

Anybody Home? In-Person Recruitment in a Multimode Design on the MCBS

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Abstract

The Medicare Current Beneficiary Survey (MCBS) serves as the leading source of information on the Medicare program and its impact on beneficiaries. For nearly 30 years, the MCBS interview was conducted exclusively in person via computer-assisted personal interviewing. In response to the coronavirus (COVID-19) pandemic, data collection for the MCBS rapidly shifted from in-person to phone interviewing in March 2020. This led to a revised design incorporating both phone and in-person outreach and shifting to a multimode data collection design. In Fall 2021, the MCBS began to gradually reintroduce in-person data collection activities, starting with in-person recruitment for the purpose of non-response follow-up. This return to field activities presented an opportunity to analyze the outcomes of in-person outreach as a companion for phone recruitment for the Incoming Panel in 2021. This paper describes the protocol used and discusses the outcomes associated with in-person outreach. The analysis considers differences in final case status or contacting patterns as a result of respondent material packet drop-offs versus short in-person conversations, as well as variation by demographic and other health status subgroups. While limited in size and geographic area by the ongoing pandemic, this analysis can illuminate the challenges and implications of a novel approach to multi-mode panel recruitment for the MCBS and beyond.

Key Words: survey mode, mode analysis, in-person recruitment, telephone recruitment, gaining cooperation, COVID-19

1. Introduction

The emergence of the COVID-19 pandemic in 2020 led many large survey operations to rapidly transition away from in-person data collection, including the Medicare Current Beneficiary (MCBS), which transitioned to phone-only interviewing in March 2020. This mode change was essential to ensure the health and safety of respondents and field interviewers. With the easing of pandemic-related restrictions in Fall 2021, field interviewers conducted gaining cooperation outreach with selected beneficiaries. This paper will examine this hybrid mode approach featuring initial in-person contacting coupled with phone interviewing. We will assess how a multi-mode recruitment approach affects final outcomes, such as the likelihood of interview completion or final refusal to participate. Propensity Score Matching (PSM) will be used in this non-experimental setting to reduce the bias of confounding factors to assess the impact of in-person outreach on interview completion. Finally, we will examine the impact of outreach for several demographic subgroups, such as Hispanicity and gender. These findings may be used to inform and enhance a multi-mode data collection strategy.

2. Background

2.1 Introduction to the MCBS

The MCBS is a continuous, multi-purpose longitudinal survey of a nationally representative sample of the Medicare population. It is sponsored by the Office of

Enterprise Data and Analytics (OEDA) of the Centers for Medicare & Medicaid Services (CMS) and is conducted through a contract with NORC at the University of Chicago and serves as the leading source of information on the Medicare program and its impact on beneficiaries. The MCBS uses a round-based rotating panel design to collect data for beneficiaries at three points (e.g., rounds) per year (referred to as winter, summer, and fall) over four years for beneficiaries living both in community and facility settings.

Each fall, a new panel (Incoming Panel) is added to the survey from a list sample drawn from the Medicare Enrollment Database (EDB). Recruitment of this new sample is essential to refresh the survey each year. This paper focuses on recruitment strategies for the Incoming Panel sample who resided in the Community in Fall 2021.

2.2 MCBS Mode Transition Details

Since 1991, the MCBS has typically been conducted in person by interviewers. In-person data collection was paused in March of 2020 due to the COVID-19 pandemic. Interviewing resumed via phone following a short pilot testing period with a new contacting protocol. Phone data collection continued through the end of 2020 and into 2021. Prior to the global pandemic, efforts to locate and gain cooperation and for the Incoming Panel were conducted in person. The list sample drawn from the EDB includes beneficiary addresses but no phone numbers. To facilitate Incoming Panel outreach by phone beginning in 2020, vendors provided phone numbers for sampled beneficiaries using address and characteristics from the MSBF sampling frame. Data collection by phone is associated with lower costs but also lower response rates (Davern et. al., 2010). Even prior to the pandemic, declining response rates across survey modes were well documented (Stedman et. al., 2019, Davern et. al., 2010). The pandemic challenge became maintaining in person response rates while handling the required shift in mode. Over two years later, the on-going pandemic and rising costs of data collection have exacerbated the difficulties of in-person interviewing (Burton et. al., 2020).

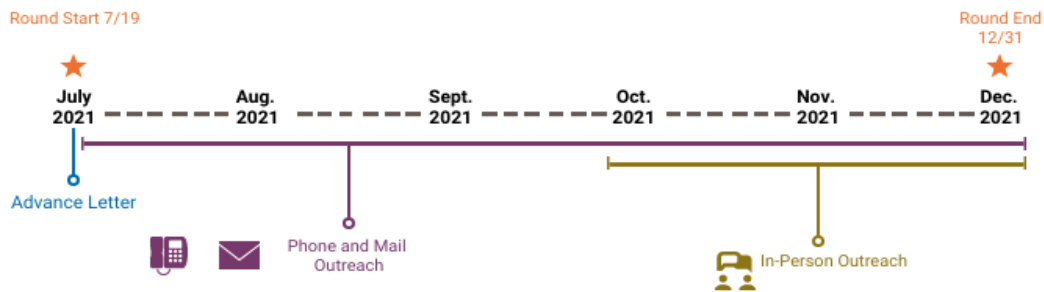
In an effort to boost response, once pandemic restrictions eased, we reintroduced in-person outreach in October 2021 with short, at-the-door, gaining cooperation visits to previously unresponsive Incoming Panel beneficiaries. Due to constraints on the proximity and duration of in-person contact, no in-person interviewing was included. In-person gaining cooperation visit attempts took three forms: (1) in-person conversations, (2) packet drop-offs, and (3) address confirmation locating. Visit types were not assigned in advance but rather determined by field interviewers found during outreach. In-person conversations included short discussions in which the field interviewer attempted to gain cooperation with the beneficiary or a household member. Packet drop-offs occurred if no one in the household was home when no conversation could occur and field interviewers left a bag of outreach materials, including a brochure and advance letter, at the door. In a limited number of cases, the in-person visit resulted in the field interviewer deducing the address provided for the beneficiary was not correct and additional locating would be needed to reach the beneficiary. This analysis aims to assess the final fielding outcome, such as a completed interview or a final refusal, by visit type to determine the efficiency and impact of these fielding activities.

2.3 Study Design

The Incoming Panel sample included in this analysis were sampled cases who had been previously unresponsive to other modes of contact including repeated phone calls and mailings. Our aim was to improve cooperation, set appointments, and ultimately complete interviews with these beneficiaries. These in-person efforts began in week thirteen of the

26-week data collection period, as shown in Figure 1, after advance letter mailings and additional phone and mail outreach. Restrictions related to the pandemic prevented the implementation of a full field test or experimental design. Field interviewer participation and beneficiary selection was neither mandatory nor randomly assigned. Field interviewers self-selected into participation for this recruitment process, as not all were able or willing to return to in-person work. In addition, field interviewers chose selected beneficiaries to visit, prioritizing those who had not been responsive to phone or mail outreach and were located within a 50-mile radius of their homes to limit the amount of travel conducted.

Figure 1: Fall 2021 timeline of data collection outreach



This treatment assignment makes it more difficult to evaluate the effects of in-person outreach, as the self selection of interviewers and sample respondents may introduce bias, but the use of appropriate statistical methods can help to mitigate this bias and provide evidence that can support future efforts to integrate a multi-mode recruitment approach.

2.4 Research Questions

We are interested in the impact of in-person outreach when the primary mode of data collection is by phone. Specifically, 1) how are final outcomes, including interview completion, final refusal, and final other, affected by the type of in-person outreach? 2) what is the effect of in-person outreach on the likelihood of interview completion? and 3) are certain in-person visit outcomes more effective for certain demographic groups? These findings will further inform a data-driven approach integrated into a sophisticated multi-mode data collection design.

3. Methods

3.1 Data Sources

This analysis uses paradata from the MCBS data collection case management system and sample frame demographic data for the 2021 Incoming Panel sample. These sample frame characteristics are from the Medicare Enrollment Database, which contains information related to demographics and Medicare entitlement/enrollment for all Medicare beneficiaries. Case management data includes paradata such as the number and outcome of contact attempts, prior refusals, and proximity to field interviewer location. Demographic data includes beneficiary age category, race, Hispanicity, Medicare current-year enrollee status, and sex. The two primary measures for analysis are in-person visit type, derived from key words in record of call comments, and final outcomes, derived from final dispositions assigned in the case management system. Interviewers record the details of each outreach attempt in a record of call, which is saved in the case management system.

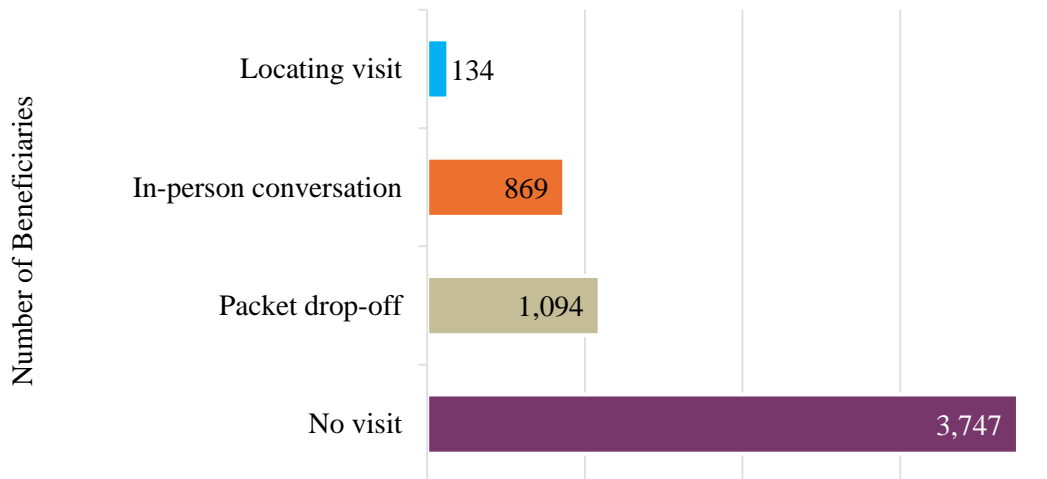
This analysis is unweighted, as our focus is methodological, rather than making inferences regarding the Medicare population.

3.2 Analytic Design

Rather than being randomly assigned to receive in-person outreach or not, field interviewers were allowed to select beneficiaries to receive some sort of in-person outreach. In some cases, interviewers may have selected “promising” beneficiaries to receive in-person outreach, thus favoring more cooperative respondents. In the absence of a true experiment with random assignment of in-person outreach, intrinsic bias does exist. However, measures described below were taken to control for non-random selection even in the absence of an experimental design.

Of the 15,654 beneficiaries in the initial sample, 5,844 beneficiaries were eligible for in-person outreach beginning in week thirteen. This eligible group also limited to those who had not completed at interview at the start of the in-person outreach period. To ensure the correct comparison group for those without in-person recruitment, we also limited to beneficiaries with viable phone numbers. If there was no viable phone number for a beneficiary, they are excluded from the analysis, as outreach by phone was not feasible, and thus they are not comparable in terms of outreach strategy. This created a baseline dataset where all members had the potential to complete the interview by phone but had not done so by the start of in-person outreach. Figure 2 below illustrates this breakdown.

Figure 2: Analytic universe by outreach treatment, Fall 2021 Medicare Current Beneficiary Survey (MCBS)



Comparing Outcomes using Descriptive Statistics

The first research question explores how in-person gaining cooperation visits impact final outcomes. T-tests were used to compare differences, and their significance, across groups. Similar methods were used for the third research question, which explored whether certain types of in-person visits were more efficient for certain demographic groups.

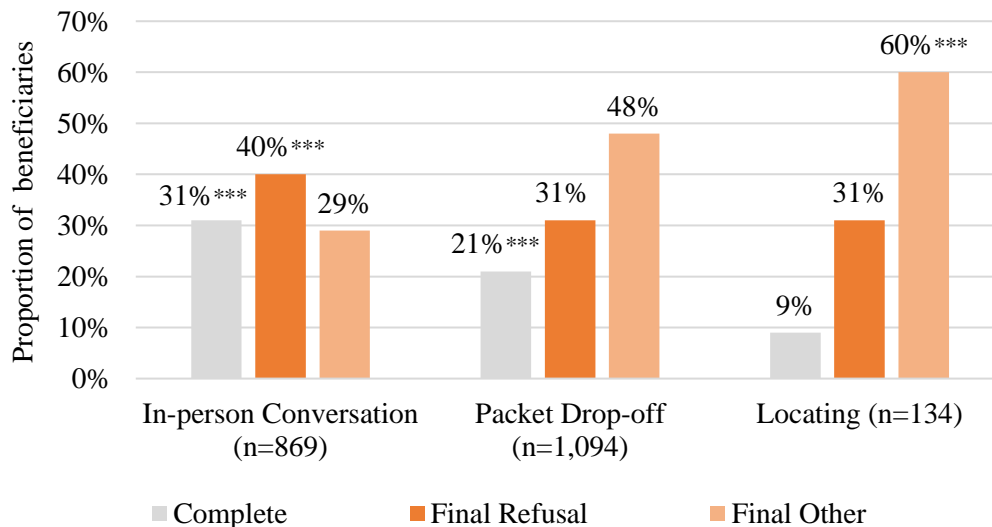
Controlling for Non-Random Selection Using Propensity Score Matching (PSM)

The second research question explores the effect of in-person outreach on the likelihood of interview completion. To control for the non-random selection of beneficiaries and field interviewers into in-person recruitment, we used propensity score matching. Using propensity score matching (PSM) enables us to calculate a likelihood or propensity of receiving in-person treatment for each eligible beneficiary, as a function of their covariates. Those with similar propensity values are matched to create pairs of those treated (received in-person outreach) and untreated (did not receive in-person outreach), who are otherwise similar on important variables that are related to receiving in-person outreach.

4. Outcomes by In-Person Outreach Type

The first research question asks whether the type of outreach conducted impacts the final data collection outcome, and in particular, whether in-person visits improve rates of interview completion. As noted above, three types of outreach were conducted: in-person conversation, packet drop-off, and locating. Significant differences were found when comparing outcomes across the three in-person visit types. Analysis was grouped by in-person visit type and by final outcomes. Final outcomes include: complete (completed interviews), final refusal (beneficiaries, or their family and friends on their behalf, firmly refusing to participate), and final other (capturing remaining dispositions). The final other outcome includes a small number of unlocatable beneficiaries, as well as dispositions suggesting additional outreach was needed if there was more time in the data collection round. This includes disposition categories such as not home, no answer, come back, soft refusal, and inaccessible/gated housing unit. Figure 3 summarizes the differences found across visit types and outcomes. These trends hold when controlling for Hispanicity, sex, and age category.

Figure 3: Outcomes by in-person visit type, Fall 2021 Medicare Current Beneficiary Survey (MCBS)



* p<0.05, ** p<0.01, ***p<0.001.

In-person conversations were most likely to be associated with a completed interview, with 31% of conversations leading to a completed interview ($p < 0.0001$) as compared to the other two visit types (21% for packet drop-offs and 9% for locating visits). Packet drop-

off visits, where the field interviewer left materials for the beneficiary at the door, were relatively effective when looking at interview completion rates. Beneficiaries receiving a packet drop-off were significantly more likely to complete the interview ($p < 0.001$) as compared to locating visits (21% vs. 9%). This visit type was the most common, with just over 1,000 in-person visits resulting in a packet drop-off. These findings suggest leaving materials is an effective alternative to in-person conversations for improving final outcomes and participation when a conversation is not possible. Locating visits, meaning the field interviewer determined additional locating was needed after attempting in-person outreach, were the least likely visit type to be associated with a completed interview as compared to the other two visit types.

Beneficiaries receiving an in-person conversation were significantly more likely to end as a final refusal ($p < 0.0001$) as compared to packet drop-off or locating visits (40% vs. 31%). While in-person conversations result in high levels of refusals, this is still a beneficial outcome as it improves efficiency, allowing field interviewers to focus on more productive outreach. The alternative is continued, unsuccessful field interviewer contact attempts, taking time and resources without beneficial outcomes.

Locating visits were the significantly more likely to be associated with a final other outcome ($p < 0.0001$) as compared to the other visit types. The final other outcome tends to occur when the case could have continued to be worked if there was enough time in the data collection round to do so. As locating visit types tend to result in additional work needed, this aligns with the nature of this outcome. This visit type is still useful for efficient and accurate data collection, however, as it uncovers beneficiaries who likely did not receive prior mailings.

5. Likelihood of Case Completion

As noted above, PSM can be used to help control for non-random differences in the cases selected for in-person outreach and more precisely estimate the impact of in-person outreach. We first consider the demographic differences of those who did and did not receive in-person outreach. The individuals within this starting dataset were observably different on key characteristics related to the likelihood of receiving in-person outreach, as seen in Figure 4I. These differences were significant but all within five percentage points. We control for these differences using PSM to create matched pairs. Using this procedure weakens most, but not all, of the significant differences that have been observed, as shown in the last two columns of Figure 4. Using these matched pairs, we generate a more valid estimate of the effect of in-person outreach on completion rate.

Figure 4. Initial balance assessment of variables included in propensity score model, Fall 2021 Medicare Current Beneficiary Survey (MCBS)

	No In-Person Outreach	In-Person Outreach	Difference	Significance before PSM	Significance after PSM
Percent Hispanic	9.5%	13.2%	-3.69%	***	
Percent Current-Year Enrollees	3.2%	3.6%	-0.45%		
Percent < 65 years old	16.0%	19.0%	-3.04%	**	
Percent White, non-Hispanic	73.2%	69.5%	3.62%	**	

	No In-Person Outreach	In-Person Outreach	Difference	Significance before PSM	Significance after PSM
Percent Male	44.9%	43.4%	1.47%		
Ever Refused by start of Outreach Period	43.4%	23.9%			
Avg. Number of Contact Attempts	12.3	18.1	(5.80)	***	***
Avg. Distance from field interviewer (in miles)	32.5	18.6	13.88	***	

* p<0.05, ** p<0.01, ***p<0.001.

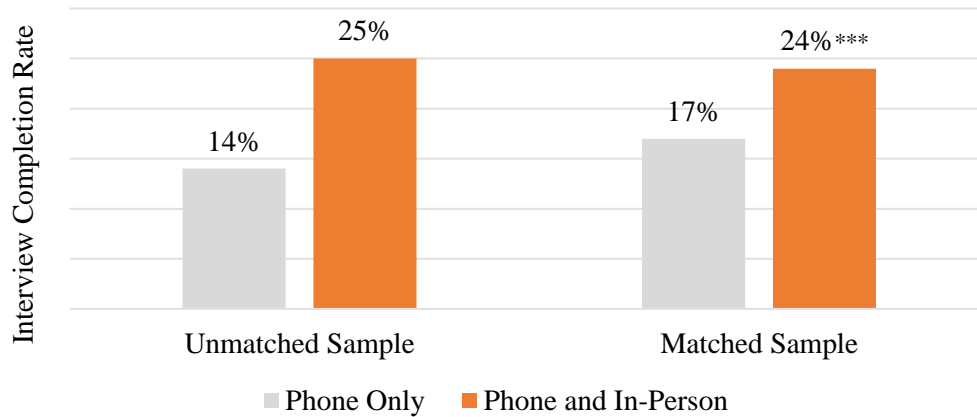
We further limited the analytical dataset to 4,989 beneficiaries located within fifty miles of a field interviewer, to account for operational guidance. Within this dataset, 3,030 beneficiaries received no in-person outreach (“untreated”), and 1,959 received in-person outreach (“treated”). This dataset now reflected a pool of beneficiaries where all beneficiaries were eligible to receive in-person outreach based on fielding characteristics and field interviewer guidance.

To tease out the effect of in-person outreach on the likelihood of completion, we calculated a propensity score that reflects the likelihood of receiving in-person treatment based on demographic characteristics and case management data prior to the start of in-person recruitment efforts. Beneficiaries who received in-person outreach are matched on these characteristics with those without an in-person outreach visit, resulting in matched pairs. These pairs are alike on this propensity score and can thus be compared more easily.

After matching, no significant differences remained in terms of demographics, field interviewer distance, and ever having had a refusal by the start of in-person outreach, as shown in Figure 4 above. We note that there is still a significant difference in the number of contact attempts before the start of in-person outreach, with the cases that received in-person outreach having one more contact attempt prior to the start of in-person outreach, on average, relative to the cases that did not receive in-person outreach. While significant, this difference is materially small, but also supports the idea that field interviewers were likely to extend in-person outreach efforts to beneficiaries with whom they had perhaps had more contact attempts by the start of the in-person outreach period.

Without controlling for the non-random assignment, we see in Figure 5 below that in-person outreach was associated with an 11-percentage point increase in completion rate over cases with phone outreach only in the unmatched sample. Controlling for the non-random assignment, the estimated the effect of in-person outreach on the likelihood of interview completion to is approximately 6.9 percentage points, with a 95% confidence interval of 4.3 to 9.5 percentage points. This difference between the completion rates for the cases that received and did not receive in-person outreach is significant at the p<.0001 level. Even when controlling for the non-random assignment, we see that the in-person outreach had a significant impact on completion rate. This suggests that the inclusion of in-person outreach with a primarily phone-only approach is beneficial in this population.

Figure 5: Propensity score matching derived completion rates by outreach type, Fall 2021 Medicare Current Beneficiary Survey (MCBS)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

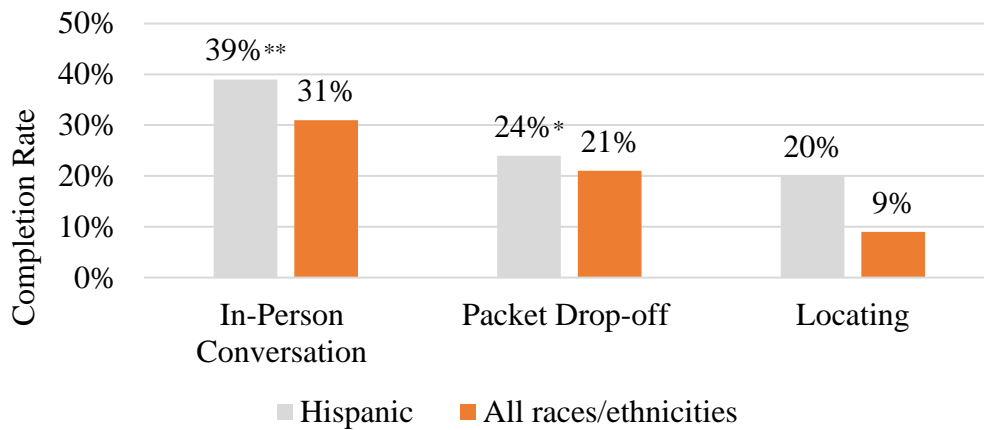
6. Visit Types Efficacy by Demographic Group

The third research question, which applies to the data that have not undergone propensity score matching, explored whether certain in-person visit outcomes may be more effective for certain demographic groups. To further understand the impact of in-person outreach, we analyzed final outcomes by key demographic characteristics, including race, Hispanicity, sex, and age category. Outcomes by race were not significant at $p < 0.01$. All significant findings are detailed below.

6.1 Hispanic Beneficiaries

Hispanic beneficiaries responded more positively to the in-person conversation than the population as a whole, with higher rates of interview completion ($p < 0.01$; see Figure 6) than all ethnicities. Among beneficiaries who received packet drop-offs, Hispanic beneficiaries were significantly more likely to complete interviews than the population as a whole ($p < 0.05$) as compared to all ethnicities. As case selection was not random, this may be the result of field interviewers selecting Hispanic beneficiaries for in-person outreach who they thought would be most cooperative.

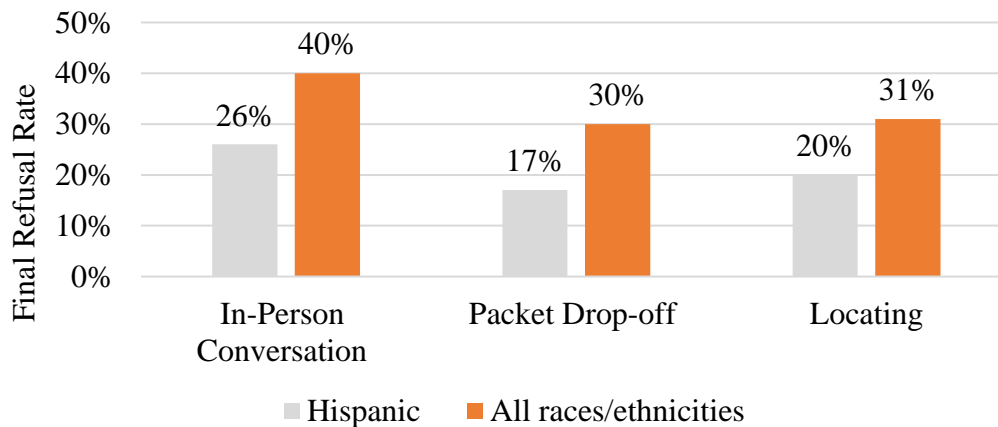
Figure 6: Comparing completion rate by visit type for Hispanic beneficiaries, Fall 2021 Medicare Current Beneficiary Survey (MCBS)



* p<0.05, ** p<0.01, ***p<0.001.

When looking at final refusal rates, Hispanic beneficiaries who received in-person outreach were less likely to end as final refusal when compared to all races and ethnicities combined. This is shown below in Figure 7. These differences are not significant, which may be due to sample size limitations, but further point to the benefits of in-person outreach for this subgroup.

Figure 7: Comparing refusal rate by visit type for Hispanic beneficiaries, Fall 2021 Medicare Current Beneficiary Survey (MCBS)



* p<0.05, ** p<0.01, ***p<0.001.

6.2 Male Beneficiaries

Final case outcomes by visit type and sex show male beneficiaries were significantly more likely than female beneficiaries to complete the interview after an in-person conversation ($p < 0.0001$) and significantly less likely to complete the interview after a locating ($p < 0.0001$) or packet drop-off ($p < 0.01$) visit. This suggests in-person conversations are particularly impactful for this group. When considering final refusal case outcomes, male beneficiaries are significantly more likely than female beneficiaries to end as a final refusal

after an in-person conversation ($p < 0.001$) and significantly less likely after a packet drop-off ($p < 0.01$). Compared with females, male beneficiaries were significantly less likely to end as final other after an in-person conversation visit and more likely to end as final other after a locating or packet drop-off visit ($p < 0.0001$).

6.3 Beneficiaries under 65 years of age

Age category was also considered when looking for significant differences across visit type and final outcomes. It is important to note that those under 65 are eligible for Medicare if they have received Social Security Disability benefits for 24 months or have certain disabling conditions. These eligibility criteria make this a unique population. Beneficiaries under 65 who had an in-person conversation with a field interviewer were significantly more likely to complete and less likely to end in a final other disposition ($p < 0.0001$) than beneficiaries in older age groups. Locating and packet outcome visits for beneficiaries under 65 were not as impactful in terms of improving interview completion or averting refusals as compared to older age groups.

7. Discussion

In summary, this analysis indicates in-person outreach can be an effective companion to phone-only data collection for a population of Medicare beneficiaries. These observations provide useful insights for researchers looking to understand the options available for mode of field interviewer outreach, particularly surveys that were exclusively administered in-person prior to the COVID-19 pandemic. For the MCBS, these results emphasize the benefits of combining both phone and in-person outreach in a future multimode strategy. While the lack of an experimental design limits our ability to isolate mode effects from other factors such as the pandemic or overall receptivity to survey participation, we believe the mode of outreach played a substantial role in the observed differences discussed here.

First, we found in-person conversations were the most effective visit type, as they were more likely than packet drop-off or locating visits to result in interview completion overall and across several demographic groups. While in-person conversations were also more likely than the other visit types to result in final refusals, it provides an efficient resolution and allows field interviewers to focus on more fruitful outreach. Packet drop-offs proved to be a beneficial option if an in-person conversation could not be conducted. These visits were also significantly more likely than other visit types to result in interview completion, which suggests this gaining cooperation approach is also useful. As field interviewers cannot anticipate in-person visit type in advance, leaving materials in the form of a packet drop-off provides a viable option for beneficiaries unavailable at the time of the visit.

Second, in-person recruitment of all types increased the likelihood of completing an interview. Using propensity score matching, we were able to measure the impact of in-person gaining cooperation visits, regardless of visit type, while controlling potential sources of bias due the method of selecting visit types. This analysis suggests these in-person visits result in a 7-percent increase in completion rate as compared to the completion rate for beneficiaries without an in-person visit. There are key limitations to consider for this approach. If there are unobservable characteristics that affect the likelihood of receiving in-person treatment, the selection bias may remain. Timing is also a factor, as results may have been different if in-person outreach was attempted at the beginning of the data collection period across all fresh cases. We attempted to minimize this by using several variables intended to capture some of the “soft” information that field interviewers have but is not as evident in the data about the receptiveness of the case to recruitment.

Third, we observed that in-person outreach was especially effective with Hispanic beneficiaries. These findings also suggest certain visit types may be more beneficial for specific demographic groups, as in-person conversations were especially effective for Hispanic beneficiaries, male beneficiaries, and those under 65. Visit type cannot be determined before outreach is made, but this does suggest in-person outreach may be especially useful for these populations, should in-person conversation be the result.

Overall, we view these results as a strategic opportunity. This analysis has shown the usefulness of pairing targeted in-person outreach with phone and mail outreach in a multi-mode, longitudinal survey of Medicare beneficiaries. This work can be applied to surveys with similar populations as well, even if they are cross-sectional rather than longitudinal. Across demographic groups and visit types, in-person outreach significantly increased the likelihood of a completed interview. Furthermore, findings suggest in-person outreach is also more likely to result in final refusals providing efficiency gains. The MCBS will continue to use in-person gaining cooperation visits, in tandem with other outreach modes, to maximize case completion and improve fielding efficiency.

Disclaimer

The opinions and views expressed in this work are those of the authors. No official endorsement by the Department of Health and Human Services or the Centers for Medicare & Medicaid Services is intended or should be inferred.

References

- Burton, J., Lynn, P., & Benzeval, M. (2020). How Understanding Society: The UK Household Longitudinal Study adapted to the COVID-19 pandemic. *Survey Research Methods*, 14(2), 235-239.
- Rosenbaum, Paul R.; Rubin, Donald B. (1983). "[The Central Role of the Propensity Score in Observational Studies for Causal Effects](#)". *Biometrika*.
- Stedman, R.C. et. al. (2019). The End of the (Research) World As We Know It? Understanding and Coping With Declining Response Rates to Mail Surveys. In J.Hill (Ed.), *Society & Natural Resources*. International Association for Society and Natural Resources.
- Davern M. et. al. (2010). Are lower response rates hazardous to your health survey? An analysis of three state telephone health surveys. *Health Serv Res* (pp. 1324-44). American Hospital Association.