

Exhibit 11. Model-Based Mean Response Times, Group Differences, and Tests of Significance for Mailing Cohort and Mode of Response

Group 1	Group 2	Group 1 Mean Response Time	Group 2 Mean Response Time	Difference (Group 2 – Group 1)	Significance
<i>Mailing Cohort</i>					
FedEx	Priority Mail	14.2	16.2	2.0	Yes: $t = 3.08$, $p < .01$, 1,665 df
FedEx	First Class Mail	14.2	15.8	1.6	Yes: $t = 2.38$, $p = .02$, 1,665 df
Priority Mail	First Class Mail	16.2	15.8	-0.4	No: $t = -0.5$, $p < .62$, 1,665 df
<i>Mode of Response</i>					
Web Only	No Web	10.8	19.0	8.2	Yes: $t = 14.51$, $p < .01$, 1,665 df
Web Only	Mixed with Web	10.8	16.4	5.5	Yes: $t = 5.48$, $p < .01$, 1,665 df
No Web	Mixed with Web	19.0	16.4	-2.7	Yes: $t = -2.49$, $p = .01$, 1,665 df

NOTE: Based on the final model of $\text{Response Time}_i = \beta_0 + \beta_1 \times \text{Mailing Cohort}_i + \beta_2 \times \text{Mode}_i + \varepsilon_i$

a respondent to submit his or her data, FedEx appears to yield the fastest response (assuming materials are received at the same point in time across mailing methods). Finally, FedEx recipients are more likely to choose to respond via the Web than other mailing methods.

However, although USPS First Class Mail does not appear to impede response rates, it should be noted that many establishment data collections do not enjoy a long duration of active data collection such as is the case for DCRP. Thus, when time is constrained and costs are not prohibitive, using overnight delivery services such as FedEx may provide some modest benefit in terms of time to response. Additional improvements in time to response appear to be linked to the use of a Web response option.

Although this study contributes to the methodological literature, there are some limitations that bear mentioning. First, the DCRP survey was established under the 2000 Deaths in Custody Reporting Act (DCRA; Public Law 106-297). Before DCRA expired in 2006, prison and jail administrators were federally mandated to report inmate mortality data to BJS. Given this mandate, it is likely that the DCRP respondents were and are accustomed to participating despite the law having expired and regardless of how they received their forms. Moreover, the DCRP data collection period⁴ is likely longer than most surveys (6 months) with regimented and recurring follow-up prompts built into the protocol. These distinctions may separate DCRP from other establishment surveys and limit the generalizeability of these findings to other surveys. Despite these limitations, this research contributes to the greater body of best survey practices and may serve as an important stepping stone to further research that evaluates differences in mailing types across different types of surveys and audiences. Finally, more research is needed to assess whether these findings may be generalized to other establishment survey populations (e.g., private sector

⁴ Specifically, the period during which an agency's Annual Summary Forms can be received, and is actively prompted for, occurs between January and June of the year following the reference period.

respondents, medical communities) and for establishment surveys that (1) are not as well recognized to the field, and (2) do not have as extensive a follow-up period.

References

- Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons.
- Dillman, D. A. (2007 updated). *Mail and Internet surveys: The tailored design method* (2nd ed.) Hoboken, NJ: John Wiley Co.
- Fowler, F. J., Jr. (1993). *Survey research methods* (2nd ed.). Newbury Park, CA: Sage Publications, Inc.
- Hagedorn, M. C., Montaquila, J., Carver, P., O'Donnell, K., Chapman, & C. (2006). National Household Education Surveys Program of 2005: Public-use data file user's manual, volume I, study overview and methodology. (NCES 2006-078). U.S. Department of Education. Washington, DC: National Center for Education Statistics. <http://nces.ed.gov/nhes/dataproducts.asp#2005dp>.
- Health Resources and Services Administration (HRSA). (no date). *Data warehouse*. Available at <http://datawarehouse.hrsa.gov/nssrn.aspx>.
- Messer, B. L., & Dillman, D. A. (2011). Surveying the general public over the internet using address-based sampling and mail contact procedures. *Public Opinion Quarterly*, 75(3), 429-457. doi: 10.1093/poq/nfr021.
- Moore, D. L., & An, L. (2001). The effect of repetitive token incentives and priority mail on response to physician surveys. In *Proceedings of the American Statistical Association. Government Section on Survey Methods*. Atlanta, GA.
- Noonan, M. E., & Carson, E. A. (2011, December). *Prison and jail deaths in custody, 2000-2009 – Statistical tables*. Bureau of Justice Statistics, Washington DC. Available at <http://bjs.ojp.usdoj.gov/content/pub/pdf/pjdc0009st.pdf>.